

**University of New England**

**Greening the Wharfies: organisational  
learning for sustainability at Sydney  
Theatre Company**

Submitted by

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## **Abstract**

This thesis is an exploratory and explanatory study of organisational learning for sustainability at Sydney Theatre Company. The complex problem of sustainability relates to humankind's capacity to respond to the various environmental and social problems that we have created so that we can continue to live within the carrying capacity of the planet.

Sustainability in organisations is often couched in terms of the triple bottom line, wherein an organisation must sustain itself financially while minimising environmental impacts and ensuring the sustainability of staff and other human stakeholders. To achieve this requires an organisation to undertake learning processes that shift it towards embracing sustainable practices. That shift should be evident in changes in policies and procedures as well as the work practices of staff. However, the sustainability imperative affects all of the contexts we occupy and learning in the workplace could be relevant to those other contexts. This raises the possibility that learnings from an organisational setting might translate to the non-work contexts occupied by staff.

An examination of the literature revealed that organisational learning for sustainability is usually studied only at the level of the organisation. The nexus between personal and organisational learning had not been examined except in terms of drawing on theories of how people learn. This seemed to be an area worthy of exploration because it offered the possibility that an organisation could potentially influence the behaviour of staff in relation to sustainability in their non-work contexts.

Greening the Wharf at Sydney Theatre Company (STC) was an environmental sustainability project that appeared to be an example of successful organisational learning for sustainability as showcased on their [greeningthewharf.com](http://greeningthewharf.com) website. I undertook a single in-depth case study to explore if organisational learning for sustainability was evident; how that learning had unfolded over time; what organisational learning features were evident and how the personal and organisational learning intersected with each other.

I used the lens of complexity theory to explore the array of potential influences on the process and its impacts on staff. Using this conceptual framework, an organisation is a complex adaptive system that responds and adapts to its environment in ways that are difficult to predict due to the many sources of dynamic influence at play. Cause and effect relationships can be circular and difficult to identify. In such systems, small changes can lead to large outcomes or large changes may lead to outcomes that do not take hold. The individuals who work for an organisation come

with their own complex backgrounds that inform the way they interact with the organisation and each other. They hold their perspectives cognitively and express them verbally and non-verbally as they communicate. To appreciate the differences in individual perspectives, I was attentive to the language used during interviews, particularly what participant utterances revealed about the way they framed their experiences and the metaphors they used in describing their experiences.

In order to attain a deep and contextual understanding of the complexity of the Greening the Wharf project and its impacts beyond at STC, including its cognitive impacts on staff, I adopted an interpretivist/constructivist perspective with a grounded theory approach. I collected qualitative data from five sources – semi-structured interviews with staff, company documentation, press reports about STC, Greening the Wharf and relevant players over the period studied, photographs of STC and my own observations during site visits that I recorded in my research diary. I used MAXQDA 11.1.2 to support my data analysis and subsequent theorising.

The research found that organisational learning for sustainability had taken place at STC by applying the Sustainability Phase Model to the organisation and determining that it had attained the status of a sustaining organisation (Benn et al., 2014). The learning emerged through a process with multiple dynamic influences, some of which created key enabling conditions that contributed to the success of the project. This included the personal environmental commitments of key staff, a collaborative organisational culture, an inclusive leadership team and a fertile socio-political climate at the time the project began. The organisation's ongoing commitments to making environmental sustainability part of business as usual ensured the learning became part of the each staff member's work practices and that facilitated the emergence of organisational learning for sustainability.

The organisational learning that took place was characterised by a combination of double and single loop learning, underpinned by leadership that fostered learning that was distributed across the organisation to staff empowered to lead in their own learning at the team and individual level. The double loop learning occurred in response to the disruptive idea of greening theatre, something that STC had not considered previously. Once staff were convinced that it was an important thing to do, the first part of the project was characterised by the transformational metaphor of Greening the Wharf as theatre production and this allowed staff to engage in the project using skills and processes that were already familiar to them. Once the initial production of Greening the Wharf ended, STC continued its ecological sustainability journey, embedding behaviour change and continuing to seek improvements in organisational practices and processes. However, the success

within the workplace did not automatically impact of the behaviour of staff in other contexts such as their homes. That is, despite it being relevant to multiple contexts, the staff did not make the connection between the sustainability behaviours in the workplace and sustainability behaviours outside the workplace for the most part.

This exploratory and explanatory research has shown that taking a complexity theory perspective illuminated key sources of influence that were critical to the organisational learning for sustainability at STC which may have been missed had other conceptual approaches been used. It suggests that organisations attempting to become more ecologically sustainable may do well to attend to the human sustainability of their staff first, creating the right cultural conditions for such a change. It also suggests that an organisation might achieve learning that is more powerful if it finds ways to relate the new objective or vision for the organisation to existing work practices rather than trying to invent new practices. It also suggests that we cannot assume that learning in one context automatically transfers to other contexts.

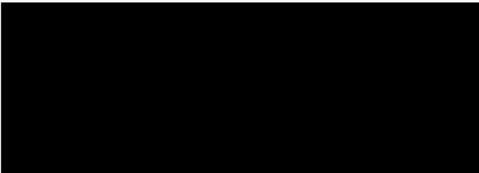
## Publications derived from this research study

- Dalton, V., Cooksey, R., & Hunter, J. (2015). Toward peak performance in management practice: Insights from the complexity, cognitive sciences and Cate Blanchett. Paper presented at the Australia New Zealand Academy of Management Conference, Queenstown, New Zealand.
- Dalton, V. (2017). *How important is shared vision to achieve a learning organisation?* Paper presented at the UNE Postgraduate Conference - Intersections of knowledge, University of New England, Armidale, Australia.
- Dalton, V., & Cooksey, R. (2017). *Organisational learning for sustainability- Greening the Wharf at Sydney Theatre Company*. Paper presented at the Australia New Zealand Academy of Management Conference, Melbourne, Australia.
- Dalton, V., & Cooksey, R. (2018). Becoming a Sustaining Organisation: Greening the Wharf at Sydney Theatre Company and its impacts. In R. Bathurst & G. Eweje (Eds.), *Clean, Green and Responsible? Soundings from Down Under*. Sydney: Australia, New Zealand Academy of Management.

## **Certification of Thesis**

I certify that the substance of this thesis has not already been submitted for any degree and is not currently submitted for any other degree.

I certify that any help received in preparing this thesis, and all sources used, have been acknowledged in this thesis.



September 2018

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I would like to thank Professor Alison Sheridan for encouraging and supporting my transition from general staff to an academic role while I was the Program Director for the Graduate School of Business in 2011.

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# Chapter 1. Introduction

## 1.1. Background to the research

“Zero to landfill for the sake of our children”

(Senge, Laur, Schiley, & Smith, 2008, p. 287).

I was inspired to conduct the research outlined in this thesis by the quote above. A chapter in Peter Senge et al's 2008, *The Necessary Revolution*, described the Xerox Corporation's transition to photocopying for the digital age in the 1990's. The project leader wanted a product designed for the environment. To help the engineers appreciate the importance of designing for the environment, they undertook a wilderness retreat for two days before they commenced planning the transition. On the last day, they went past a landfill and noticed a Xerox photocopier amidst the detritus. The engineers were struck by the despoiling of the natural world they had just developed a profound connection with and vowed that it should stop. The result was the vision statement above and a complete change of business model that brought with it a wave of creativity to find solutions within the constraint of realising that vision. The new model, based on a leasing system, required all machines to be returned and recycled that resulted in machines that were 93% re-manufacturable and 97% recyclable. The plant itself produced no waste to landfill. The juxtaposition of an industrial object sitting within a waste site after experiencing pristine wilderness was a powerful motivator for the engineers at Xerox and an inspiring example of how an organisation can become more sustainable. That juxtaposition has come to represent, to me, a powerful metaphor about modernity and the impact of Enlightenment thinking and action on our world today.

The Enlightenment, a period of great philosophical, political and scientific development running from the 18<sup>th</sup> and 19<sup>th</sup> Century, predominantly in Europe, gave rise to the Age of Reason. Its benefits included the separation of church and state, the development of the scientific method and ideas such as individual freedom and autonomy. The Enlightenment established reason as the ideal mode of being and thinking and any form of thought seen to be in opposition to that ideal was characterised as unreasonable. White males of a certain class were reasonable but little else was, including those of the lower classes, women, those who were colonised by the major powers of the day, and the natural environment. Men of reason were to control all that was unreasonable. That included the natural environment which needed to be controlled and its power harnessed in their service. This attitude underpinned the first industrial revolution that ran over the same period,

transforming predominantly agrarian and rurally based societies to more industrial and urban. Over the subsequent period to the present, we have seen the creation and expansion of industries such as steel manufacturing, electricity generation powering the mass production of goods, characterised as the second industrial revolution. The third industrial revolution was the digital revolution, which has been with us since the 1980's, and our lives have become increasingly intertwined with digital technology. This intertwining and advances in digital technology are moving us into the fourth industrial revolution which will disrupt our lives yet again with machine learning, artificial intelligence, the internet of things and wearable technology (World Economic Forum, 2016). The global economy, underpinned by an economic rationalist ideology that promotes free markets and unending economic growth, powered by large multi-national corporations, has had profound impacts both environmentally and socially around the world.

Humans are integral to the earth's ecosystem. Since the first industrial revolution, humans have had an increased capacity to harness natural resources and thereby affect the earth's ecosystem. The increasing human ability to exploit nature has been accompanied by an increased capacity to damage it, both directly (pollutants) and indirectly (depletion of habitats and resources used by other organisms). Besides facilitating the development of complex and previously unimagined social arrangements and possibilities, industrial development has contributed to the evolution of economic systems, which affect and interconnect people across the world. Apart from affecting the way people think and see the world, technology contributes directly to bringing the world together through constantly improving international transport and telecommunication systems. This has enabled the formation of a vast array of lifestyles all interconnected by a global economic system. This system provides a means of economic exchange between people, as well as facilitating ongoing social interaction and knowledge transfer at various levels.

The drive for economic growth resulting from expanding human populations seeking improved standards of living constitutes a self-reinforcing system that seeks to extract more and more from the environment. The natural environment is treated as an unending asset we can plunder forever, an economic externality unworthy of being considered as a cost of doing business. It is a place to dump the refuse of our lives without regard to the long-term consequences, including the production of carbon dioxide at levels that have warmed the planet to dangerous levels (IPCC, 2013). Unless the efficiency of resource extraction and utilisation increases at a greater rate than the increasing rate of consumption, we will be living unsustainably. The realisation of the undesirability of this situation affects contemporary discourse and culture such that knowledge is

accumulating in a range of spheres (public, academic, government, and business) about what sustainability means, why it needs to be pursued urgently and how to engage in that pursuit.

When reflecting on the range of problems alluded to above, it is easy to become overwhelmed with the enormity of the issues we face but that requires us to recall the final part of the Xerox vision statement – “for the sake of our children”. Our children and future generations will bear a disproportionate cost for the damage that previous generations and ours have inflicted on the natural environment, a fact that Brundtland recognised in articulating one of the most famous definitions of sustainability in use today. The Brundtland report of 1987 defined sustainable development as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (Brundtland, 1987, p. 24). That is not to say that the issue of sustainability only came to prominence in the 1980’s. Alarms had been sounding about the impact of industrial activity on the natural environment from the inception of the first industrial revolution.

In *Principles of Political Economy*, originally published in 1848, John Stuart Mill argued that unlimited growth would result in environmental destruction and a lower quality of life for humanity (Mill & Ashley, 1973). In the 20<sup>th</sup> Century, the period after World War II saw the growth of an emerging environmental movement. Rachel Carson is often credited as being the catalyst for drawing attention to environmental unsustainability. Originally published in the 1950’s, her book *Silent Spring* drew attention to the unintended negative impacts of synthetic fertilisers, pesticides and herbicides on the natural environment and challenged the tacit acceptance of the inevitability of science leading to progress for humanity and the world (Carson, 1994). Another influential book, *The Population Bomb* (Ehrlich, 1968), raised public awareness of the dangers to a sustainable future of unchecked population growth.

The first edition of The Club of Rome’s book *Limits to Growth* was published in 1972. Based on computer simulations, the authors argued that continued growth in the global economy and population would exceed the carrying capacity of the earth in the 21st century creating a collapse in both (Meadows, Randers, & Meadows, 1974). They also argued we could avoid the collapse through changes in government policy, human behaviour and use of technology. In the same decade James Lovelock published *Gaia*, named after the Greek goddess who personified the earth. Lovelock proposed that the earth is a complex interactive system with living and non-living parts that should be conceived of as a single organism and argued that the biosphere regulates the environment on earth (Lovelock, 1979, 2009). He argued that human activity has disrupted Gaia’s

equilibrium and in subsequent publications, he has argued that we are now destroying her (Lovelock, 2007, 2009).

The first major intergovernmental conference on the environment was the United Nations (UN) Conference on the Human Environment, held in Stockholm in 1972, partly in response to the publication of *Limits to Growth*. The Conference led to the creation of the UN Environment Programme (UNEP), an organisation with a mandate to coordinate environmental actions within the United Nations system.

The 1974 World Council of Churches (WCC) held a conference in Bucharest, Romania, on Science and Technology for Human Development, which ended with a call for a “sustainable and just society” which is possibly the first time that the word sustainability was applied to the environment and society in general. A sustainable society would be one that prioritised food security, participatory decision-making, equitable distribution of scarce resources, lowered pollution levels and moving to the use of renewable resources. The WCC continued to explore this territory in 1976, making the search for a participatory, sustainable and just society a major theme of its work into the future. Its 1979 conference was covered the themes of faith, science and the future (Brown, 2015).

In 1980 the International Union for the Conservation for Nature (IUCN), which included the World Wildlife Fund and the UNEP produced the *World Conservation Strategy*. The Strategy discussed three linked definitions:

*Sustainable development: the integration of conservation and development to ensure that modifications to the planet do indeed secure the survival and well-being of all people.*

*Development: the modification of the biosphere and the application of human financial, living and non-living resources to satisfy human needs and improve the quality of human life (there is a recognition that development could be a threat if resources aren't effectively conserved).*

*Conservation: the management of human use of the biosphere so that it can yield the greatest sustainable benefit to present generations while maintaining its potential to meet the needs and aspirations of future generations. The earth's biosphere contains many life forms, which*

*interact to create an immensely complex system of ecological processes (ecosystem)* (IUCN, 1980).

The original 1972 United Nations Conference on the Human Environment made provision for future meetings to check on progress and make decisions on future issues including the commissioning of a report on our future at the 1983 UN World environment conference chaired by Norwegian Prime Minister, Gro Harlem Brundtland. During the period when the report was being developed, several disasters helped to crystallise the agenda being set, including the Bhopal toxic gas leak in 1984 and the explosion at the Chernobyl nuclear plant in Russia in 1986. Published In 1987 the Brundtland report, offered the aforementioned definition of sustainable development.

According to the UN's Sustainable Development Platform, there have been 12 conferences related to sustainability since 1990. Notably, the 1992 conference in Rio de Janeiro, Brazil, resulted in the *Rio Declaration on Environment and Development* and in an agreement known as *The United Nations Framework Convention on Climate Change (UNFCCC)*. That agreement was the precursor to the Kyoto Protocol and the Paris Agreement. Its objective was to "stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system" (UNFCCC, 1992, p. 9).

The framework set non-binding targets for greenhouse gas emissions for countries but without any means of enforcing them. This was followed by the Kyoto protocol in 1997 which established legally binding obligations on developed countries. The Paris Agreement in 2015, to which Australia is a signatory, aimed to govern emissions reduction programs through nationally determined commitments that should help achieve the target set in Cancun in 2010 to limit global warming to below two degrees Celsius. Meanwhile, the International Panel on Climate Change (IPCC) has been in operation since 1988, assessing climate change through an extensive team of climate scientists and reporting on the impacts of increasing global temperatures.

Seeing a role for business to contribute to the solutions as well as the problems, the UN Global Compact was announced in 1999. It set out ten principles for organisations to follow in the areas of human rights, labour, the environment, and anti-corruption. The compact brings UN agencies and companies together to work on solutions around those principles. This included contributing to the development of Millennium Development Goals which have now been superseded by the Sustainable Development Goals (SDGs), described as follows on their website:

*In September 2015, all 193 Member States of the United Nations adopted a plan for achieving a better future for all — laying out a path over the next 15 years to end extreme poverty, fight inequality and injustice, and protect our planet. At the heart of “Agenda 2030” are the 17 Sustainable Development Goals (SDGs) which clearly define the world we want — applying to all nations and leaving no one behind.*

*The new Global Goals result from a process that has been more inclusive than ever, with Governments involving business, civil society, and citizens from the outset. We are all in agreement on where the world needs to go. Fulfilling these ambitions will take an unprecedented effort by all sectors in society — and business has to play a very important role in the process (UNGC, 2015).*

In 2007, the UN launched the Principles for Responsible Management Education (PRME) having realised that if they wanted businesses and other organisations to adhere to the Global Compact they needed to educate students of management to that end. Questions have been raised about the role of business education and its apparent failure to educate socially responsible managers (e.g. Antonacopoulou, 2010; Bennis & O'Toole, 2005; Chia & Hold, 2008; Mintzberg, 2004). The six principles for responsible management education include purpose, values, method, research, partnership and dialogue, committing signatory institutions to developing a capacity in students to be generators of sustainable value for business and society. That capacity development is underpinned through curricula, pedagogical approaches and research into how corporations can create sustainable environmental, economic and social value. This is achieved by partnering with those corporations in building knowledge and sharing that knowledge with broader stakeholders including academic, corporate, government and non-government actors (UNPRME, 2017). In its tenth anniversary year in 2017, PRME set a goal to have signatory institutions embed the SDG's to 2030 into curricula.

What characterises the preceding history, is that it is global and governmental actors who are pushing information and guidelines, providing opportunities for businesses, educators, and other organisations to operate more sustainably. Ultimately, it requires collective behaviour change and that comes down to the action of individuals in all of the contexts they occupy, including their personal and organisational contexts. The Xerox vision statement that underpinned an innovative response to the challenge of environmental damage suggests that organisations can respond creatively to the insidious and worrying challenges we face. However, that requires a shift in how

we conceive of the role of management that has evolved as we have moved through the various industrial revolutions.

Professor Rita McGrath (2014) has characterised the evolution of management as having three eras that align with our industrial development, the first being the era of efficiency. Prior to the first industrial revolution, there was little management so to speak. The rise of industrialisation required owners to employ others who could assist with scaling up the means of production, that is, managers. The metaphor of the organisation as machine was born in this era. Workers were the cogs in the machine employed to ensure the execution of mass production and managers were the people who worked out how to maximise productivity through efficiency gains. Managers were the men of reason, rational actors who kept the workers under control through hierarchical chains of command. Theorists such as Frederick Taylor and Henry Gantt developed ideas that contributed to that efficiency (Gantt, 1919; Taylor, 1967). They suggested that processes be created that were unvarying and consistent so that production could be predictable. It was around this time that the first management schools opened, starting with the Wharton school in 1880, and with it evolving theories about management that lead to the next era, the era of expertise. We could say that the underpinning metaphor is organisation as expert.

Throughout the twentieth century, knowledge about management evolved through the work of theorists such as Max Weber, Mary Parker Follet and Chris Argyris and Donald Schon who drew on theories in other disciplines such as psychology and sociology (Argyris & Schon, 1978; Argyris & Schon, 1974; Fox & Urwick, 1940; Weber, 1947). There was also the importation of mathematical methods that contributed to management science and operations management research. But management specialist Peter Drucker observed that the value of an employee was not just in their capacity to execute tasks but by their use of information and developed the concept of the knowledge worker (Drucker, 1957). We could employ the metaphor of organisation as expert to describe it. In such an organisation, the value of an employee was in the corporate and process knowledge they held and carried with them. If they left the organisation they would take that knowledge with them, and some other person would need extensive training to replace them and that shifted the manager-subordinate relationship. No longer was command and control the order of the day. Motivation and engagement became more of a focus. The work of Herzberg and McClelland on motivation theories are representative of this (Herzberg, Mausner, & Synderman, 1959; McClelland, 1988). These further evolved with work on leadership and emotional intelligence (Goleman, 2004, 2006; Goleman & Boyatzis, 2008). This marked a shift to a new era;

one McGrath describes as the era of empathy (2014). We might characterise that using the metaphor of organisation as empath.

McGrath (2014) argues that organisations need to become places that create meaningful experiences for customers and their employees. She contends that there is widespread dissatisfaction with our institutions, many of which are still underpinned by the persistent organisation as machine metaphor. The idea that their purpose is the efficient exploitation of resources to produce goods and services that provide shareholder value at the expense of other stakeholders is tainted. She suggests that managers in the twenty-first century need to demonstrate empathy over execution and expertise. McGrath poses a challenge to theorists and practitioners to figure out how management might work in meeting that challenge including what structures and roles would make sense. In the era of empathy, we need to figure out what it would be like to manage when people work through networks instead of chains of command, where managers need to build communities for their employees, allowing emotional connections to be part of the work itself. This carries with it a very different perspective on the employees and managers alike and suggests a more holistic perspective on personhood than has previously characterised management theorising.

## **1.2. Significance of this research**

I extend McGrath's challenge of empathy to the issue of sustainability and to the role of organisations in contributing to it as set out by the UN's Global Compact (2014). Becoming more sustainable requires that organisations take an empathetic stance toward all human and non-human stakeholders because the sidelining of these stakeholders is a key reason why we have arrived at the dire social and environmental situation we are in. Empathy is the ability to tune into other people, being able to understand that person's reality, to walk in their shoes a while so that we can relate to them from their perspective rather than just our own (Goleman & Senge, 2014). Such empathy needs to extend to the environment in which those others live. The environment that sustains them and so they must sustain it. We must act on our empathy if it is to have any meaning. We are dealing with a wicked problem, defined by the Australian Public Service as

*... as an issue highly resistant to resolution. Tackling wicked problems is an evolving art. They require thinking that is capable of grasping the big picture, including the interrelationships among the full range of causal factors underlying them. They often require broader, more collaborative and innovative approaches (APS, 2012).*

The area of my research is on how organisations and the individuals within them respond to the challenge of becoming more sustainable. I wanted to understand the process by which an organisation could learn to be more sustainable without pre-empting how they have gone about it. If sustainability presents a wicked problem that requires a capability of grasping the big picture and examining interrelationships, then the research process had to be alert to the need to approach problems in that way. Organisations are embedded in physical, social, political, legal and cultural environments and are not immune to their influence. They have structures and modes of organising and communicating that are all interacting with each other and this impacts on organisational activity in ways that are complex and difficult to predict. Thus, I decided to explore an organisational learning process for sustainability through the lens of complexity theory.

While organisational learning theories have accounted for the multi-dimensional aspects (organisational, group, individual) of learning in organisations (Crossan, Lane, & White, 1999), the complexity perspective I am adopting adds the external environment as an additional element that might be a significant source of dynamic influence on organisational activities. Cooksey developed a model to account for the complex systems of dynamic influence around a focal activity such as organisational learning for sustainability. The systems of influence includes the external environment, organisational, group and individual influences (Cooksey, 2003). The range of influences interact with each other dynamically in ways that are difficult to predict but allow for a broad and deep examination of that activity.

The environmental influence includes the physical environment, government whose policies that may affect the organisation, other organisations and their influence as competitors or collaborators, legal issues, broader cultural issues and the influence of professional bodies. Organisational influences refer to the design and structure of an organisation. These include its infrastructure, culture, leadership, communication patterns, policies and procedures, and how they affect a given activity. Group influences include the dynamics at play among groups that operate within an organisation whether departmental, permanent workgroups or teams that come together to work on individual projects. How they interact with each other can influence the way an activity is undertaken. At the individual level, we have all of the influences that come to bear on each of the individual members of an organisation before they even start interacting with the organisation, its other members within its context. These include education, skills and abilities, values and attitudes, any psychological issues they may be dealing with, their family and cultural background among other things.

While Cooksey's (2003) complex systems of dynamic influence provide a rich set of lenses through which to view an organisation's activities, I wanted to be able to delve more deeply into what might be happening with each individual system in terms of their understanding of the process. Drawing on the work around frames and metaphors in organisations and in the language of participants provided a means to do that (Bolman & Deal, 2008; Lakoff, 2012; Landau, Meier, & Keefer, 2010). It allowed me to interrogate the data with an appreciation for the way in which individuals, groups and the organisation itself make sense of organisational activities.

### **1.3. Research problem**

Much of the blame for many of the social and environmental problems underpinning the sustainability crisis the world is facing is laid at the feet of corporations due to their unprecedented levels of wealth and global influence (Bakan, 2004; Benn, Dunphy, & Griffiths, 2014). However, that does not mean that other organisations get to ignore their own contribution to the problems we are facing. All organisations and individuals need to contribute to a more sustainable world. Organisations of all types, whether government departments, not-for-profits and for-profits, need to engage in a process of learning in order to shift from their existing practices to those that promote environmental stewardship and social sustainability. Staff individually and collectively need to examine existing processes and practices to identify how to engage them in ways that are more sustainable. This is complex because it requires the organisations appreciate their situatedness within broader social and ecological systems and account for their impacts on those systems, finding ways to minimise their negative impacts and promote positive impacts. It requires learning and behaviour change across the organisation.

There is a substantial body of literature on organisational learning, though a coherent single theory of organisational learning is yet to emerge (Crossan, Maurer, & White, 2011). Much less literature is written on the area of organisational learning for sustainability, specifically. Learning, wherever it takes place, occurs in the brains of the learners themselves but the process by which this happens is not examined in much of the literature on organisational learning. When learning relates to sustainability it has relevance in all of the contexts that individuals occupy. If learning takes place through an organisational initiative, does that learning naturally extend itself into those other contexts? For example, if the Xerox engineers had learned a great deal about recycling of materials would they take that knowledge and apply it at home? One would imagine that a vision like "zero to landfill for the sake of our children" would not stop having an impact once the worker left the plant.

The learning in organisations need not necessarily be driven by the top levels of management. Staff can bring their personal commitments and knowledge about sustainability to the workplace and try to exert influence on their workplaces. Alternatively, a group of staff might collectively come to an idea as in the case of the Xerox example where the engineers who went on that retreat came up with the idea, not the CEO and not the leader of the project. The only direction to the project leader was to move Xerox into the digital age. His decision to take the engineers on a wilderness retreat was epoch changing for the business model, but it was the engineers who created that vision statement as a result of that retreat. This suggests that learning opportunities can come from anywhere in an organisation and we should not assume that it is always top down. It shows that sources of influence can come from interactions with the external environment as in the inspiration provided by the retreat. Xerox were able to take a blank slate approach to redesigning their business model but that is unrealistic for most organisations. Most will have to grapple with their own structures and culture in trying to learn to be more sustainable and attend to the individuals and groups working within that structure.

This is likely to be a dynamic and idiosyncratic process for individual organisations and I became curious about how such a process might unfold. As organisations change their practices and policies to embrace sustainability, staff will be learning how to behave more sustainably within the work context but the learning may be relevant to other contexts. For example, learning about energy efficient lighting in the workplace is also relevant to the home context. This begs the question of how the organisational learning process affects their member's behaviour outside of the organisation. If an organisation can be a source of positive influence on the sustainability behaviour of its members through an organisational learning process it suggests that there is significant potential for organisations to be key agents of change towards a more sustainable future.

I argue that to have an impact like that would have to start with a very successful organisational learning for sustainability process deeply embedded into the organisational culture. The purpose of this research was to investigate what appeared to be a successful project in organisational learning for sustainability. I wanted to examine how it had unfolded; how well embedded it had become in organisational culture as evidenced by behaviour change in the workplace; how it was influenced by individual members of the organisation; and how it influenced individual members beyond the work context as evidenced by reported behaviour changes outside of the workplace.

## 1.4. Research Process

Investigating the complex unfolding of an organisation learning for sustainability and the impacts on staff at the cognitive level requires an interpretive approach that allows the natural voices of the participants to speak. This requires an empathetic stance towards the research participants by the researcher. This research project investigated the Greening the Wharf project at Sydney Theatre Company (STC) as an example of organisational learning for sustainability. STC is one of Australia's premiere theatre companies, having been established in 1984. It is housed in a heritage listed finger wharf building on Walsh Bay, Sydney Harbour. At the time of the research it had around 100 permanent staff but worked extensively with freelance staff in producing its plays. STC produces around sixteen plays per year. The overarching question I wanted to explore was 'how did STC learn to become more sustainable and what were the behavioural impacts on its staff'?

The research method employed was a single retrospective in-depth case study that allowed for a deep and broad exploration of Greening the Wharf. I conducted the research over three site visits in 2014. My primary data source was a series of interviews with twenty members of staff. They were in three groups: those involved in the implementation; those who lived through the project and could comment on the differences they observed from before and after the project formally wrapped up; and those who joined STC since the project formally wrapped up to assess how much it had become part of STC culture. Additional data included press articles related to the project over the relevant period, copies of company reports, a small number of internal documents released to me, a small number of photographs taken during site visits and government websites. I also kept a research diary for recording my reflections throughout the research journey to ensure I was checking my assumptions and noting any insights or questions that came to me over the course of it.

Data were analysed using a constructivist grounded theory approach where the data drove any theory that was developed. I undertook the analysis using MAXQDA 11.1.2. The data analysis process helped me to gain an understanding of all of the sources of dynamic influence that enabled and constrained the project and to identify critical enabling conditions and feedback that contributed to the project's success. It also allowed me to gain access to how staff framed the project and its impacts on them, providing a very rich picture of the organisational learning as evidenced by changes in behaviour in the workplace. It also facilitated my exploration of the dynamic interplay between personal and organisational learning as it related to the project.

## 1.5. Outline of the thesis

This thesis will proceed as follows. Chapter 2 will examine the extant literature as it relates to sustainability applied to organisations, and in particular the triple bottom line approach. It will examine the role of metaphors and frames for understanding organisations and the people within them. It will then look at organisational culture, personal and organisational learning and organisational learning for sustainability.

Chapter 3 will explore the conceptual framework I employ in analysing the data. It will first explore complexity theories and their application to organisational contexts. In particular, it will draw on Cooksey's complex systems of dynamic influence (2003) as a framework for examining Greening the Wharf at STC. The model allows the focal activity of Greening the Wharf to be examined through multiple lens of influences including the external environment and the multiple levels in the organisation that can influence learning – the organisation, group level and individual levels. I examine the feedback between those levels to identify key enabling conditions and constraints. At each level I will be attentive to any frames and metaphors that emerge from the data to assist in understanding the project and its impacts on the organisation.

Chapter 4 will discuss the research process, which uses the conceptual framework developed in Chapter 3. I take a critical realist ontological and epistemological approach wherein, I assume that humans inhabit the same physical reality (world out there) but that they experience it subjectively through their central nervous system and inter-subjectively through their interactions with others. That perspective suggests that the way that social phenomena are accomplished are changed and revised through social interactions as individuals share their subjective experiences. To appreciate how they understand those experiences requires attending to how participants describe them, allowing them to share their expressions as naturalistically as possible. The researcher's role is not to force how the research participants interpret their experience but to allow them to express their experience in their own words. The researcher's role is to then interpret those experiences and look for what is common and what is unique in those, all the while respecting the differences in individual experience and reportage.

Chapter 5 will be a first dive into the data, contextualising the researcher's journey into the data first. Then, it will lay out the Greening the Wharf journey chronologically over the period from its inception in late 2007 to when the data was gathered in early 2014. It will then explore the perceptions of the STC staff interviewed about sustainability and the Greening the Wharf project.

Finally, it will explore the behaviour changes engaged in by staff in the workplace and at home before and after Greening the Wharf.

Chapter 6 takes a deeper dive into the analysis of Greening the Wharf. First, it assesses the success of the project by applying the Benn et al. (2014) Sustainability Phase Model to STC to ascertain its level of commitment to sustainability. Then it explores how the organisational learning for sustainability at STC unfolded through Greening the Wharf. To ensure that I examined all the potential sources of influence on the project, I apply Cooksey's complex systems of dynamic influence framework (2003). Dynamic influences from the environment, within the organisation, interpersonal and individual levels are examined I explore the interplay between them. That will afford the opportunity to identify which of the potential organisational learning features identified in Chapters 2 and 3 were evident through this particular project. Finally, I examine the nexus between organisational learning and personal learning for sustainability as it pertained to this project.

Chapter 7 will conclude the thesis by drawing conclusions from the findings, assessing the implications of those conclusions for management theory, for methodology, for practice and for management education and development. Finally, I will discuss the limitations of this research and future research directions suggested by them.

## **1.6. Summary**

This chapter has established the background to this research, discussed the significance of this research project. It has articulated the research problem under investigation and summarised the research process undertaken. Finally, a brief overview of each chapter of the remainder of this thesis has provided a map of the journey ahead.

## Chapter 2. Literature Review

### 2.1. Introduction

This chapter canvasses the literature that relates to sustainability adoption in organisations, the role of organisational culture, theories of organisational learning and theories of organisational learning for sustainability. The chapter will unfold as follows:

- 2.2. Organisational sustainability
- 2.3. Metaphors and frames
- 2.4. Organisational culture
- 2.5. Individual learning
- 2.6. Organisational learning
- 2.7. Conclusion

### 2.2. Organisational sustainability

A great deal of literature followed the publication of *Our Common Future* (Brundtland, 1987) on how organisations might respond to the challenge of contributing to sustainable development (e.g. Aras & Crowther, 2009; Benn et al., 2014; Elkington, 1998; Metcalf & Benn, 2012; Shrivastava, 2008). However, achieving a clear definition of sustainability has been fraught because so many dimensions are at play- the ecological environment, societies, levels of national development, economies, organisations and individuals. The Brundtland definition draws attention to three aspects of sustainable development: environmental protection, social equity and economic growth (Aras & Crowther, 2009). Various theorists have captured this three-pronged approach in slightly varying ways.

The three-pronged approach was popularised in the phrase coined by John Elkington in *Cannibals with Forks: the Triple Bottom Line of 21st Century Business* (Elkington, 1998). He argued for a triple bottom line, meaning that business needed to extend its goals beyond being a producer of economic value to include environmental quality and social justice. In Elkington's terms the economic bottom line should be understood as "a company's profit figure used as the earnings figure in the earnings-per-share statement, part of standard accounting practice" (Elkington, 1998, p. 74). Much has been written about the triple bottom line over the 20 years since Elkington's book

but all have the focus on expanding and elaborating the concept. What has emerged is support for the idea that sustainable development must be development that increases three types of capital simultaneously – economic, environmental and social (Demacarty, 2009).

Economic capital comprises the tangible assets of an organisation – physical (machinery/buildings), financial, human and intellectual (Elkington, 1998, Dyllick & Hockerts, 2002, Laasch & Conaway, 2015). Environmental capital or natural capital refers to relates to the amount of renewable and non-renewable resources which include material inputs from the environment but also non-material services that the natural world provides to all species (Laasch & Conaway, 2015). There are two forms of natural capital, critical and replaceable (Elkington, 1998). The former is the natural capital that is essential to maintaining life, the second can be renewed through regrowth or breeding or repaired or perhaps substituted (e.g. fossil fuels for renewables). Organisations need to consider what forms of natural capital are impacted by their activities – as most ecosystems have variable carrying capacities the bottom line will vary over time as well (Elkington, 1998).

Elkington suggested that the environmental bottom line has a shorter history than the social justice aspect if you consider examples such as the movement to abolish slavery, labour rights and working conditions (1998). Social capital relates to the value of human beings themselves. It can comprise human capital which describes skills and knowledge and well-being but it can also extended to broader social capital built collectively as humans interact with each other (Laasch & Conaway, 2015). An organisation's relationship with its external stakeholders is important in contributing to its long-term sustainability, where trust is key. That idea of trust is an important form of social capital because it extends more broadly to societies as well. The issue of inter-generational equity is a critical issue for sustainability and is built into the Brundtland's (1987) idea of sustainable development which specifically mentions the need to ensure that future generations can meet their needs and has been emphasised as key aspect of conceptualising the three aspects of sustainability (see Lozano, 2008). Further aspects of social sustainability include poverty alleviation, population stabilisation, upholding human rights and creating employment. In Western countries, it extends to job satisfaction and work-life balance issues and organisations actively engaging in community activities and perhaps encouraging employees to participate in those activities within work time (Benn et al., 2014).

To bring the three forms of capital into the context of the triple bottom line in organisations, Dyllick and Hockerts (2002) argued that an economically sustainable organisation is one that

guarantees that it has sufficient cash flow to ensure liquidity while also producing an above average return to shareholders. An ecologically sustainable organisation would only consume resources at a rate below the natural replenishment or below the rate of the development of alternatives. It would not cause emissions higher than the capacity of the environment to absorb them and would not engage in practices that lead to the degradation of ecosystems. Finally, a socially sustainable organisation would add value to the communities in which it operates through increasing the human capital of partners and furthering the societal capital of the community. However, this does not address social sustainability within the organisation, which is, ensuring the sustainability of the workforce through work practices and policies. Benn et al. (2014) specifically address this element by including human resource practices that ensure the ongoing development of staff, maintaining a safe working environment and encouraging work-life balance. The two aspects of human sustainability can be characterised as "development and fulfillment of the needs or wellbeing of both employees and community-based stakeholders" (Angus-Leppan, Benn, & Young, 2010).

Lozano (2012) defined corporate sustainability as 'Corporate activities that proactively seek to contribute to sustainability equilibria, including the economic, environmental, and social dimensions of today, as well as their inter-relations within and throughout the time dimension (i.e. the short-, long-, and longer term), while addressing the company's systems, i.e. Operations and production, Management and strategy, Organisational systems, Procurement and marketing, and Assessment and communication; as well as with its stakeholders' (pp. 167-169). Another approach to sustainability offered by The Natural Step explains that:

*...in a sustainable society, nature is not subject to systematically increasing concentrations of substances from the earth's crust (such as fossil CO<sub>2</sub> and heavy metals); concentrations of substances produced by society (such as antibiotics and endocrine disruptors); degradation by physical means (such as deforestation and draining of groundwater tables); and in that society, there are no structural obstacles to people's health, influence, competence, impartiality and meaning (Natrass & Altomare, 2016, p. 2146).*

The economic definitions offered above tend to assume that the target organisations are corporations and while this is not surprising given the negative impacts that corporations have had on ecologies and societies (e.g. Bakan, 2004, Benn et al., 2014), I argue that all organisations have

to take action on sustainability issues. In recent years, some distinct definitions of organisational sustainability that are distinct from corporate sustainability have been offered (for example, see Lozano, 2018) but the field of research in that space is very nascent. My working definition for this research draws on the aforementioned literature but does not assume profitability or shareholder return are part of the economic viability of the organisation, so that it can capture any organisation type. To operate sustainably an organisation must:

1. Ensure its ongoing financial viability; while
2. ensuring that it extracts no more from the ecological environment than can be replaced all along its supply chain, by minimising its carbon footprint, minimising waste to landfill; and,
3. engaging in management practices that promote the development and well-being of both employees and community-based stakeholders.

Tracking how organisations move towards sustainability across the triple bottom line has been captured in phase models to account for shifts over time. Kolk and Mauso (2002) chart the evolution of some of those models. The Sustainability Phase Model developed by Dunphy, Benn and Griffiths in their seminal work *Organisational Change for Corporate Sustainability* originally published in 2003, assesses organisations against two forms of sustainability – human and ecological, focussing on the two prongs of the triple bottom line that are most neglected. While the book and model focus on corporations, I argue that the model is equally useful for other types of organisation for the reasons explained above. Thus, I will use the term organisation rather than corporation when I refer to the model. The model identifies six stages that an organisation might move through as it becomes more sustainable – rejection, non-responsiveness, compliance, efficiency, strategic proactivity and sustaining (Benn et al., 2014). Organisations who are the lowest level (rejection) have a very instrumental perspective on both the ecological environment and their employees. Non-responders are often more ignorant of the need to be more sustainable on one or both dimensions. Compliance oriented organisations focus on the risks of non-compliance with legal and community standards. Efficiency focussed organisations see managing for the environment as a cost reduction to the organisation and human resources management as being about productivity gains. An organisation at the strategic proactivity level has identified sustainability as a source of competitive advantage.

Programs such as Sustainability Advantage run by the NSW State Government's Office of Environment and Heritage operate at this level by appealing to self-interest. Becoming sustainable creates efficiencies, thereby saving money and it provides opportunities for organisations to

market themselves as being good environmental citizens. The sixth level embraces the systemic aspects of sustainability and appreciates the embeddedness of organisational open systems with their environment and the key role that all organisations play in promoting sustainability. Sustaining organisations embrace human and environmental sustainability because it is the right thing to do and they value humanity and the environment for their own sake (Benn et al., 2014). Organisations can be operating at two different levels on the human and ecological dimensions. For example, they might have a very good environmental program but neglect the development of their staff.

The sustaining organisation is akin to what Dyllick and Muff have referred to as Business Sustainability (BST) 3.0 (2015).

*BST 3.0 firms see themselves as responsive citizens of society. Truly sustainable business shifts its perspective from seeking to minimize its negative impacts to understanding how it can create a significant positive impact in critical and relevant areas for society and the planet. BST 3.0 represents a very different strategic approach to business. It turns around the traditional “inside-out” approach used by business and applies an “outside-in” approach instead, much like social businesses do (p. 166).*

Achieving sustainability in human and ecological terms requires a cultural shift and fundamental changes in the way an organisation goes about its business. It requires learning processes across all aspects of the organisation. I will explore theories around organisational culture and learning later in the chapter. First, I want to establish a means by which to explore that territory by examining the role of metaphors and frames. They provide a rich way to consider organisational culture and learning in relation to sustainability.

### **2.3. Metaphors and frames**

There is a significant body of research that challenges the often tacit presupposition that people are rational actors but much of our management discourse is underpinned by that assumption. Research across a range of domains from psychology to neuroscience suggest that we support a view of human reasoning as being about 95% unconscious; that our cognition is metaphorical and frame based (Lakoff, 2012); that we need emotions to make decisions (Damasio, 1994, 2010); and that our brains are wired for empathy through our mirror neuron system (Gallese & Lakoff, 2005).

In organisational settings research has shown that workers automatically and often unconsciously imitate one another's behaviour and feeling through the operation of the mirror neuron system, allowing for vicarious learning; and it monitors and simulates the intentions and mental states of others around us, 'wiring' us to be attuned to others (Becker, Cropanzano, & Sanfey, 2011). Human mirror neuron system areas use grasping and contextual information to attempt the prediction of the intention of other people, so it is strongly linked to social competence, (Kaplan & Iacoboni, 2006) or emotional and social intelligence (Goleman, 2004, 2006). Neurological studies have also shown evidence that leaders who demonstrate an empathetic leadership style activate the mirror neuron system in those they lead (Boyatzis, 2011, Boyatzis & Jack, 2018).

Much of what we know is tacitly held, influenced by evolution and our socialisation (Lakoff, 2012). Thinking and reasoning are not disembodied or abstract and the results of our thinking do not fit the world as it is. We apprehend it subjectively through our embodied and social experiences motor-sensory experiences and map it accordingly using frames and metaphors (Gallese & Lakoff, 2005; Lakoff, 2012). They are neural mappings between conceptual domains that arise out of our embodied experiences in the world and our social interactions at the individual, group, organisational and cultural levels, becoming more sophisticated as we mature from childhood into adulthood (Feldman, 2006; Gallese & Lakoff, 2005; Gibbs, 2006; Lakoff, 2012; Landau et al., 2010). Metaphors map a new experience onto some existing experience. They can represent simple experiences such as an association between an emotion and the embodied experience that goes with it (e.g. "I was so angry, my blood was boiling") or they can be quite complex and map our frames on one conceptual domain to frames in another.

Frames, also known as schemas or mental models are ways of organising our experiences. They contain the ideas and assumptions that we carry in our head about particular situations. For Goffman "definitions of a situation are built up in accordance with principles of organisation which govern events – at least social ones – and our subjective involvement in them" (Goffman, 1975, pp. 10-11). Frames are the way in which people interpret their experiences, they can be held about any concept and they affect our cognition, memory and perception (Darity, 2008; Fillmore & Baker, 2009). They help us navigate the territory of our lives and as such are sometimes characterised as mental maps. This reminds us that the map is not the territory. It is a representation of that territory that may not be wholly accurate. Metaphors often map between different frames. The metaphor of organisation as machine links two frames, one for organisation and one for machine. The way an individual imagines those two concepts will depend on what is contained in

their frames for organisations and for machines. Metaphors and frames about the environment affect the way that people see issues such as climate change.

George Lakoff (2010) has argued that the framing of discourse on the environment has powerful effects on the way people experience and respond to the messages. He discusses the shift in the use of the term global warming to climate change, attributing it to a language advisor to the George W. Bush administration in the USA. The advisor argued for the shift in terminology because the term climate change is less frightening than global warming. The administration adopted the change in language, and it has become the dominant term in our public discourse. The more that frames are activated through their repetition in public discourse the more they can change public perceptions. This includes the perception of the threat posed by global warming/ climate change. As Lakoff points out, “‘climate’ had a nice connotation - more swaying palm trees and less flooded out coastal cities. ‘Change’ left out any human cause of the change. Climate just changed. No one to blame” (Lakoff, 2010, p. 71). The economic metaphor of the environment as externality demonstrates another important way that framing works. When we put a frame on something, we include certain things and exclude others in the process. The metaphor of the environment as externality excludes the ecological environment from the frame on what is worth accounting for or valuing economically.

Metaphors operate in all of the domains of our lives including the organisations we work in. The metaphors we employ for and about organisations establish differing perspectives and value propositions for their role as they relate to the environment and other stakeholders. The metaphor of the organisation as sustaining (Benn et al., 2014) versus the organisation as machine metaphor sets up very different perspectives or frames on how that organisation might operate in the world and the values that might underpin its operations. Organisational and management theorists have employed a variety of metaphors as a means of understanding organisations and management discourse.

A meta-analysis of metaphors employed by researchers and theorists in the period (1993-2003) found that the two dominant root metaphorical categories for conceptualising organisations were *machine* and *animate being* (Cornelissen, Kafouros, & Lock, 2005). The organisation as machine metaphor informed work by early management theorists and gave us concepts of design, control, capacity and efficiency. The second major category is *animate being* wherein organisations are living organisms, particularly humans. Organisations can be acting beings, creative beings or learning beings as is seen in the discourse on organisational learning. The metaphor of

organisational learning aligns the structure that is an organisation with a learning individual as though they are alike, as though an organisation can engage in mental activities of learning and then store and share the knowledge attained (Cornelissen, 2006). We can take this a step further to the metaphor of the learning organisation (Senge, 1990) which anthropomorphises the organisation into a learning individual as if it had a nervous system.

Another study explored metaphors actually employed by managers across 3 organisations, 2 European and one in the USA when describing their management practice (Latusek & Vlaar, 2015). It found three dominant groups of metaphors. The first were metaphors of drama and theatre seen particularly in descriptions of how managers interacted with clients they were selling something to. The manager develops their script or sales speech; they choose their costume or professional attire for the performance and then perform their script when they deliver the sales pitch. The second set of metaphors relates to playing games that describe the process of negotiation, with its own rules and etiquette and an objective of winning. The final set of metaphors relate to fighting battles and use many military metaphors. A manager might be described in terms of his or her military-like prowess, knowing when to engage or withdraw from a negotiation and knowing which battles to choose in business relations. This brings to mind a metaphor discussed in Lakoff and Johnson's original *Metaphors we Live by* (1980) – argument is war. When an argument or other disagreement is characterised this way, it is imbued with a different set of characteristics, and carries a different emotional weight, than if it was described as argument is a dance. As a dance, the word argument carries less aggression and suggests ideas as steps between the two dancers as they move towards a congruence of movement.

We can see from the preceding discussion that the metaphors we employ impact on how we conceive the concept or idea we are considering. In attending to metaphors and frames about the environment or sustainability, we can get a sense of the attitudes that underpin them. Jermier and Forbes (2016) attempt the task of generating new images of environmental sustainability, exploring how metaphors might facilitate a deeper reflection around the issue of water. They argue that if we use a metaphor of organisation as instruments of domination, for example, we would assume that an organisation would want to keep total control over its water supply or exploit the resource purely for their own interest. If we use a metaphor of organisation as spheres of conviviality, we might assume that organisations are true partners with all of society and environment working towards a holistic balance (Jermier & Forbes, 2016).

Avery and Bergsteiner’s metaphors of honeybee and locust leadership draw on the behaviour of these two insect species in describing sustainable and unsustainable organisations (2010). Honeybee leadership is sophisticated, stakeholder-oriented, social and sharing. Locust leaders are tough, ruthless, asocial, and seek profit-at-any-cost. Table 2.1 captures how leading an organisation underpinned by each metaphor impacts on how the organisation operates.

In *Reframing Organisations*, Bolman and Deal (2008) have drawn on work across a diverse range of literature in the social sciences to develop a framework that provides four perspectives or frames on how organisations work. These frames draw on four metaphors for organisations: organisations as factories, families, jungles and temples or carnivals, each offering a different set of underpinning assumptions about organisational life. Refer to Table 2.2 for a summary.

The various approaches offered by Bolman and Deal’s (2008) model provide managers with different frames to use in solving organisational issues. The structural approach focuses on the design of the organisation; the human resource frame emphasises developing an understanding of human relationships; the political frame sees organisations as competitive spaces with scarce resources and struggles for power; and, the symbolic frame places a focus on rituals and meaning, storytelling and culture at the centre of organisational life. They argue that successful managers reframe whether consciously or intuitively until they have an understanding of whatever issue they are dealing with. Multi-frame thinking encourages imagination rather than rigidity.

**Table 2-1 Leader as honeybee or locust metaphors and their impacts on organisations**

Leadership elements	Honeybee metaphor	Locust metaphor
<b>Foundation practices</b>		
Developing People	Develops everyone continuously	Develops people selectively
Labour relations	Seeks cooperation	Acts antagonistically
Retaining staff	Values long tenure at all levels	Accepts high staff turnover
Succession planning	Promotes from within wherever possible	Appoints from outside wherever possible
Valuing staff	Is concerned about employees’ welfare	Treats people as interchangeable and a cost
CEO and the top team	CEO works as a top team member or speaker	CEO is decision-maker hero
Ethical Behaviour	‘doing the right thing’ as an explicit value	Ambivalent, negotiable, an assessment risk
Long or short-term perspective	Prefers the long term over the short term	Short-term profits and growth prevail

Leadership elements	Honeybee metaphor	Locust metaphor
<b>Foundation practices</b>		
Organisational Change	Change is an evolving and considered process	Change is fast adjustment, volatile, can be ad hoc
Financial markets orientation	Seeks maximum independence from others	Follows its masters' will, often slavishly
Responsibility for environment	Protects the environment	Is prepared to exploit the environment
Social Responsibility (CSR)	Values people in the community	Exploits people and the community
Stakeholder consideration	Everyone matters	Only shareholders matter
Vision's role in the business	Shared view of future is an essential strategic tool	The future does not necessarily drive the business
<b>Higher-level practices</b>		
Decision-making	Is consensual and devolved	Is primarily manager-centred
Self-management	Staff are mostly self-managing	Managers manage
Team orientation	Teams are extensive and empowered	Teams are limited and manager-centred
Culture	Fosters an enabling, widely shared culture	Culture is weak except for a focus on short-term results
Knowledge-sharing and retention	Spreads throughout the organisation	Limits knowledge to a few 'gatekeepers.'
Trust	High trust through relationships and goodwill	Control and monitoring compensate for low trust
<b>Key performance drivers</b>		
Innovation	Strong, systemic, strategic innovation evident at all levels	Innovation is limited and selective; buys in expertise
Staff engagement	Values emotionally committed staff and the resulting commitment	Financial rewards suffice as motivators
Quality	Is embedded in the culture	Is a matter of control

(Source: Avery & Bergsteiner, 2010, pp. 36-37)

**Table 2-2 The four-frame model**

	Structural	Human Resource	Political	Symbolic
<b>Metaphor for organisation</b>	Factory or machine	Family	Jungle	Carnival, temple, theatre
<b>Central concepts</b>	Rules, roles, goals, policies, technology, environment	Needs, skills, relationships	Power, conflict, competition, organisational policies	Culture, meaning, metaphor, ritual, ceremony, stories, heroes
<b>Image of leadership</b>	Social architecture	Empowerment	Advocacy	Inspiration

	<b>Structural</b>	<b>Human Resource</b>	<b>Political</b>	<b>Symbolic</b>
<b>Basic leadership challenge</b>	Attune structure to task, technology, environment	Align organisational and human needs	Develop an agenda and power base	Create faith, beauty, meaning
<b>Organisation ethic</b>	Excellence	Caring	Justice	Faith
<b>Leadership Contribution</b>	Authorship	Love	Power	Significance

(Source: Bolman & Deal, 2008, p. 18)

Bolman and Deal offer a perspective on how managers think, comparing the rational-technical mindset, which emphasises control and the search for certainty, with an artistic mindset which encourages creativity, flexibility and interpretation. Art deals with emotion and ambiguity.

*An artist reframes the world so others can see new possibilities. Modern organisations often rely too much on engineering and too little on art in searching for quality, commitment, and creativity. Art is not a replacement for engineering but an enhancement. Artistic leaders and managers help us look beyond today's reality to new forms that release untapped individual energies and improve performance. The leader as artist relies on images as well as memos, poetry as well as policy, reflection as well as command, and reframing as well as refitting (Bolman & Deal, 2008, p. 21).*

Managers can add to their own tools for dealing with organisational issues by applying different perspectives, learning to appreciate their own frames and being open to trying new ones. Avery and Bergsteiner's (2010) approach to comparing locust and honeybee leadership contrasts the approach of organisations at either end of the sustainability phase model (Benn et al., 2014). Locust leadership characterises the approach taken by organisations at the rejection phase of the model but sustaining organisations require leadership informed by the honeybee metaphor. The evolution of metaphors of organisations, of managers, of leaders discussed in this section mirrors the evolution of management discourse across McGrath's (2014) three eras from efficiency to expertise to empathy. Sustaining organisations showing honeybee leadership characteristics epitomise empathy because they are concerned about the well-being of their employees, the ecological environment and community in which they operate rather than narrowly focussing on their own financial survival.

## 2.4. Organisational culture

Culture, often described as ‘the way we do things around here’ is the system of shared beliefs and values that develops within an organisation that guides the behaviour of its members (Schein, 1984). It is the tacit social order that has the potential to shape attitudes and behaviours in ways that are far-reaching and durable (Groysberg, Lee, Price, & Cheng, 2018). Bolman and Deal capture organisational culture in the symbolic frame because an organisation’s culture reveals itself through its symbols (2008).

These symbols can take many forms. There are myths that represent the story behind the launching of an organisation which in turn underpin the organisation’s values. The values represent what the organisation stands for, conveying a sense of identity but the values that count are those that are lived through the everyday experience of organisational members. An organisation’s vision turns its core sense of purpose into an image of its future, a shared fantasy of where it might go that compels staff into action in realising that vision (Bolman and Deal, 2008). There are also the heroes and heroines whose deeds or words embody organisational values and these are not always the leaders in the organisation. Heroes and heroines can emerge from across the organisation because they symbolise the organisation’s values. The stories told about the heroes and heroines, through organisational ceremonies and rituals, reinforce the culture (2008). The strength of the culture should come across to the visitor by the way staff communicate with each other and with customers.

Bolman and Deal’s framing of culture echoes Schein’s three level framework on organisational culture (1984). The first is at the level of artefacts, which are the observable structures and processes that a visitor might encounter when visiting an organisation. The second level is the espoused values, the things that the organisation and the individuals working there say are important (Schein, 1984). The third level is the underlying assumptions, which aligns with Bolman and Deal’s idea that the values that are lived day to day are those that count. These are the largely unconscious and taken for granted beliefs, perceptions, thoughts and emotions that underpin behaviour. This layer also generates the values and attitudes which in turn can have an influence on the artefacts (Schein, 1984).

Reviewing the extensive research in the field, Groysberg et al. (2018) identified four broadly accepted attributes of organisational culture that resonate with the discussion above. First, culture is shared - it is an inherently group phenomenon, residing in shared behaviours, values and assumptions that underpin the norms and expectations of that group. It is also pervasive because it permeates the entire organisation and manifests itself in collective behaviours, physical environments, visible symbols, stories, rituals and legends as well as less visible aspects such as unspoken assumptions. Cultures are also enduring, developing through key events in the collective life and learning of the organisation's members. An organisation's culture becomes reinforced because people are attracted to working in organisations that share similar characteristics with them and organisations are more likely to select members who fit their culture. Those who do not fit are more likely to leave. Finally, culture is implicit, operating below the level of conscious awareness but people are wired to recognise and respond to it instinctively (Groysberg et al., 2018). When it is aligned with leadership and strategy a strong culture can drive positive outcomes for an organisation (Groysberg et al., 2018).

## **2.5. Individual learning**

Before attempting to examine learning as it might happen within an organisational setting I need to explore how learning might happen at the level of the individual. Policies, procedures and knowledge management systems can capture and store learnings but an organisation is a socially constructed concept that has no capacity to learn as such. Only the people within those organisations can learn. There are many theories about individual learning but the most relevant for our purpose here is Kolb's (1984) the experiential learning model. His theory built on and integrated the work of key educational and developmental theorists - Lewin, Dewey, and Piaget.

Lewin's theories around action learning and laboratory training argued that learning, change and growth can be best facilitated by an integrated process that begins with experience in the moment, then data collection and observations about the experience (Bargal, 2014). After analysis and conclusions are drawn, they are fed back to the group for assimilation. Dewey's model of learning is similar to Lewin's, emphasising learning as a dialectic process that integrates experience and concepts, observations and action (Harkavey & Puckett, 2014). The impulses of experience gives ideas their moving force and ideas give direction to impulses. Postponement of immediate action is essential for achievement of purpose. Piaget's work suggests that the key to learning lies in the mutual interaction of the process of accommodation of concepts or schemas to experience in the world and the process of assimilation of events and experiences from the world into existing

concepts and schemas (Boden, 1994). Learning results from a balanced tension between the two processes.

The three approaches can be characterised by the following propositions, according to Kolb (1984).

- Learning is conceived as a process, not in terms of outcomes.
- Ideas are formed and reformed through experience.
- Learning is a continuous process grounded in experience.

All learning is a form of relearning. Every person enters every learning situation with more or less articulate ideas about whatever subject they are approaching – some ideas will be more crude or incorrect than others. It is the job of an educator to implant new ideas and dispose of or modify others. In some cases, new ideas will conflict with a learner's existing beliefs and theories. If beliefs and theories can be surfaced and tested against the new learning, then given the opportunity for integration, then learning is more likely to happen. The integration can be weak or strong. For Piaget, it can happen in one of two ways – substitution or integration. Integrated ideas become highly stable parts of a person's view of the world (Boden, 1994). However, if an idea changes by substitution there is the chance that the individual might revert to the old concept. Alternatively, the individual might end up with a dual theory of the world – one espoused and one that is really in use, the one that reflects the individual's actual view of the world. Argyris and Schon (1978) investigated this phenomenon in professional contexts and found that the dual theory form of learning was quite commonplace. I will examine their work in the next section.

The process of learning requires the resolution of conflicts between dialectically opposed modes of adaptation to the world and, as a consequence, it is a process full of tension and conflict. For Kolb, effective learners need four kinds of abilities.

1. Concrete Experience (CE) – a capacity to fully embrace experience.
2. Reflective Observation (RO) – a capacity to reflect on an experience from many sides.
3. Abstract Conceptualisation (AC) – an ability to create concepts to integrate observations.
4. Active Experimentation (AE) – an ability to use new theories to integrate observations.

Kolb's approach represents a holistic approach to learning that combines experience, perception, cognition and behaviour in a process of adaptation to the world. Some organisational learning researchers have drawn on the work of the individual learning theorists in constructing theories of organisational learning. Kim (1993) constructed a theoretical model of personal to organisational

learning that suggested that organisational learning occurred through the development of shared mental models. Lipshitz, Friedman, & Popper (2007) use Kolb's approach in their multi-facet model of organisational learning. They conceive of learning as a cyclical process involving the evaluation of past behaviour, the discovery of error or opportunity, the invention of new behaviours and their implementation (Lipshitz, Friedman, & Popper, 2007). In order for learning to be productive, it must produce intended organisational outcomes, though this can be difficult to establish in a direct causal relationship and the learning must result in organisational action based on valid knowledge. Knowledge is valid if it withstands critical evaluation. Knowledge must be meaningful to and inform the actions of organisation members (Lipshitz et al., 2007). These preliminary ideas lead us into the next section, which explores the development of theories of organisational learning and attempts to link learning at the personal level to learning at the organisational level.

## **2.6. Organisational learning**

Theories of organisational learning can be traced back to the post-war era of the 20th century to the work of Reg Revans and his team who were working on the action learning processes that contribute to organisational learning, leading to the idea of learning circles (Revans, 1998). In the late 1940's Juran and Deming's work on quality assurance in Japan led to the development of quality circles. In the 1960's Massachusetts Institute of Technology (MIT) developed the concept of systems thinking. In the 1970's the work of Argyris and Schon came to prominence with their cognitive focus in which they explored ideas on espoused theories and theories in use and the concepts of double and single loop learning. They characterised learning in organisations as the detection and correction of errors. The idea of a learning organisation came to prominence with Peter Senge's book *The Fifth Discipline*, published in 1990. Senge defines learning organisations as places "where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning how to learn together" (Senge, 1990, p. 3).

In saying that people expand their capacities ties the idea of organisational very tightly to the personal, indicating that the people in the organisation are the site of the learning. Any form of organisational learning is attributable to the single and collective learning that takes place within the organisation in response to its context and how well that enables the organisation to adapt and flourish. Any knowledge generated must also have a way of being codified, stored and updated.

Despite decades of research there is still no unified theory of organisational learning that can be applied to organisations (Crossan et al., 2011). The reasons for this include the different ontological (what it is for organisations to be) and epistemological positions (what it is for organisations to know) from which researchers start (Easterby-Smith, 1997). It also has been applied in different domains and had different points of focus such as information processing, product development and managerial cognitive limits (Crossan et al., 1999). However, over the years certain key contributions have emerged and certain features that might characterize organisational learning have become prominent in the literature. The editorial team of the journal of *Management Learning* identified seven major contributions to organisational learning theory (Easterby-Smith, Antonacopoulou, Simm, & Lyles, 2004). The seven contributions were the concepts of single and double loop learning; theories in use versus espoused theories; unlearning in response to destabilization in organisations as a key part of the learning process; the publication of *The Learning Organisation*, which drew systems thinking, single and double loop learning and defensive routines together; the introduction of a socio-cultural perspective as an assertion of the social aspect of learning in organisations; learning across boundaries as a strategic imperative for linking knowledge and learning for competitive advantage, that is organisations that learn faster will maintain that advantage. These show some overlap with a later meta-analysis of organisational learning literature from the mid-1970's to 2002 that identified the following critical factors in fostering organisational learning (Thomas & Allen, 2006). Table 2.3 captures each theme and its percentage of prominence in the reviewed literature.

If we were to take those themes together we can build an explanation of how organisational learning might take place. The following attempts to integrate those ideas. Starting at the level of the individual, each person is regarded as carrying around their own mental models of the world, their mental map of how things work and this includes their models of practices and people within the workplace (Johnson-Laird, 1983; Senge, 1990). Here, mental models should be read as synonymous with frames as discussed in 2.3. Conflict can arise when people's models around an issue differ but they do not realise that it is because of their mental models of the situation. Surfacing those models is very important to facilitating a genuine exploration of the issue at hand.

**Table 2-3 Emergent themes in organisational learning literature (Thomas & Allen, 2006, p. 132)**

Emergent theme	Agreement level
<i>The understanding of mental models is critical to develop an individual's learning</i>	65%
<i>Double loop /generative learning is fundamental to the creation of a learning organisation</i>	75%

Emergent theme	Agreement level
<i>The team is the critical unit for the organisation</i>	40%
<i>The organisation structure critically needs to promote informal networking and socialization</i>	40%
<i>Without leadership and shared vision individual and team learning will not create a LO</i>	30%
<i>A LO strategy is emergent</i>	35%
<i>A learning organisation captures and synthesises individual and team knowledge for the benefit of the entire organisation (implicit knowledge)</i> <i>Knowledge cannot be created without the individual and group (explicit knowledge)</i> <i>Technology is fundamental to the capture of organisation knowledge</i>	27.5% <sup>a</sup> <i>Note: a Aggregated figure across the themes</i>

Many staff in organisations are unaware that their mental models are just that. They assume their perspective is the truth and they advocate for it. If a staff member is challenged on their view they can often engage in defensive behavior where they try to hold their own position and win the argument (Argyris & Schon, 1978).

Managers going about normal practices within an organisation are usually only required to make minor adjustments in response to minor issues such as existing procedures not being followed properly. This might require an adjustment to the procedure or some training for the relevant staff. This is a form of learning known as single loop learning. When the organisation is challenged by some external threat to its existence it needs to robustly engage in questioning what it does and identify the assumptions underpinning their existing practices. This form of learning, known as double loop (generative) learning, is far more challenging and difficult to achieve (Argyris, 1999; Argyris & Schon, 1978).

Managers carry around a set of theories in use and a set of espoused theories (Argyris & Schon, 1978; Argyris & Schön, 1974). When asked to respond to such challenges it can be very difficult for managers to surface the mental models they carry around for how they do things and subject them to scrutiny and potential criticism. These mental models represent their theories in use, the frames and metaphors they hold about the world and their work. Rather than expose them to scrutiny some managers engage in defensive routines where they simply advocate their views without demonstrating their own reasoning. The underlying goal is to avoid embarrassment or win the argument (Argyris, 1999; Argyris & Schon, 2004). If a new perspective or initiative is presented it may receive espoused support by these managers but they will continue to behave in

ways that align with their theory in use and they may potentially undermine efforts to implement new ideas. In such a situation, learning will not take place.

Many meetings are characterized by this sort of behavior when what is needed is an open sharing of ideas in the search of creative solutions (Argyris, 1998). The collective intelligence of the team ends up operating below the capabilities of individual members, giving rise to skilled incompetence instead of building an intelligence greater than the sum of its parts (Senge, 1990). One of the reasons for this behavior is a lack of felt psychological safety among staff to be able to genuinely express their view without fear of ridicule or retribution (Garvin, Edmondson, & Gino, 2008; Lipshitz et al., 2007). It is important for the leadership and management of an organisation to facilitate a culture that provides that level of safety for staff to speak their minds (Lipshitz et al., 2007; Schein, 1984). Then, ideas can be explored through communication that achieves a balance between enquiry and advocacy (Argyris & Schon, 1978). Those are the kinds of behaviours that are more likely to lead to double loop learning which in turn facilitates the potential of building new shared mental models (Kim, 1993; Senge, 1990).

In a team environment, where people feel that psychological safety, issues can be explored in more open and collaborative ways and these facilitate double loop learning. If a solution is found through a learning process, the new knowledge has to become part of the mental models of the staff through a process of practice, training and development. Learning occurs across four levels according to Howell (1982). Staff can be unconscious of their own incompetence - they don't know what they don't know. They can be made aware that they are not competent at something and so they move to being consciously incompetent around something. If they are trained to develop competency they will initially become consciously competent, where practicing the skill or knowledge is very conscious and requires great effort (e.g. learning to drive for the first time); and then becoming unconsciously competent where the knowledge has become so embedded that the task or practice can be performed without thinking about it (Howell, 1982). The knowledge has integrated cognitively into the mental models or created a new mental model for the staff member. The knowledge has moved from being explicit to being tacit (Polanyi, 1966). If that knowledge is exercised frequently over a long period of time it can become so unconscious that we cannot retrieve the detail of how to perform the skill step by step (e.g. trying to teach someone how to drive a car by imparting knowledge you explicitly built as a teenager followed by years of practice). To paraphrase Polanyi, we know more than we can explain (1966).

In organisational practices it can be difficult to consider that there might be a better way to do something, and if a challenge to a practice arises because it has become less effective for various reasons, it may be challenging to get the staff member to try to surface those deep tacit mental models. As indicated previously, it will be important to create the space and psychological safety for staff to develop an appreciation of what is not working and surface and challenge their mental models so that new learning can happen. This can be very difficult when people have been in a role for a long time and have so much tacit knowledge held in their mental models that it is very difficult to surface it. We then circle back to the challenge of breaking down defensive routines.

Some learning comes from formal processes such as training courses. When information is explicit, the learning is a technical process of absorbing and interpreting that information and integrating it with existing knowledge (Easterby-Smith, Burgoyne, & Araujo, 1999). However, learning does not have to occur in formalized settings such as meetings or training courses. Often learning happens experientially ‘on the job’ as staff have to deal with issues and challenges that arise day to day (Kolb, 1984). This learning from experience aligns with action learning wherein employees are active participants in their own learning process and the learning is deepened if they can reflect on that learning process (Argyris & Schon, 1978). This form of learning has been shown to achieve better outcomes in the workplace than more passive forms of learning (Waddock & Lozano, 2013; Waddock & McIntosh, 2009). Other forms of learning from experience can occur through a reflective process as happens in after action reviews in the military or post project reviews where a military action or a project are examined by the participant teams to learn lessons from what went well and what did not, so that learning can be carried forward to the next action or project (Lipshitz et al., 2007). All of these forms of learning are social in that it happens in collaboration with other people in the organisation.

To help staff feel drawn towards the need for new learning, managers can try to build a shared vision, a compelling idea of where they want to be that creates stars for the organisation to steer its activities by (Marquardt, 2011; Senge, 1990). This is led by management, but to be effective, it requires buy-in from staff (Senge et al., 1999; Senge, Kleiner, Roberts, Ross, & Smith, 2009). There are different ways to develop a shared vision. For example, management can announce a vision that they have developed and try to sell it to staff, but a process of co-creating takes the approach that the best way to lead people into the future is to connect with them deeply in the present first (Senge et al., 1999; Senge et al., 2009). According to Kouzes and Posner (2009), you will only create shared visions when you listen very closely to others, appreciate their hopes, and attend to their needs and this requires a particular type of leadership.

The best leaders are able to bring their people into the future because they observe the human condition and connect people's personal aspirations to the organisation (Kouzes & Posner, 2009). Such leaders possess characteristics consistent with honeybee leadership as opposed to more traditional locust style leadership (Avery & Bergsteiner, 2010). That is, they seek cooperation with their staff, work to develop all staff continuously, and show concern for employee's welfare. They have a strong view that all stakeholders matter and are comfortable with devolved decisionmaking. This mode of behaviour resembles that required by the sustaining corporation (Benn et al., 2014) and is likely to encourage employees in their learning (Cooksey, 2003; Garvin et al., 2008; Senge, 1990). That learning often occurs in teams.

Team learning, according to Senge (1990) "is the process of aligning and developing the capacity of a team to create the results the members truly desire" (p. 236) which should align with the shared vision for the organisation. It requires a capacity for genuinely open dialogue in a psychologically safe environment and the avoidance of defensive routines. The objective is the best solution rather than one person winning the argument. Effective dialogue requires that participants suspend their assumptions, treat each other as colleagues and the dialogue must have a facilitator who is responsible for managing the context of the dialogue (Senge, 1990).

In some cases, learning occurs in specific team environments which can come from stable teams within organisations (Lipshitz et al., 2007; Senge, 1990; Senge et al., 2009). These groups flourish over time as members get to understand each other and the strengths each brings to the team. However, teams may also comprise members from across the organisation and perhaps external to the organisation to work on a specific project. This presents the challenge of a disparate group having to come together to achieve a goal despite not knowing each other or at least some members very well (Edmondson, 2012, 2013). When this process works well, Edmondson describes it as 'teaming'. Teaming is the result of a successful collaboration on a specific project such as developing new surgical procedures or new products and is characterised by a fluid network of interconnected people. It requires "everyone to remain vigilantly aware of other's needs, roles and perspectives" plus "affective (feeling) and cognitive (thinking) skills" which are enabled by distributed leadership" (Edmondson, 2012, p. 2).

Organisational leaders can develop a culture where teaming is the natural way for people to work and it requires three pillars – curiosity, passion and empathy (Edmondson, 2013). If people are curious they will engage with colleagues in enquiring about their knowledge in genuine dialogue without engaging in defensive behaviours. Passion will enthuse the process of meeting established

goals and drive people to push themselves. Empathy, as discussed in Chapter 1 is the capacity to step into someone else's shoes and try to see the world from their perspective, to seek an understanding of where they are coming from through engaging in genuine dialogue (Edmondson, 2013). This again provides the environmental conditions in which learning can occur through the development of shared mental models on an issue that can then be followed through with action, that action can be reflected on, and the mental models and actions that flow from them adjusted as needed.

A form of team learning that draws different groups together for specific projects occurs during theatre production processes. Ford (2008) undertook research in a theatre company in the USA. He observed that the learning that happens in a theatre production is action learning because theatre is “an integrative practice that combines the talents, expertise and skills of many artisans: directors, designers, actors, stage managers, technicians, administrators etc” (Ford, 2008, p. 130). Learning occurs on two levels – each individual takes responsibility to learn or perform the task they are required to but then they collaborate, sharing and incorporating others contributions through a reflective process of engagement that is iterative as they progress towards opening night. They are trying to find what works and what does not and adjusting as they go. The stage manager and production manager informally and formally work to bring all of the elements of the show together by maintaining communications between the various contributing departments and individuals and ensuring that everyone understands what is going on. This happens through daily face-to-face interactions. The director and designers meet regularly in parallel during the rehearsal process and the designer responds to what evolves over time. Weekly production meetings involving all contributors encourage reflective interaction to resolve issues and change what is not working. Production notes are posted to all team members, capturing the actions required from the meeting, providing the focus for the next week's experience.

The technical rehearsal brings all members of the cast and production team together to run the production on stage for the first time. All team members understand that the deadline for project delivery is unchangeable because opening night is already scheduled and advertised. Throughout the production process, team members reflect on and in action, improvise new solutions and keep synthesising the knowledge gained in each iteration of the process so that it can inform the next stage. The process calls for high levels of engagement and motivation among all team members, each of whom has a critical role to play. This production process is repeated with a slightly different group of individuals working together on productions over the course of the year. This is

an unusual organisation type but since it is the type of organisation under scrutiny in this research, those particular processes of team learning may be relevant (Ford, 2008).

In any organisational context, however, it is also important that the knowledge generated can be captured, synthesized and encoded through organisational practices, processes and knowledge management systems so that new organisational members can explicitly learn that knowledge (Marquardt, 2011; Thomas & Allen, 2006). This could be in sophisticated technology-based knowledge management systems or more simple policy and procedural documentation depending on the size of the organisation.

The previous discussion drawing from the meta-analyses indicated that learning in organisations involves individuals and groups working individually and together to achieve mundane and more novel outcomes. That learning requires facilitation by a supportive culture and leadership team and an organisational structure conducive to that learning. In other words, there are multiple levels implicated in organisational learning. Thomas and Allen's review notably omitted Crossan et al's 4I model, a framework that could account for the multi-level nature of organisational learning; the tension between seeking new learning and using what is already learned; the linking of levels through social and psychological processes; and the impact of cognition on action (Crossan et al., 1999). The 4I's are intuiting, interpretation, integration, and institutionalization and they operate over the levels of individual, group and organisation. The first two occur at the individual level and the second two occur at the group and organisational level. Intuiting involves the mental processes of the individual as they have experiences and identify a problem or an opportunity. An intuition will only affect others if the person shares that insight with colleagues so that they can collectively interpret the idea, or sense-make about it (Weick, 1995). Shared understanding is built during this phase and if it leads to actionable knowledge it can be institutionalized or embedded within organisational practice and knowledge management systems. The process iterates around the three levels.

What is also missing from Thomas and Allen's (2006) meta-analysis is the role for systems thinking which Senge described as the fifth discipline (1990). Systems thinking encourages the conception of the organisation as a system embedded within and interacting with other systems. Having a capacity to see the wood and the trees can be very useful to an organisation in engaging in some form of organisational activity, looking for possible connections and possible evidence of certain archetypal issues that can arise in systems. An organisation that is capable of learning must appreciate its own situatedness in larger systems and how it functions as a system of dynamic

interactions or else it might miss key insights and opportunities to respond to changes in the environment that may impact on it.

In any successful organisational learning one would expect to find at least some of the features outlined above but if an organisation is undertaking organisational learning specifically for sustainability it may present its own particular challenges. The next section will examine the literature that looks at how organisational learning can be deployed to promote sustainability in organisations.

### **2.6.1. Organisational learning for sustainability**

The issue of sustainability, whether an organisation is taking a purely environmental approach or an environmental and human approach is especially challenging because it impacts all aspects of organisational life. As corporations have been instrumental in creating many of the social and environmental problems we are facing (Bakan, 2004; Benn et al., 2014) there are questions about whether that form of organisation is fit for the purpose of operating beyond the imperative of returning value to shareholders to include the active valuing of the ecological and human stakeholders (Metcalf & Benn, 2012). Of course, not all organisations are corporations and not all for-profits are dealing with shareholders. However, the challenge will require any organisation to look at everything it does and learn how to do it more sustainably. Initiatives like the United Nations Sustainable Development Goals to 2030 which have been created collaboratively by the United Nations, governments, corporations, and non-profits point the way for the kinds of efforts that organisations need to engage in and the role that they can play in achieving those goals. However, taking those goals as a starting point may be too lofty an ambition and overwhelming for some. There are those who argue that the issue of climate change is so critical that organisations should at least tackle their carbon footprint as a priority before extending the endeavor to other issues (Smith, 2012) while others argue for the importance of focusing on the human and social environment as well (Pfeffer, 2010). The literature that specifically addresses organisational learning for sustainability is still rather minimal.

Lozano (2014) proposes a model that integrates several concepts combining creativity, the idea learning loops which articulate the extent to which assumptions are questioned and drawing on Doppelt's (2003) idea that learning can be adaptive, anticipatory and action based. Lozano argues that learning for sustainability needs consolidated learning processes that promote the exploration and reframing of existing concepts and model through creative processes such as playing and experimentation. Where that learning is applied to topics related to society it becomes associated

with civic learning. This is akin to social learning for sustainability which is described as bringing people different backgrounds together to creatively search for solutions to the problems facing society (see Siebenhuner, 2017 for an exploration). Lozano's (2014) model was also applied in a study using co-designing games through collaborative experimentation to work on societal challenges (Guggerell & Zuidema, 2016). Civic and social learning reach beyond the organisation in their focus and are beyond the focus of this research, though there are echoes of Edmondson's concept of teaming (2012) in their approaches. The following examines some studies more focussed at the level of organisations learning to become more sustainable.

In a study of ten organisations working towards sustainability Fenwick (2007) found that practices of social and environmental responsibility are developed and maintained through an emphasis on education carried out in distributed, localized and connected forms rather than through top-down initiatives and that the form of learning was multi-level. That is, the knowledge of environmental sustainability and its importance and benefits had to be communicated to all stakeholders, internal and external and then focusing on actively involving staff and stakeholders in changing everyday practices to meet the goal of environmental sustainability. It was important that a genuine commitment to sustainability was communicated to all levels of the organisation and that personal responsibility for taking action was also important. This latter point required the leadership of the organisation to model and communicate their commitment in everyday action and in encouraging staff to look at how to improve their own processes (Fenwick, 2007). Otherwise the process can be challenged by low stakeholder understanding and support, insufficient attention to cost-benefit analyses, a low focus by management, and a lack of strategy (Fenwick, 2007).

Haugh and Talwar explored how learning for sustainability took place in several large corporates, but in particular, Tata Chemicals for whom Talwar was the Corporate Social Responsibility Manager. They found that organisational learning for sustainability required a combination of technical, action and social learning and identified eight training and development tools that might prove useful for organisations. They sought an answer to the question of how corporations can enable employees to learn about sustainability and arrived at four key answers. The first was the importance of the learning being company-wide rather simply restricted to the management; second, that raising awareness should occur collaboratively across organisational functions; third, as staff build their knowledge and commitment to sustainability technical and action learning opportunities should be afforded to them to build experiential and explicit knowledge; and fourth, sustainability should be integrated into the organisations long-term learning strategy and opportunities for social learning should be encouraged to promote company knowledge in that area

(Haugh & Talwar, 2010). The paper discussed Tata's business excellence model, which has existed since 1984, and sets targets for emissions in Tata's top five companies and promotion of ethical practice. This included the development of its own sustainable development index and the establishment of a council for community initiatives to promote sustainability. While the work of Tata as explored in the paper seemed *prima facie* an example of good corporate practice for sustainability it was challenged by Banerjee (2011).

Banerjee criticised Haugh and Talwar's paper for its input rather than output driven focus (2011). He pointed to the dangers of not including information from the external environment when discussing organisational initiatives and provided examples of where the actual practices that Tata undertook in India failed to demonstrate a valuing of broader stakeholders. This belies their espoused commitments and included ongoing conflicts between Tata and indigenous communities over access to resources (Banerjee, 2011). He went on to argue that had the broader political economy been examined, those conflicts would have to have been addressed. By focusing purely on the intra-organisational activities Haugh and Talwar ignored the relationship between the organisation and its external environment.

Building on the aforementioned 4I framework (Crossan et al., 1999; Crossan et al., 2011), Benn, Edwards and Angus-Leppan (2013) studied the embedding of sustainability into practices and curriculum at several Australian Universities and found that there was great difficulty in institutionalizing interdisciplinary approaches within individual institutions due to a tension between exploratory learning processes and the embedding of learning into organisational procedures and rules. They suggested that using a Community of Practice approach might enable inter-organisational exploratory learning. However, they concluded in agreement with Banerjee (2011) that sustainability presents a far too complex task to be conceived of as occurring at the level of an organisation as a separate entity (Benn, Edwards, & Angus-Leppan, 2013).

The 4I model represents a multi-level approach to organisational learning within the organisational setting and allows for individual, group and organisational aspects to be addressed. However, like Haugh and Talwar's (2010) approach, it does not explicitly factor in the external environment which can impact on any organisational initiative in ways that are difficult to predict. If we conceive of organisations as being systems operating within broader systems we can perhaps account for those influences whilst also attending to the multi-level dimensions of learning within it. We can then explore the connections between all of those dimensions to develop a deeper understanding of how learning occurs in organisations.

There is another aspect of organisational learning for sustainability involving the individual learner that has not been explored in the literature reviewed. That is the impact of organisational learning for sustainability on an individual's behaviour outside of the work context and that is salient because sustainability impacts all contexts we exist in. Any opportunity to learn and engage in sustainable behaviours in one context has the potential to feed into other aspects of our lives. There is certainly a potential that sustainable behaviours learned in the workplace and new knowledge gained could inform new behaviours beyond the workplace. This raises the possibility of exploring the bidirectional impact of individual learning in relation to sustainability. Certain staff may have accrued knowledge about sustainability and have strong commitments to environmental and/or social sustainability and try to exert some influence on organisational commitments to sustainability. Conversely, staff who learn about sustainability in the context of their workplace may potentially take that learning and apply it in their non-work contexts.

## **2.7. Conclusion**

This chapter has canvassed the literature relevant to an investigation of organisational learning for sustainability. It examined sustainability as it is conceived of within organisational settings, and in particular, the various conceptions of the triple bottom line. It then canvassed organisational learning concepts and how they relate to organisational learning and organisational learning for sustainability, identifying key features that might characterise organisational learning. It identified gaps in the literature as it relates to the need to attend to the external environment as part of examining organisational learning; the lack of investigations that really attend to the connections and influences that might be at play between the environment, the organisation, the groups and individuals within them; and on the impact of individual learning on organisational learning for sustainability processes both in terms of individuals influencing organisational activities and organisational learning for sustainability activities influencing individuals.

The literature review identified gaps in some of the models that did not attend to important aspects of organisational learning for sustainability. The external environment that an organisation sits in needs to be considered as shown in Banerjee's (2011) critique of Haugh and Talwar (2010). Organisations are embedded in a physical environment, socio-political, legal and professional contexts that can affect and be affected by the organisation itself. Further, at the level of organisational members, we need to attend to their own learning and sense-making around organisational processes, and the potential ways that those individuals might influence organisational activities such as learning for sustainability. I wanted to be able to examine an

organisational learning for sustainability initiative in a way that allowed me to attend to all the dimensions that might have an influence. I also wanted to be able to attend to the connections and influences operating at and between those dimensions. I focus on establishing a conceptual framework to achieve that in Chapter 3.

# **Chapter 3. Conceptual framework and research questions**

## **3.1. Introduction**

Building from Chapter 2, this chapter establishes a framework through which to attend to the dynamic interplay between an organisation, the individuals and groups working within it and its external environment. The framework must also be sensitive to the different ways that the individuals in organisations learn and make sense of their lived experience within and beyond the workplace. This chapter explores complexity science, complexity science applied to organisational learning and establishes a conceptual framework for approaching my research questions that draws on that literature and the literature on frames and metaphors discussed in the previous chapter.

This chapter will proceed as follows:

- 3.2. Complexity science and organisational learning
- 3.3. Conceptual framework
- 3.4. Research questions
- 3.5. Conclusion

## **3.2. Complexity science and organisational learning**

Since the 1990's theorists have been examining the usefulness of using complexity theories as metaphors for understanding organisations (e.g. Cooksey, 2001, 2003; Cornelissen, 2006; Cornelissen et al., 2005; Espinosa & Porter, 2011; Lissack, 1997; Mitleton-Kelly, 2006, 2011, 2003; Palmberg, 2009; Putnik, 2009; Stacey, 2010; Stacey, Griffin, & Shaw, 2000). Complexity science seeks to understand how the parts of complex systems give rise to collective behaviour, how collective behaviour influences the system, how systems interact with their environment and how systems adapt. A complex system differs from a complicated system in that the parts of complex systems interact in ways that resist reduction to the sum of their parts. For example, an A380 AirBus is a complicated system because the aircraft can be disassembled and successfully reassembled as a functional A380. A complex system such as an ecosystem could not. In complex

systems, a detailed understanding of the individual components of a system might have limited utility because such understanding does not account for the multiple ways in which those components link to and influence each other through feedback (Cooksey, 2001).

Complexity builds and extends general systems theory by articulating additional characteristics of systems and emphasising their interrelationships and interdependence (Cooksey, 2001, 2003; Mitleton-Kelly, 2003). There are multiple complexity theories from disciplines as divergent as biology to computer science, but they share a number of features (Mitleton-Kelly, 2003; Stacey, 2010). Complex systems are non-linear, dynamic, non-predictive and emergent (Cooksey, 2001; Mitleton-Kelly, 2003; Stacey, 2010). Non-linearity means that the causal links in a system form something more complex than a single chain such as systems with feedback loops. A system may respond to the same input in different ways depending on their context or state, so they are nonpredictive. Behaviour in complex systems is emergent in that it arises from the relationships, interactions, and inter-dependencies between system components in ways that are spontaneous. The way in which these systems adapt and evolve share several features.

Complex systems adapt, evolve, and create new order (Mitleton-Kelly, 2003; Stacey et al., 2000). In human systems, they are comprised of individual agents interacting with each other according to their own evolved principles of local interaction, and no agent can determine the principles of other agents such that the dynamics at the local level produce a diversity of agent behaviour that gives rise to emergent global behaviour. The local behaviour of agents in social systems such as an organisation is constrained as well as enabled through their interactions because they are interdependent (Stacey, 2007, 2010). Enabling environments can be created through socio-cultural and technical conditions that facilitate learning and knowledge sharing rather than inhibiting them (Mitleton-Kelly, 2003). Complex systems have ways that exchange energy, matter or information with their environment and when those systems are pushed far from equilibrium, they are capable of creating new order (Mitleton-Kelly, 2006, 2003). Complex systems are sensitive to initial conditions – a small input may result in a huge output or nothing at all; cause and effect are ambiguous and not easily isolated. Thus, predictability with any real certainty is impossible (Cooksey, 2001).

Feedback in complex systems can be positive and destabilising or negative and stabilising. Negative feedback is akin to a thermostat in a room that monitors the temperature against a set level. When the temperature drops below or rises above that set level, the thermostat in a reverse cycle air conditioner introduces additional heat or cool to bring the system back to the equilibrium

of the systems set temperature (Cooksey, 2003). Positive feedback into systems is destabilising (for example, legislation that outlaws reverse cycle air-conditioning due to changes in government carbon emissions policy). This kind of feedback destabilises the system and requires a much more creative response. In that way, feedback links to learning opportunities and levels.

Cooksey (2003) argues that in organisations, negative feedback is an opportunity for single-loop learning to close gaps and retain the status quo. Double loop learning is required in response to positive feedback because it is threatening to the organisation, pushing it out of equilibrium. The double loop learning needs to question established norms and explore the potential of new forms of organisation. This characterisation of double loop learning captures another learning loop, that of triple loop learning which is described as some form of third order learning that requires a deeper level of learning and encourages the development of new concepts and frameworks as described by Lozano (2014). See Tosey et al, 2012 for a critical review of the concept. It can be innovative if choice is allowed but social systems can impose constraints that might stymie more innovative responses from agents (Mitleton-Kelly, 2003). In order for that kind of open investigation to be possible, there has to be an opportunity for exploring the space of possibilities and the generation of a variety of responses to organisational challenges (Mitleton-Kelly, 2006, 2003). In complexity terms, whatever strategic response is generated will only be optimal for the conditions in which the strategy emerges but if the conditions change the strategy may require adjustment (Mitleton-Kelly, 2006, 2003).

Complex behaviour arises from inter-relationships, interactions between elements in a system and with the environment in which that system sits. The behaviour of the group emerges from the collective interactions of all of the individual agents. In responding to their own local contexts, the parts of a complex system can contribute to the system as a whole, displaying emergent patterns at a collective level. They can create different types of hierarchies and relationships to achieve different goals (Cooksey, 2001, 2003; Mitleton-Kelly, 2006, 2003; Mitleton-Kelly & Ramalingam, 2011; Stacey, 2010). Self-organization happens when an emergent behaviour has the effect of changing the structure or creating a new one in the absence of some form of formal authority.

Cooksey argues for a holistic perspective on organisations and sensitivity to the varying sources of contextual influences operating at the macro level. These can be unpacked at the micro level into networks of mutually, ambiguously and complexly interacting considerations (Cooksey, 2001, 2003). Figure 3.1 captures those systems graphically. The larger macro systems are environment, organisation, groups, and individuals. Within each are the micro-systems of influence.

Environment relates to the physical environment, global influences, governments, legal institutions, markets, society and so forth. The organisation system of influences includes the structure, culture, history, resources and facilities, leadership and management. Groups are the set of influences that come from the formal and informal collectives of organisational members and those outside the organisation such as family, friends, and communities. Lastly, the individual system of influences relates to the internal state of each worker including their physical and psychological state, their values, needs and wants. Those values, needs and wants are expressed through the frames and metaphors that the individuals employ in describing them. The multiple levels demonstrate connectivity and interdependence and decisions in one area can impact on other areas as the system adapts and evolves (Mitleton-Kelly, 2003). In complex systems, a detailed understanding of the individual components of a system might have limited utility because such understanding does not account for the multiple ways in which those components link to and influence each other through feedback (Cooksey, 2001).

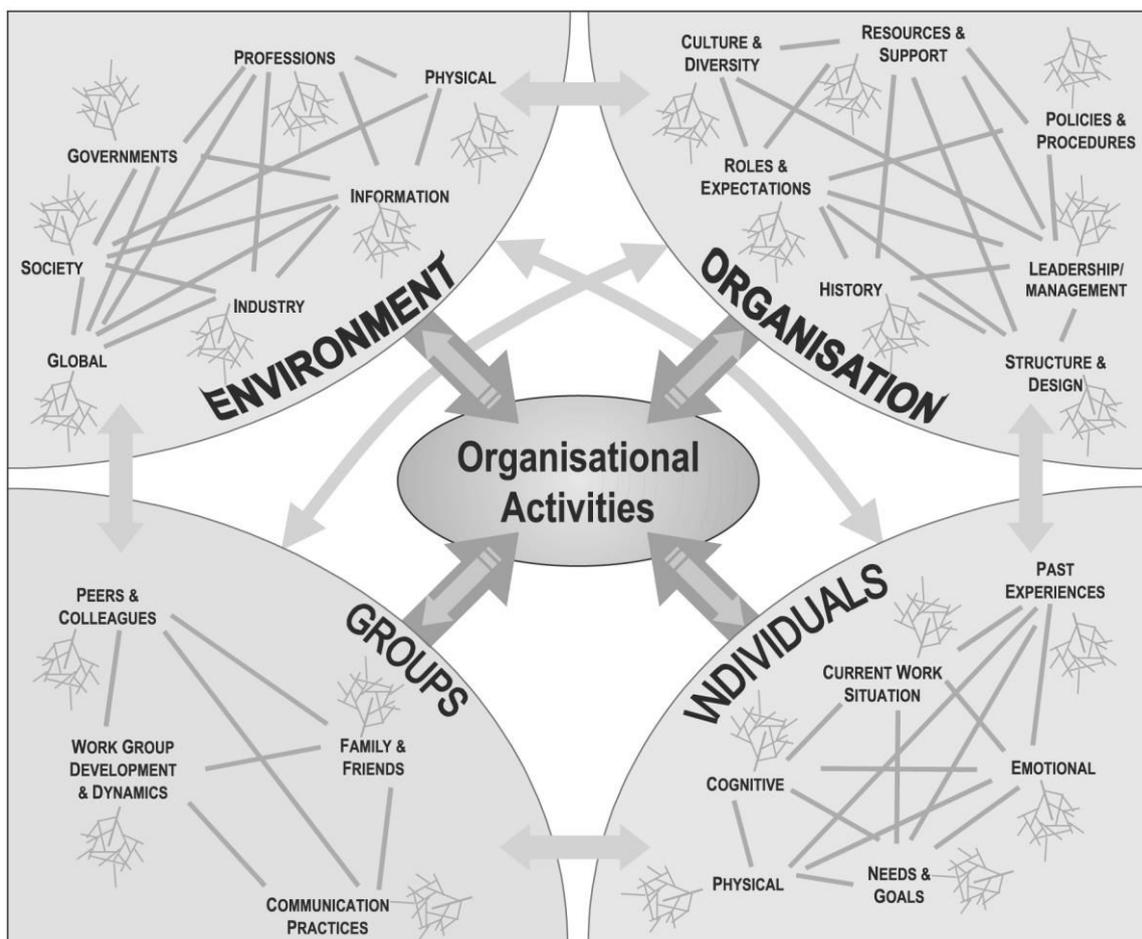


Figure: 3-1 Complex systems of dynamic influence (Cooksey, 2003, p. 205)

All of these influences indicate the difficulty of establishing predictability and control, particularly where human behaviour is concerned, including efforts towards organisational learning. The multiple levels demonstrate connectivity and interdependence and decisions in one area can impact on other areas as the system adapts and evolves (Mitleton-Kelly, 2003). Cooksey argues that learning must attend to that contextual mess if it is to be successful and is characterised by a balanced synergy between single loop learning and double loop learning processes. "Learning at both the individual and organisational levels in both single and double loop modes is critical for navigating one's way through the complexities of contexts" (Cooksey, 2003, p. 206). He argues for an appropriate combination of single and double loop learning when needed in response to feedback. In addition, effective organisational learning requires "genuine empowerment and teamwork, self and team efficacy (for learning), pursuit of collective as well as individual competence, effective leadership, shared mental models and vision, continuous open and critical dialogue, systemic thinking" and "high levels of trust" (Cooksey, 2003, p. 206). Critical to such an organisation is trust tied to leadership in promoting a culture of learning.

### **3.2.1. 'Learnership' in complex organisations**

Cooksey introduces the concept of "learnership" which he describes as,

*an evolving meld of leadership and learning where responsibility for learning and for leading is progressively diffused from a few central individuals to a critical mass of organisational members, all of whom become mutually embedded in the learning process, leading where needed, following where needed, but always with a sensitive eye on the complex texture of the learning environment they inhabit (Cooksey, 2003, p.204)*

The role of leaders in such organisations is one of mentoring or coaching, facilitating by establishing the underpinning values and vision of the organisation (Cooksey, 2003). With such empowerment, organisational learning comes about through self-organisation, and a new order emerges through the interaction of all of those elements in non-linear dynamic ways.

A complexity approach to management and organisational learning occurs through identifying, developing and implementing enabling infrastructures such as the social, technical and cultural conditions that facilitate the day to day running of an organisation or the creation of new order (Mitleton-Kelly, 2003; Mitleton-Kelly & Ramalingam, 2011). Complex systems are not strictly designed and that suggests the importance of enabling conditions in promoting learning and

change. They consist of agents interacting in a variety of ways who create emergent properties and patterns of behaviour, influencing the organisation at the macro level and they, in turn, are being influenced by that level in an adaptive process. In such systems, it is essential that management recognises that excessive control will be counterproductive (Cooksey, 2003; Mitleton-Kelly, 2003; Mitleton-Kelly & Ramalingam, 2011; Stacey, 2003, 2007, 2010, 2012). The enabling conditions of the organisation should allow for the exploration of the space of possibilities so that the organisation can take risks and try out new ideas and keep adapting and evolving with the challenges posed by the external environment.

In complex systems leadership is “a necessary precondition for success in which empowerment plays a fundamental role” (Cooksey, 2003, p. 208). “Learnership” embeds leadership as a capability that all organisational members can develop when they are genuinely empowered. Leaders move from mentoring and facilitation to allowing learners to evolve into leaders in their own right. When leadership is diffused throughout the organisation, the appropriate leaders emerge for particular tasks or projects (Cooksey, 2003). This resonates with Stacey’s argument that learning is an activity of interdependent people (2003).

### **3.2.2. Learning as an activity of interdependent people**

The notion of interdependence stands in opposition to our continued and largely unconscious adherence to a modernist conception of people as autonomous rational individuals cut off from others and capable of fully consciously using his/her own reason to choose a course of action and follow it through (Stacey, 2003, 2007, 2012). As discussed in Chapter 1, this legacy of the Enlightenment leaves much of management discourse tied to the idea of manager as a rational designer of efficient systems who can enact change because they are in control of those systems. However, such a conception of individuals has been scrutinised by other theorists as lacking. Stacey argued that social processes were critical – we could only be a self in relation to some other individual recognising us. It is our very interaction with each other that constitutes our sense of self (Stacey, 2007).

*Interdependent people are interacting with each other in a way in which they are taking the attitudes of others, of the group and of society as a whole, to their gestures. They are also interacting in a way in which they are taking the attitude of the group or society to themselves. As subjects (the "I") they are taking themselves as objects (the "me" or attitude of the*

*society to the "I"), and it is in this process that self-consciousness arises*  
(Stacey, 2003, p. 329).

Through those interactions, they are continuously building their own frames and metaphors about the world, which is visible in the cultural norms displayed by groups, organisations and society. Antonacopoulou and Chiva explored the social complexity of organisational learning, and developed two particular complexity principles to inform the understanding of organisational learning. These draw on themes in the extant literature, including Stacey, that conceives of organisations as composed of semi-autonomous agents seeking to maximise fitness by adjusting interpretive and action-oriented schemas that determine how they view and interact with other agents and the environment. The two principles they articulate in building an understanding of the social complexity of organisational learning are schema-diversity and interaction-interdependence (Antonacopoulou & Chiva, 2007).

Schemas are as a set of rules, created by actors interacting, that reflect regularities in experience and enable a social system to determine the nature of further experience and make sense of it. Agents build schemas by interacting with their environment and interpreting it and conditions such as organisational rules and procedures will shape how schemas express themselves and how behaviours emerge as they represent routines that are recurring between artefacts and agents. As learning occurs, schemas change and learning as a social process in organisational settings is dynamic, shaping the way “emerging rules are consolidated, updated, reviewed and constantly changed through agents’ actions and interactions with one another” (Antonacopoulou & Chiva, 2007, p. 282). Reflecting on to the discussion of frames we can see that what is described as schemas here fit with the description of frames covered in Chapter 2, though here the focus is on the social nature of the frame building. Their description of learning resonates with Stacey's (2003) conception of learning as an activity of interdependent people.

The second element from complexity that they argue for is interaction-interdependence, suggesting that social systems represent a complex mix of interactions between humans and with non-human cultural artefacts. The human interactions allow the coordination of schemas and actions that can facilitate the emergence of order around knowledge sharing, but the same mechanisms are also constrained to the identity, power, and interests between communities of actors. Interaction and interdependence make us sensitive to the way agents operate across levels, whether individual, group or organisational, which recalls the importance of attending to the multiple levels around which learning occurs in the 4I model (Crossan et al., 1999) discussed in Chapter 2.6 and 2.7 and

Cooksey (2003) discussed above. The agents can operate as individuals or in groups as needed. We need to attend to the conditions that shape those inter-relationships that enable or constrain the inter-dependence between agents as they work towards some organisational objective.

### 3.2.3. Organisational learning for sustainability in complex systems

Espinosa and Porter argue that complex systems approaches can offer valuable contributions to our understanding of organisational learning for sustainability by explaining concepts like emergence, co-evolution, and self-organisation (Espinosa & Porter, 2011).

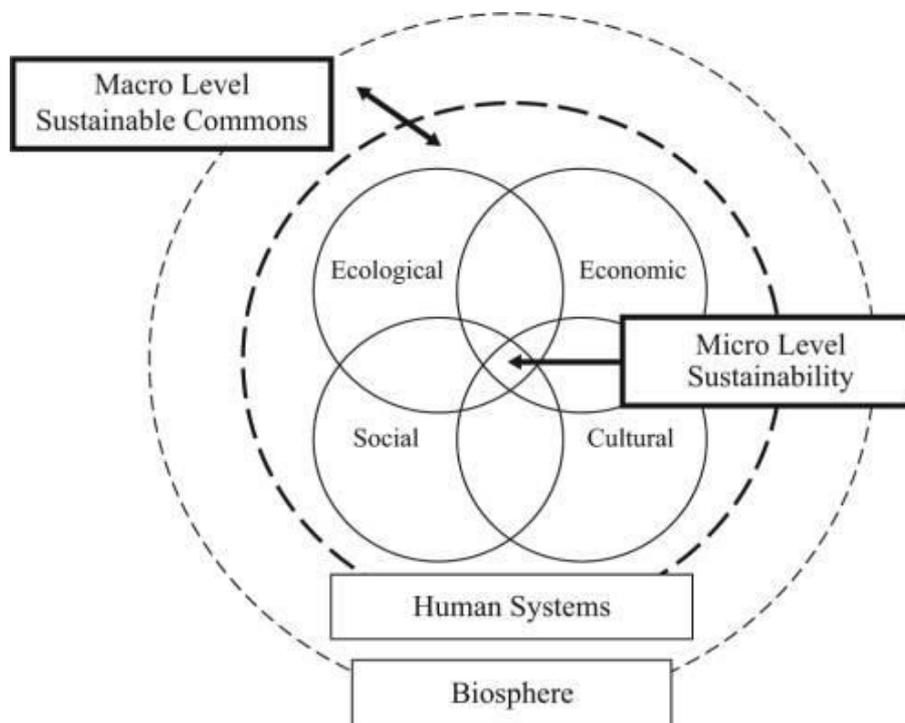


Figure: 3-2 A schematic model for sustainability and sustainable commons in complex adaptive systems (Espinosa & Porter, 2011, p. 58)

They argue that complex adaptive systems emphasise the permeability and exchange of information and feedback across on organisation, its subsystems, and its environment. Figure 3.2 depicts a model of natural and human complex adaptive systems and identifies three elements of sustainability. The outer rings depict the human systems as nested within larger and encompassing bio-spheric systems and that organisations are part of those human systems that have a co-evolutionary relationship with society and the earth's ecosystem. The macro level refers to the sustainability of the "commons" – the resources we all use but do not own and issues to do with this space operate at the level of governments, business, and communities. This is akin to the environmental subsystem articulated by Cooksey (2003). The inner part of the model relates to

intra-system issues where sustainability is the enactment of multiple bottom lines that extend the social bottom line by adding culture. While the two are separated in the model, they are not separable in reality, and they feedback on each other in a continual process of change and development. Espinosa and Porter (2011) do not intend that the model to be seen as static, but rather as an ongoing process occurring within and between self-organising and ever-changing systems.

They argue that when organisations are operating in complex environments, they should mimic the complexity principles in their own operations. For example, management should engage in creating the enabling conditions for cross-channel communication; should sanction conversations across traditional boundaries; support the formation of collaborative networks, facilitate the generation of ideas, focus on promising innovations and then find ways to roll out innovations in other contexts. Other theorists suggest management practices need to shift from directing to cultivating and enriching conditions for knowledge assimilation (Molnar & Mulvihill, 2003), creating the enabling “conditions that facilitate constant coevolution within a changing environment” (Mitleton-Kelly, 2003, p. 23).

I contend that Espinosa and Porter's model expand the conception of the environmental subsystem in Figure 3.1 giving a greater sense of how embedded organisations are in broader systems. However, I argue that for attending to organisational learning for sustainability, Figure 3.1 provides a useful framework that draws together the multi-level nature of organisational learning across environmental, organisational, interpersonal and intrapersonal levels and provides a framework for exploring the dynamic inter-relationships, interdependencies and sources of feedback between agents as they interact within and across the various levels. It adds a significant additional level, to the multidimensional model articulated by Crossan et al. (1999), adding the environment as a key source of dynamic influence on what might appear to be internal processes. The learnership take on complexity science offered by Cooksey indicates that organisational learning is connected to different sub-systems of contextual influence, providing feedback that may enable or constrain the learning in ways that are difficult predict. The organisational learning that occurs is likely to emerge through the dynamic interactions of all of those levels through self-organisation.

The triple bottom line focus can be argued to emerge from such contextual dynamics through differentially emphasising considerations emerging from different sources of contextual influence. The economic bottom line primarily emerges from dynamics between an organisation and its larger

environmental contexts; the environmental sustainability bottom line emerges from dynamics between an organisation, its larger environmental contexts and its embedded interpersonal/ group and intrapersonal/individual contexts; the social bottom line emerges from dynamics between an organisation and its embedded interpersonal/group and intrapersonal/individual contexts).

At the beginning of the chapter, I noted that many theorists have been using complexity science as a metaphor for understanding organisational and managerial activity since it gained prominence in the 1990's. Cooksey's model as shown in Figure 3.1 provides a series of lenses or frames through which I can explore an organisational learning for sustainability initiative. By applying different frames on the initiative, I can ensure that I attend to all of the potential sources of dynamic influence that might enable or constrain it.

### **3.3. Conceptual framework**

This research is both exploratory and explanatory and required a conceptual framework that could allow a broad and deep exploration of the phenomena under investigation. It also needed to be to investigate multiple aspects of organisational life including culture, structure, leadership and learning as captured in the literature review in Chapter 2. Figure 3.1 is useful as an overarching conceptual framework for this research project because it encourages an examination of the multiple sources of influence that might have come to bear on the Greening the Wharf project. A complexity perspective provides a meta-paradigm to guide the investigation for an examination of an organisational activity such as Greening the Wharf because it provides a holistic, systemic approach to understanding that activity. As an overarching conceptual framework, its four key dimensions provide broad lenses through which to review the organisational learning process undertaken by STC while also affording the opportunity to dive into relevant theories to help explain findings emerging from the data.

The organisational activities that sit at the centre of the model capture the specific phenomenon under investigation within the organisation. This lens deals with the Greening the Wharf project in itself and analyse how it unfolded over time and its impacts on the organisation. In exploring the project this lens will allow me to draw on concepts to explain how it unfolded, particularly those related to change and organisational learning as discussed in Chapter 2.

The environment lens captures all of the external systems within which an organisation sits including biospheric systems and macro-level commons or common resources that are owned by none but used by all (Espinosa & Porter, 2011) that organisations must attend to. It also captures

the economic, social, political, broader cultural issues. In addition, it captures specific industry or professional organisations that might have an influence on the organisation.

The organisation lens deals with all aspects of the organisation and any concepts that assist us to understand organisational life. This includes organisational design and structure; leadership and management approaches to organisational activities; organisational culture and organisational processes and practices.

The individual lens deals with the specific characteristics of the individuals working within an organisation including their values, beliefs, attitudes, cognitive aspects, past history, their role within the organisation. It is here that individual learning can be explored.

The groups lens specifically deals with relationships. As much work is done in groups, whether formal departmental structures or project teams it is important to examine those processes. It allows for the exploration of group dynamics, communication practices, power relations and the influence of other groups such as family, friends and professional memberships and others. From an organisational learning perspective, it is the lens through which social and team learning can be assessed.

The interconnections and points of feedback between those contexts provide opportunities to examine the feedback between the systems to identify sources of positive destabilising feedback and negative stabilising feedback into the organisational activity that provided opportunities for double and single loop learning. In exploring that space, enabling and constraining conditions can be identified that helped or hindered the evolution of the project. Some of those enabling or constraining conditions are critical in that they have the highest potential to influence or alter the time course of events and associated dynamics.

As indicated at the beginning of this chapter, all theories are metaphorical in that they provide a means of understanding some phenomenon in terms of something else. Complexity theories invite an examination of a phenomenon that looks for linkages, interconnections, key sources of feedback and other sources of influence that may have dynamically influenced it in ways that constrained or enabled it. In choosing Cooksey's complex systems of dynamic influence model as shown in Figure 3.1, I have selected a way of understanding the focal activity of Greening the Wharf as an example of organisational change and learning for sustainability through the multiple frames of each subsystem in the model. In each subsystem, I anticipated that further metaphors would become apparent to help to explain findings emerging through the data analysis. The major source

of those metaphors and frames would come from the members of STC themselves as they reflected on their experience of STC and Greening the Wharf. I wanted to understand Greening the Wharf through the eyes of those who worked at STC by carefully attending to the language they used to describe their experience of it.

In terms of the schema-diversity and interaction-interdependence principles of Antonacopoulou & Chiva's social complexity approach (2007), and Stacey's concept of learning as an activity of interdependent people (2003), I wanted to develop an understanding of how people have learned through the language they used. I would be able to understand how they framed that experience, what metaphors they used to describe sustainability, their experience of STC's culture and how they framed descriptions of any behaviour change they had engaged in through the experience. Cooksey's (2003) model also shows that all of the subsystems complexly interact with each other. That includes the individual bringing their own learning about sustainability to the workplace and perhaps attempting to influence sustainability behaviour in that workplace. As all learning occurs in the mind of the individual, sustainable behaviours learned at work might also be relevant to other contexts occupied by the staff and the model allowed me to reflect on that interplay.

### **3.4. Evolution of research questions**

I chose the conceptual framework established in 3.3, to allow a broad and deep examination of an organisation that had gone through a learning process for sustainability. As Bolman and Deal (2008) suggested the more frames we can apply to an issue or situation, the more likely we are to gain an understanding of it. The literature review in Chapter 2 suggested certain features of organisational learning that might be evident in a successful project, such as shared vision; team learning; single and double loop learning; leadership that supports learning; and 'learnership'. However, I did not want to pre-empt what I might find by establishing hypotheses for testing but wanted to allow the data to tell the story through the narratives of the participants and the content of other data sources.

I wanted to examine the organisational learning for sustainability process itself, to understand how it had unfolded over time and how successfully it had embedded into the organisational culture. I wanted to understand how staff framed sustainability in their work context and beyond including those who initiated it and made the changes and those who were not directly involved in the implementation. The process, then, of researching a complex organisational activity like organisational learning for sustainability requires me, as the researcher, to access the stories of

those involved, the implementers, those who lived through it but were not implementers and those who came after the major work was completed.

The issue of sustainability is one that impacts on all of human existence. Much of the research around behaviour change for sustainability at the individual level has focussed on single persons and the psychological influences on their behaviour (Koger & Winter, 2010). Research around organisational sustainability has examined the impact of the learning and change efforts on the organisation itself, but it has not looked at the influence those efforts might have on the behaviour of individuals beyond the workplace. Since those behaviours are potential contributors to the reduction of greenhouse gases and the attendant improvement in climate change as well as the reduction of environmental damage among other things (IPCC, 2013), they are worthy of investigation as was the role of individuals within an organisation in positively contributing to such change and learning efforts.

While Cooksey's (2003) complex systems of dynamic influence allowed an analysis of the project as it unfolded over time through multiple lenses, it was not an appropriate framework for indicating if STC had achieved organisational learning for sustainability as such. In order to assess that, I drew on the Benn et al (2014) sustainability phase model and check lists to assess how well STC performed against their criteria. That analysis will be discussed in section 6.2.1.

In order to understand organisational learning for sustainability processes and outcomes at STC, my goal was to answer the overarching explanatory question 'how did STC learn to become more sustainable and what were the behavioural impacts on staff'? To explore that question more deeply, I needed to address four key questions about the Greening the Wharf project at STC:

1. Did STC achieve organisational learning for sustainability?
2. How did the organisational learning for sustainability at STC unfold?
3. What organisational learning features were evident at STC?
4. What was the nexus between personal and organisational learning for sustainability at STC?

### **3.5. Conclusion**

This chapter has established the conceptual framework for examining organisational learning for sustainability at STC by drawing on complexity science as it applies to organisations and the frames and metaphors that operate at the personal, group and organisational level. The framework

will enable the exploration of all aspects of the organisational learning for sustainability initiative by examining it through multiple lenses and identifying sources of dynamic influence, enabling conditions and constraints, key sources of feedback and the learning opportunities they presented and how the organisational learning for sustainability process unfolded over time. The frames and metaphors aspect of the analysis will explore the language used by participants for what it reveals about their understanding of the process as they experienced it. The next chapter will explore the research process.

# Chapter 4. Research process

## 4.1. Introduction

Chapter 3 articulated a conceptual framework comprising Cooksey's complex systems of dynamic influence (2003) augmented with an exploration of the frames and metaphors evident in the language of the participants to appreciate the individual differences in perception. Those conceptual underpinnings have informed the research approach I have undertaken. I will examine that process in this chapter. The chapter will proceed as follows:

- 4.2. Background to the research
- 4.3. Guiding assumptions and researcher positioning
- 4.4. Single in-depth case study
- 4.5. Research methods
- 4.6. Ethical considerations
- 4.7. Data gathering strategies
- 4.8. Approach to data analysis
- 4.9. Quality criteria for assessing research
- 4.10. Summary
- 4.11. Presentation of the research findings

## 4.2. Background to the research

I have been interested in sustainability and behaviour change for a long time. I had tree changed from Sydney to Armidale in 1998 in search of a more balanced existence, one that was more personally sustaining and I wanted to live with minimal negative impact on the natural environment. My role as the Program Director for the Graduate School of Business afforded me the chance to connect my personal commitments to my work in 2009 when I started to work on a Master of Business Administration (MBA) that addressed the issue of sustainability. As part of that process the UNE Business School became a signatory to the United Nations Principles for Responsible Management Education (PRME) in 2009 (I discussed PRME in Chapter 1.1). We spent 2010 developing our own detailed principles for embedding sustainability into our curriculum, drawing on the expertise of Emeritus Professor Dexter Dunphy and consultant, Dr

Miriam Verbeek who worked closely with academic staff to assist them in exploring specifically how they might embed sustainability into their individual units (Dalton, Fisher, Sheridan, & Verbeek, 2011).

As mentioned in Chapter 1, the spark for this PhD thesis emerged from some of the reading I was doing around 2010 while working on the new MBA and the Xerox example in Peter Senge's 2008, *The Necessary Revolution* and shift of their business model to meet the vision of "zero to landfill for the sake of our children". The organisational change undertaken was profound and I wondered about the impact it had on the staff involved. I wondered if the experience of changing their work practices to achieve zero to landfill might have affected their behaviour outside the workplace. Further reflection raised another possible connection between the workplace and the personal life of staff. I wondered about the potential for individuals to influence an organisation because of their own personal sustainability commitments. If the organisation had engaged in a successful change and learning process for sustainability how had it been sparked in the first place and what impacts did it have on the behaviour of staff both at work and beyond. Given that sustainability requires behaviour change in all of the contexts that we occupy it suggested that an organisation might be a source of positive influence on the behaviour of its staff outside of the workplace. To be able to investigate this I wanted to examine an organisation that had undertaken a sustainability initiative that looked successful (e.g. through winning awards or other accolades for the initiative). I wanted to understand how the organisation had gone about the change and learning process, to assess how successful it had actually been and to gain insight into the impact of the change on staff both within the work context and beyond it.

I did not want to test a particular change or organisational learning theory. Rather, I wanted to explore the process and to be open to what the data revealed. The complexity lens ensured that I looked at all of the sources of dynamic influence that might have affected the sustainability project – environmental, organisational, group and individual. To augment the Cooksey (2003) complex systems of dynamic influence model, I used concepts on framing and metaphors to help me tap into how staff made sense of the process. I wanted to examine the interrelationships between change makers, implementers and those affected by the changes in terms of how the initiative might or might not influence behaviours both within the workplace and beyond it.

### **4.3. Guiding assumptions and researcher positioning**

To be able to evaluate the quality of a piece of management research it is important to understand the role of the researcher in the process including the theoretical perspective taken, how they

collected their data and analysed it (Bryman & Bell, 2011). Before that, it is important to understand the guiding assumptions that underpin their theoretical perspective. My positioning strategy is about understanding phenomena and perspectives in context (Cooksey & McDonald, 2011). I wanted to evaluate the phenomenon of Greening the Wharf at STC for its effectiveness by eliciting the perspectives of the staff within the organisation. The concepts explored in Chapter 3 have informed the guiding assumptions that underpin the research process.

Cooksey has demonstrated that taking a complexity approach to research in the social and behavioural science can be beneficial where research is “an emergent activity evolving from the dynamic and contextualised intersection of the researcher and the research in the context of one or more sets of guiding assumptions” (Cooksey, 2008, p.4). Arising from that perspective is the question of how to judge the quality of a piece of research. He developed 12 meta-criteria for assessing the convincingness of any piece of research in the behavioural and social sciences to assist researchers in constructing and presenting their research and to assist readers of research in assessing the quality of a research paper. The central criterion asks,

*Is the research story convincing with respect to the arguments being made? Are the arguments and conclusions in the research story convincing to the consuming audience/readership, given the assumptions held, constraints experienced, research questions, objectives and aims established, roles adopted, trade-offs made, obstacles confronted, methods chosen, data gathered, analyses employed, unanticipated outcomes and setbacks experience, results presented and conclusions/implications drawn (Cooksey, 2008).*

The 12 criteria deal with the quality of the overall research undertaken and the convincingness of this research will not be apparent to the reader until they have read the entire thesis. This research project will keep referring to those criteria to ensure that they are all addressed across the body of the research. For that reason, I have summarised each criterion and its core question in Table 4.1. Thus far, I have dealt with Criterion 1, juxtaposing with other research which asks about what others have done and where this research fits in. I have canvassed the literature on sustainability, organisational change and learning including that which relates specifically to sustainability. While it offers interesting insights, I found that there was little research specifically on organisational learning for sustainability or models that attended to the importance of attending to the external environment. In addition, I did not find research that explored the nexus between personal and organisational learning. I will explore my guiding assumptions and researcher

positioning in the next section, thus addressing criterion 2. I will address the other criteria in the discussion about the research conclusions, implications in Chapter 7.

**Table 4-1 Paradigm-independent meta-criteria for social and behavioural research (source: Cooksey, 2008).**

	<b>Criterion</b>	<b>Key question</b>
1	Juxtapositioning with other research	What have others done and were does this research fit in?
2	Researcher positioning	Where does the researcher fit within the research context?
3	Positioning of participants and other data sources	Where does everyone else fit within the research context?
4	Contextual sensitivity	How well does the researcher use knowledge about context to add richness and/or qualification to their research process?
5	Internal coherence	Does the research, as a whole, hang together as a coherent process to permit the conclusions the researcher seeks or claims?
6	Analytical integrity	Do the analyses of data lead to or support appropriate, defensible and clear conclusions, given the quality of the data to hand?
7	Extensional reasoning	Do the research findings have meanings or implications for other contexts?
8	Value for learning	What can people take away from the research as important messages?
9	Fertilisation of ideas	Can others run with or build on what has been shown by or learned from the research?
10	Handling of unexpected outcomes	How well has the researcher dealt with surprises and unanticipated findings?
11	Acknowledgement of limitations	What constrains the learning value and applicability of the research?
12	Presentational character	Is the presentation suitable for the intended audience?

### **4.3.1. Ontological and epistemological position**

Ontological assumptions deal with the nature of being, what we conceive of about the reality of the world we live in (Cooksey & McDonald, 2011). While it has been argued that the issue of ontology is of lesser importance to research investigations that do not have at their core the study of ‘being’, I tend to disagree in this instance (Crotty, 1998). Bryman and Bell argue that question of social ontology is concerned with the nature of social entities, answering the question of whether

social entities can be considered objective in that they have a reality external to social actors or if they are constructed socially through the actions and perceptions of the actors within them (2011). Thus, there are two aspects to ontology. What is it for an individual to be and what is it for a social entity such as an organisation to be? Epistemology is the philosophy of what it is to know. In research it constitutes what is acceptable knowledge in a particular discipline, “what counts as knowledge in the world” (Cooksey & McDonald, 2011, p. 186).

I argue for a critical realist ontology and epistemology (Bhaskar, 1989). This stands in contrast to the more traditional realist position. In general, a realist understanding of the world takes the view that various entities such as forces or objects or ideas exist in the world, independent of human beings and we can build reliable knowledge of those entities by studying them using appropriate empirical methods (Bryman & Bell, 2011). Bhaskar argued that realism “fails to recognise that there are enduring structures and generative mechanisms underlying and producing observable phenomena and events”, thus rendering realism superficial (Bhaskar, 1989, p. 2). Critical realists acknowledge and accept that there is a distinction to be drawn between objects that we might focus our enquiries on and the terms that might be used to understand and describe those objects (Bryman & Bell, 2011). Humans all share the same physical reality (world out there) beyond our selves, or in Bhaskar’s language, reality is intransitive, existing independently of humans. Reality is stratified, firstly between structures and mechanisms, events generated from them, and there is a subset of those events that humans actually experience (Mingers, 2014). Bhaskar captured those across three domains – the real, the actual and the empirical. The real relates to the whole of reality; the actual contains events that may or may not occur and it includes the empirical, which covers those events that are observed or experienced. Thus we should not try to reduce events just to those we can observe (Mingers, 2014). A second form of stratification occurs in the domain of objects,

*where causal powers at one level (e.g. chemical reactions) can be seen as generated by those of a lower level (atomic valency). One stratum is emergent from another ... the picture of the real is thus one of a complex interaction between dynamic, open, stratified systems, both material and non-material, where particular structures give rise to certain causal powers, tendencies, or ways of acting” (Mingers, 2014, p. 19).*

This interpretation resonates with the complexity science approach to understanding phenomena, whether in the natural or social world, because it acknowledges that causes and effects are not always linear and that feedback in systems is dynamic, making them behave in ways that are

difficult to predict. It also resonates with the subject matter of this research because human action has had demonstrably large negative impacts on the intransitive reality we inhabit.

Humans experience reality subjectively through our embodied experience and cognition of it via our central nervous system. We produce knowledge about our reality through social processes where we build hypotheses for testing, construct theories, or draw on existing theories in order to build a better understanding of that intransitive reality. Knowledge is always produced within particular temporal and social contexts. That does not imply that all perspectives have equal validity. The process of working to understand the intransitive reality is a continuous one of testing our theories while appreciating that our knowledge is always fallible (Mingers, 2014). When applied to social science, critical realism argues that there are no intransitive objects that social science could examine. This lends weight to the argument that the logic of falsification that works so well in the natural sciences cannot be applied so easily to the study of social phenomena such as organisations and the people within them (Ghoshal, 2005).

While people share physical attributes such as physiological attributes like height, weight, our central nervous system and brain structures and we share attributes with other animals like having the capacity to experience pain, there are other attributes of humans that can only be understood in terms of their social context e.g. a hairdresser or a priest (Mingers, 2014). Social activities require us to have a language that we can use to engage in social exchanges and to mentally reflect on those social exchanges. Social phenomena are inherently different from material phenomena. Ontologically, they can only be understood in terms of their occurrences and effects and are enabled through social structures. Those structures are affected by social activity. Social structures do not exist outside of the agent's conception of their activities and so, agency requires some kind of interpretation of what an action means, which is of course subject to misinterpretation. Social structures are contextualised in space and time (Mingers, 2014).

By contrast, natural phenomena in the intransitive reality will remain the same regardless of our theorising about them. As Ghoshal (2005) pointed out, if we have an incorrect theory about the universe or the behaviour of subatomic particles it will not change the behaviour of those particles. However, he goes on to point out that when we create bad social theories, they can become self-fulfilling. Consider the classical economic theory example from Chapter 1 that uses the metaphor of the environment as externality and the very real consequences that has had for the intransitive reality of our physical environment and the complex ecological systems within it. Milton Friedman's (1970) thesis that the social responsibility of a manager was to return maximum value

to the owners /shareholders of the business they ran while abiding by laws is another theory that has become self-fulfilling and we have seen the worst of its effects laid bare in various corporate scandals over the last few decades. The most recent example is the revelations of unethical and perhaps illegal activities by Australia's leading banks at the Royal Commission into the Australian banking system in 2018.

As discussed above humans share the same physiology and build our understandings via that physiology which suggests there will be much that is common to our experiences of our embodied interactions with the world. Every person undergoes a different mixture of internal and external experiences throughout their life. One might expect that this would lead to interesting and varying perspectives/stories with respect to a commonly experienced event, which will offer the possibility of a range of rich narratives about it. The social arrangements that we inhabit will also influence the way that we interpret those experiences. The social norms and values that we grow up with influence how we build our understanding of the world around us, what we think is good, bad or otherwise. What we choose to do as our career will be influenced by our genetic dispositions and our social construction. We will influence and continue to be influenced by the social environments in which we work, and we will also be constrained by the norms and values of those social environments. We express ourselves through linguistic and non-linguistic modes, though our linguistic expression is the easiest to capture. The metaphors and frames through which we view the world can be made apparent via the analysis of the language used by individuals.

The critical realist position as applied to the social sciences suggests the need for an interpretive approach to the study of social phenomena. Interpretivism takes an approach to research that respects the differences between people and the objects of the natural sciences. It requires the researcher to attempt to grasp the meaning of social action (Bryman & Bell, 2011). In an organisational sense, the interpretivist approach asks whether organisations really exist beyond the conception of those who work within them and that makes their expressed experiences a key way to understand them (Bryman & Bell, 2011). This echoes Stacey's argument, discussed in 3.2.2 that people in organisations are interdependent, responding to each other through complex responsive processes.

I, as the researcher, am the interpreter of the experiences of the research participants in their own context and my role is to attempt to make meaning of that experience. Max Weber's concept of *Verstehen* has been a strong influence on Interpretivism. It is a German term that refers to understanding the meaning of action from the perspective of the actor (Weber, 1947). In other

words, it requires taking an empathetic position towards the actor. The empathetic stance is not without some practical problems, particularly the problem of ‘going native’, becoming too enmeshed in the social world being under investigation, or that the researcher may only be able to see through the eyes of some participants but not others due to unconscious bias against some particular group (Bryman and Bell, 2011). Being attentive to these potential pitfalls is an important part of the researcher’s role.

The interpretivist approach makes the following assumptions:

- *Human behaviour is a product of how people interpret their world (seeks to uncover personal and social interpretations and constructions).*
- *Newer methods of social science are preferred NOT the methods of natural science.*
- *Values subjectivity and assumes reality is internal constructed/socially negotiated.*
- *Observations must occur in a context and that context must be well understood.*
- *Language is a key (but not only) source of data.*
- *Researcher control over context should be avoided.*
- *The participants’ perspectives are central; researcher’s perspective is to be ‘bracketed’ (though whether such bracketing is really possible can be questioned).*
- *Theory and constructs and perspectives may emerge from observations (Cooksey & McDonald, 2011, p. 189)*

Therefore, a qualitative study that allows me to delve into those stories was fitting because “qualitative enquiry provides richer opportunities for gathering and assessing, in language-based meanings, what the participant values, believes, thinks and feels about social life” (Saldana, 2009, p. 92). The interpretive researcher seeks to build up an account for specific contextual realities through concrete interactions with, and observations of, people of interest - empirical observation thus guides the emergence of theory (Cooksey, 2001).

#### **4.3.2. Constructivist grounded theory approach**

Grounded theory was first developed by Glaser and Strauss and articulated in their 1967 seminal work, *The Discovery of Grounded Theory: Strategies for Qualitative Research*. The methods of grounded theory consist of systematic but flexible qualitative data collection and analysis strategies with a view to constructing theories that are grounded in the data gathered. The guidelines for conducting the research provide principles and heuristic devices rather than rules.

The data form the foundation of the theory and the analysis generates the conceptual constructs.

*Joint collection, coding, and analysis of data is the underlying operation.*

*The generation of theory coupled with the notion of theory as a process, requires that all three operations be done together as much as possible*

(Glaser & Strauss, 1967, p. 43)

There is more than one kind of grounded theory. Strauss and Glaser diverged in their approach. Glaser argued that Strauss was too prescriptive in his approach and related too much to concept rather than theory development (Glaser, 1992). Strauss went on to work with Corbin and their version of grounded theory emphasises technical procedures over the comparative methods of the earlier version (Strauss & Corbin, 1998).

Charmaz takes a constructivist approach to grounded theory where constructivism is a recognition that research processes and practices do not occur in value-free contexts. They are conducted in special social circumstances and are influenced by issues such as power, location and preconceptions. Her constructivist grounded theory is a set of principles and practices that provide explicit methods for analysing processes while being aware of any constraining circumstances on the research process. The process consists of unfolding temporal sequences that may have identifiable markers with clear beginnings and endings and benchmarks in between. Temporal sequences are linked in a process and lead to change. Single events become linked as part of a larger whole. Any process will always have some degree of indeterminacy. She assumes that neither data nor theory is discovered. Rather they are constructed through our interactions with context, time and people, with research practices and perspectives. We can only ever offer an interpretive view of that which we study, an approach that aligns with the pragmatist school of philosophy (Charmaz, 2006). I, as the researcher, am not separate from the research process and the findings and conclusions drawn from it. The interpretivist stance is empathetic, intuitive and reflexive (Charmaz, 2006).

Bryman and Bell summarise the key tools that have emerged over the evolution of grounded theory as:

- Theoretical sampling – a process of collecting data for generating theory in which the analyst jointly collects, codes and analyses the data and decides what data to collect next and where to find them, in order to develop a theory as it emerges. The process of data collections is controlled by the emerging theory.

- Coding: the key process where data are divided into component parts and each part is named. The coding process I undertook will be discussed in 4.8.

#### **4.4. Single in-depth retrospective case study**

The benefit of engaging in a single case study is the opportunity to gain depth of understanding of a particular context, a rich narrative. The understanding also comes with an assumption that “what is learned may not be transportable to other groups or organisations but may be transportable within the case study group or organisation” (Cooksey & McDonald, 2011, p. 314). Yin distinguishes between holistic and embedded case studies. A holistic case study examines the entire organisation but it may involve more than one unit of analysis. If this happens and attention must be given to subunits such as a particular department or project, “the resulting design would be called an embedded case study design” (Yin, 2014). My aim was to go in depth and try to gain an understanding of the nuances of the Greening the Wharf project in its context.

The design is variant of Yin’s concept of an embedded case study because it only examines a specific project within the organisation. It did not also engage in a holistic case study on the organisation itself except as it related to the Greening the Wharf project and its long-term impacts on organisational practices and processes. In examining the organisational learning process, I drew on multiple data sources including internal and public documentation, interviews, observation, photographs and my research journal (Yin, 2014). The method allowed me to engage in the “study of a phenomenon within its real-world context” and favoured “the collection of data in natural settings” (Yin, 2012, p. 5). Though criticised in some quarters for being merely exploratory and unworthy of being credible, Yin (2012) contends that case study research involves systematic data collection and analysis procedures, and case study findings can be generalised to other situations through conceptual extension. The intention was to work in depth within the case using a constructivist grounded theory approach, sacrificing breadth across similar organisations for depth of knowledge around the specific event and being open to the possibilities that the findings might have some transportability through conceptual extension.

The purpose of conducting the case study was to examine the contextual influences that brought it about, the organisational learning process surrounding its implementation, how well it was been adopted, and its impacts on the behaviour of staff at work and at home. This is done through the lenses of Cooksey’s complex systems of dynamic influences model on organisational activities (Cooksey, 2003). The intention was to capture the nexus between all of the potential influences

(represented by the cross-connection arrows between the lenses in the conceptual framework), to identify critical enabling conditions and constraints, key sources of feedback into the system and to account for the dynamic interplay between environment, organisation, groups and individuals involved with and impacted by the organisational learning for sustainability process as it unfolded over time. The embeddedness of the learning within the organisational culture was a key point of investigation. As discussed in section 2.4, culture is an “organisation’s accumulated learning that becomes so taken for granted that it drops out of awareness” and which is driven by its shared tacit assumptions (Schein, 2003, p. 20).

Another key aspect of this research was the role of time in how the project unfolded as it covered a period from 2007-2011 and I collected data on it in 2014. I wanted to retrospectively follow and unpack the time course of the project and the dynamics that were associated with Greening the Wharf. Certain critical enabling or constraining conditions over the journey of the project may have had an impact on the nature and time course trajectory of events from that time point onward. Thus, it was important to follow the time course itself.

#### **4.4.1. Selecting the case study organisation**

The process pathway for selecting STC as the case study organisation was not a linear one. My basic selection criterion for identifying potential case study organisations was to identify organisations that had undergone a shift to more sustainable practices, whether purely environmental or environmental and human in order to assess how they had approached the process, how well the learning had become embedded in the organisation and what behavioural impacts it had on staff within and beyond the workplace. When considering what sorts of organisations I might approach I considered a particularly well publicised sustainability initiative at a Sydney Theatre Company (STC) called Greening the Wharf. The project was showcased on the now decommissioned website ([www.greeningthewharf.com](http://www.greeningthewharf.com)) through video clips with the Artistic Directors and key staff involved with the project. Case studies covering the various aspects of the project were also available to download and are included in Appendix 3. The website was very sophisticated, and the content suggested a whole of organisation approach to environmental sustainability and public education. However, I dismissed the idea of approaching them due to a lack of any contacts.

In 2013, I had begun the process of identifying two wineries that I could study because I had contacts in the industry. The intention was to conduct two in-depth case studies at the individual

organisations and engage in a cross-case analysis to identify emergent themes that were convergent or divergent in their experiences of making their operations more sustainable. However, the Executive Director of STC Patrick McIntyre, visited Armidale in mid-2013 to present to UNE undergraduate business students and the local Chamber of Commerce. His presentation was called “*Soft is the new hard*” and argued for the benefits of a liberal arts education for facilitating the development of key skills being sought by employers, such as creativity and collaboration. I took the opportunity to approach him and ask if I could study the company’s Greening the Wharf project initiative for my PhD. He agreed to consider the proposal. We corresponded by email and after a month he consented to the research. The choice of a single in-depth case study method was dictated by the circumstances described above. As a high-profile project that had received substantial coverage in the local and national press, I considered that Greening the Wharf at STC would provide rich research territory to explore the interplay of dynamic influences around it

## **4.5. Research methods**

My project used a single in-depth case study and I have used constructivist grounded theory as an approach to understanding the data rather than applying constructivist grounded theory exactly as described by Charmaz. I adapted the constructivist grounded theory approach to my own purpose which was to build some kind of theoretical account for this event that is grounded in the data gathered about it. It did not strictly not follow constructivist grounded theory principles for a number of reasons. I have not employed a fully iterative approach to the data gathering. I was researching a project that had finished formally in 2011 rather than being in a position to observe a project unfold in real time. There was limited utility, therefore, in trying to iteratively gather data over time because participants were reflecting on the impact of that historical event on the organisation at the time the data were gathered. As a consequence, it was not possible to engage in theoretical sampling. I was trying to build up a theoretical account for how this event unfolded and why it unfolded in the way that it did in this context. The data had to convey that story.

My primary methods for gathering data were semi-structured interviews and participant observation. I had access to secondary data sources other than just the interviews – annual reports, media clippings, internal documents and my research diary. These provided the means to triangulate the reportage from participants. I recorded my observations, feelings and observations about each of my interviews in my research diary, along with my observations about STC and the story of Greening the Wharf as it unfolded to me over time. As I started my analysis I used the diary to note reflections, points of confusion and potential directions for coding. As the analysis

and write-up has happened over several years, re-reading the diary has been a critical means of engaging with the research over time.

Unlike a pure grounded theory approach, I did not start off from a clean theoretical slate given the extant literature previously reviewed. I took steps to avoid having my own beliefs and assumptions unduly influence my choices and interpretations by allowing participants to speak freely in answer to my open-ended questions. I have taken an approach wherein the literature provides some signposts for what I might expect to find. Equally, I did not undertake a full-blown grounded theory because I did not gather data iteratively and revisit the context in response to initial analysis. My three site visits were based on being able to organise clusters of interviews based on the availability of staff. The human resources manager organised the interviews in the dates for my visits. I did not commence my analysis of the data in any meaningful way until after my final visit. I was working full time and had significant personal events to attend to at the time, which did not afford me the time or mental space and energy to engage with the data until a few months after all of my site visits were complete. The observations in my research diary and recordings of the interviews proved an invaluable way back into the data when I did start my analysis. The details of how I approached data analysis are discussed in 4.8.

## **4.6. Ethical considerations**

The research followed all of the requirements for approval by the UNE's Higher Research Ethics Committee (HREC). Approval to conduct the research in the case study organisation was obtained from the institution (HE13-041) and signed individual consent forms were obtained from every individual interviewed. Details were stored on file. Please refer to **Information Sheet for Participants** in Appendix 1.

Part of that consent included an assurance that you would protect the anonymity of the organisation and those interviewed. Appropriate ethics forms were signed as part of the process. As I started to analyse and then write up the findings of the research it became apparent that trying to hide the identity of the organisation was both futile and diminishing to the power of the story that was emerging. I went back to the company to seek permission to identify it by its proper name and sought the permission of key organisational members to use their real identities and it was granted. I also contacted other participants interviewed to advise them of this change and canvas for any objections to the identification of STC. There were no objections raised. Their identities remain anonymised and they were referred to by a pseudonym and their role at the time I interviewed them.

## **4.7. Data gathering strategies**

As Yin contended, one of the strengths of using a case study as a frame for research was that it could draw on multiple data sources for triangulation purposes in developing converging lines of enquiry (Yin, 2014). Triangulation in my research approach entailed using multiple data sources as checks against each other. Data were primarily drawn from five sources – interviews, document analysis, site visits, and a small number of photographs, observations during site visits and my research journal. As I analysed interviews there was an opportunity to cross-check key statements against other data sources such as company documentation.

### **4.7.1. Interviews**

I conducted semi-structured interviews with a range of participants. The purpose of interviewing was to get at people's lived experience and the meaning that was made by those experiences (Charmaz, 2006). I was trying to gain insights into the subjective experiences of STC members by asking them to tell the story of their experience and in so doing, capturing their frames of reference and the metaphors they used to understand their experience. My semi-structured interviews were characterised by having fairly specific areas for discussion, captured in a topic landscape (see below), which were covered conversationally during the course of the interview. The participant largely drove how the conversation flowed through that landscape and how much time was spent exploring any particular topic, much more than the researcher (Bryman & Bell, 2011). It allowed for a more natural, conversational interview. It also allowed some capacity for me to ask questions and to follow up emergent ideas from the participant that were not part of the landscape if they were relevant and of interest. Flexibility was key.

#### **4.7.1.1. Areas for exploration**

The specific ideas that I wanted to cover comprised:

- conveying a sense of what sustainability meant to them;
- conveying a sense of what the Greening the Wharf project was about;
- gaining their impressions of the organisational culture;
- exploring any organisational sustainability practices evident before the Greening the Wharf project;
- exploring organisational sustainability practices evident after the Greening the Wharf project;

- exploring personal sustainability practices evident before the Greening the Wharf project; and,
- exploring personal sustainability practices evident after the Greening the Wharf project.

The structure of this topical landscape was informed by my key research questions.

#### **4.7.1.2. Pilot Interview**

Prior to undertaking the case study, I conducted a single semi-structured interview with a member of an organisation involved in the implementation of the Sustainability Advantage program run by the NSW Office of Environment and Heritage. As indicated in Chapter 2, this program encouraged organisations to adopt sustainable practices as a source of strategic advantage, with a focus primarily on environmental sustainability. In terms of the sustainability phase model, it would be trying to move organisations to an ecological level of 5, strategic proactivity. The individual I interviewed in January 2014, was the organisational champion for the initiative and had been involved with it since joining the organisation in May 2011. As such she had sufficient experience to allow me to explore questions about implementations and impacts. I was able to explore the same topical landscape as I intended to cover at STC. The individual was able to speak to her own understanding of sustainability, how the sustainability process had been initiated, how the learning had unfolded over time, what had been successful and what had been less so, and how the process had impacted on her behaviour within the workplace and at home.

At the conclusion of the interview, I felt that the interview guide allowed for the development of an easy rapport and a conversational approach that allowed the participant to offer an in-depth account of their own experience across the topical landscape I sought to explore. I was satisfied that the interview guide did not require any changes ahead of using it for my research at STC.

#### **4.7.1.3. Selection of participants**

Due to the retrospective nature of the research and the time period involved I decided that I needed to interview three groups of staff. The first group were those involved in the Greening the Wharf project directly so that I could gain an understanding of how the project had been run. Those staff were identified in conversation with Patrick McIntyre. I also wanted to get a sense of how well the changes made to the organisation's processes and practices had become embedded in the organisation's culture. Had it become "business as usual"? To assess this I wanted to garner the perspectives of a second group of staff who had lived through the Greening the Wharf project and

had a sense of life before and after the project. I also wanted to garner the perspectives of a third group of staff who had joined since the project had formally wrapped up to see how strong a sense of STC's environmental sustainability was felt by them. Thus, I would have multiple temporal perspectives on STC's sustainability journey.

I originally wanted to use a mixed methods approach to researching the latter two groups. I developed a survey to be distributed to all staff via Survey Monkey. The survey canvassed for staff attitudes and behaviours around sustainability and attitudes to the environment and climate change. It asked respondents to answer questions about their behaviour before living through the project and after. In the case of staff who had joined since the project wrapped up in 2011, they were to answer in terms of before and after joining STC. My plan was to work through the surveys and use them to identify staff that I would like to interview in more depth. I forwarded a copy of the survey to the Patrick McIntyre for comment and he responded by saying he did not think it would be workable. We arranged a phone meeting to discuss his issues with it. He advised that I would end up with a skewed sample with an over-representation from administrative staff who were using computers all day. He advised that staff involved in building sets and costumes did not use computers much and would not be likely to take the time to complete the survey. He suggested we take another approach.

McIntyre suggested that we pick potential interviewees from a staff list. As we had identified five staff involved in the implementation of Greening the Wharf, he suggested we select five staff for each of the remaining two groups I wanted to research. The names would be selected by a human resources assistant. The human resources manager provided two lists to the human resources assistant based on duration of employment at STC, one for those who had been with the company longer than five years and one of staff had been with STC for less than five years. The assistant was instructed to select any five names from each list. This constituted a form of purposive sampling because the participants approached met a selection criterion that was relevant to the research questions I wanted to explore (Cooksey & McDonald, 2011). In this case, I wanted to interview staff from two groups based on the criterion of their years of employment as the basis for identifying group 2, those who were not involved in the implementation but had lived through the Greening the Wharf project and group 3, those who had joined after the project had formally ended. The human resource assistant was an intern who had only recently joined STC and was not familiar with many of the staff working in the organisation and I felt that it reduced the possibility that she might pick particular people based on a personal relationship with them. The resulting sample ended up providing three staff from the ticketing office, two who had been with STC less

than five years and one who had been there over five years. I liaised with the human resources manager and those identified to establish an interview schedule for my site visits.

The initiators and implementers of the change that McIntyre and I selected for interview were:

- Artistic Director, Andrew Upton (he was the solo Artistic Director by this time as Blanchett had stepped out of the Co-Artistic Director role at the end of 2013).
- Executive Director, Patrick McIntyre, who had joined in 2010.
- Director, Community and Corporate Partnerships, Paul O'Byrne who had joined in 2010 to run the Greening the Wharf project after Rob Brookman, the previous General Manager had left.
- The Front of House Manager, Mike, who had been a key part of the original project team.
- The Director of Finance, Cassie, who had taken care of all of the financial aspects of the project.

During my visits, I also identified or had names suggested to me of further staff to interview. These were:

- The Head of Set Construction, Joe, who had undertaken a research project to identify alternative sources of material for set building because the ply they were using was made from old growth forest timbers.
- The Production Workshops Manager and longest serving staff member at STC, Jack, I hoped would provide a historical perspective on STC to help me contextualise Greening the Wharf within that history. Jack was also heavily involved in the ongoing implementation of initiatives such as recycling, repurposing or reusing of materials from sets.
- The Head of Archives, Jane, who was another long-serving staff member and keeper of company records.
- The contractor who was running the on-site restaurant called The Bar, Trina. I wanted to ascertain if the Greening the Wharf project had been extended to non-STC organisations associated with STC.

Both the Executive Director, McIntyre, and Head of Community and Corporate Partnerships, O'Byrne, joined in 2010. The Greening the Wharf project had been in train since the announcement of Cate Blanchett and Andrew Upton as the incumbent Co-Artistic Directors in November 2006,

though they did not formally take up the roles until 2008. The only members of staff from the original implementation team remaining was the Front of House manager and the Head of Set Construction. After conducting all of my interviews with the implementers and analysing the data for several months I noticed some discrepancies in perception around how they saw the way the project was run. It led me to conclude that I needed to speak to the former General Manager, Rob Brookman, who was replaced by Patrick McIntyre in 2010. I interviewed him in early 2015 and his contribution to my understanding of the project was invaluable. I will explain a little more of this in the 4.8.1.

I made several attempts to arrange an interview with Blanchett who had left at the end of 2013 but her schedule was too hectic. I even tried to email some questions via her personal assistant but the attempt was not successful. I have been able to gain some understanding of her values and attitudes from my interview with Upton and from statements she made in the press and her publicised environmental activism.

The three groups of staff interviewed are represented in the following tables. Each interviewee is listed with their gender, role, an indication of their years of service (less than or greater than five years), their approximate age as guessed by me and an indication if they had been purposively selected from the staff list or directly approached by me because they had been identified as persons of interest by other interviewees. Table 4.1 lists those directly involved in the Greening the Wharf project.

- Table 4.2 lists those who lived through the project and had experience of life before and since Greening the Wharf had formally ended.
- Table 4.3 lists those who joined STC after the project had formally ended.

Those key staff who were pivotal to the project were approached after the initial interviews with a request to use their real names and they have agreed. They will be identified by their surname when quoted. Other staff will be referred to by a first name pseudonym and their role title when they are quoted.

**Table 4-2 Summary of staff interviewed who were involved in the implementation of Greening the Wharf**

Pseudonym /surname	Gender	Role	Years of Service	Approx. Age	Purposive or Selected
Cassie	Female	Director Finance	>5yrs	40's	Selected
Brookman	Male	General Manager to 06/2010	>5yrs	50's	Selected
McIntyre	Male	Executive Director	<5yrs	40's	Selected
Joe	Male	Head of Set Construction	>5yrs	50's	Selected
Mike	Male	House Services Manager	>5yrs	50's	Selected
O'Byrne	Male	Director, Community and Corporate Partnerships	<5yrs	40's	Selected
Upton	Male	Artistic Director	>5yrs	40's	Selected

**Table 4-3 Summary of long-term employees who were not involved in the implementation of Greening the Wharf but lived through the project (> 5years service)**

Pseudonym /surname	Gender	Role	Approx. Age	Purposive or Selected
Hannah	Female	Accountant	40's	Purposive
Alan	Male	Data Analyst	40's	Purposive
Bob	Male	Building Services Manager, Sydney Theatre	40's	Purposive
Pam	Female	Payroll Officer	50's	Purposive
Jack	Male	Production Workshops Manager	60's	Selected
Jane	Female	Archivist	60's	Selected

**Table 4-4 Summary of recent employees interviewed who joined STC after the project had formally wrapped up (i.e. < 5years service)**

Pseudonym /surname	Gender	Role	Approx. Age	Purposive or Selected
Susie	Female	Ticketing Specialist	20's	Purposive
Dave	Male	Production Assistant	20's	Purposive
Will	Male	Ticketing Specialist	20's	Purposive
Connor	Male	Company Manager	30's	Purposive
Kim	Female	Venue & Events Coordinator-Sydney Theatre	20's	Purposive
Cynthia	Female	Corporate Partnerships Coordinator	20's	Selected
Trina	Female	(Contract) Manager of the Bar	40's	Selected

#### 4.7.1.4. Interview guide(s)

Three slightly varying interview guides were developed prior to undertaking the case study. The guides reflect the three groups of people I identified for interviews as outlined above:

1. The change implementers
2. Staff impacted by the change who lived through the Greening the Wharf project
3. Staff impacted by the change who had joined STC after 2011 when the Greening the Wharf project had formally wrapped up.

The questions vary slightly based on which group I was addressing. The questions are captured in Table 4.5. It should be noted that the questions were a guide to conversation and interviews were kept casual so that rapport could be maintained. This meant that tangential threads were followed, and I would keep the themes in mind as we chatted to ensure the thematic areas eventually were covered. The questions that related to the Greening the Wharf project were aimed at developing an understanding of how the project had unfolded over time and how it could best be described in terms of organisational learning concepts in order to answer research questions 1, 2 and 3. The question related to the understanding of sustainability sought to uncover the metaphors that participants used to describe the term. The questions related to behaviour change sought to understand if the participants had learned to be more sustainable which would provide evidence towards research question 1 and if that learning had extended beyond the organisation to their personal lives in order to answer research question 4.

**Table 4-5 Thematic questions asked during interviews with staff depending on their role**

<b>Change-maker/ implementer (varying periods of service)</b>	<b>Non- implementer who lived through the Greening the Wharf project (&gt;5yrs service)</b>	<b>Non-implementer who joined STC since the Greening the Wharf project (&lt;5yrs service)</b>
How would you describe the word sustainability – what does it mean to you?	How would you describe the word sustainability – what does it mean to you?	How would you describe the word sustainability – what does it mean to you?
How much knowledge of sustainability, particularly environmental sustainability would you say you had prior to the introduction of the Greening the Wharf project at STC?	How much knowledge of sustainability, particularly environmental sustainability would you say you had prior to the introduction of the Greening the Wharf project at STC?	How much knowledge of sustainability, particularly environmental sustainability would you say you had prior to joining STC?

Change-maker/ implementer (varying periods of service)	Non- implementer who lived through the Greening the Wharf project (>5yrs service)	Non-implementer who joined STC since the Greening the Wharf project (<5yrs service)
What kind of sustainability behaviour would you say you engaged in before the Greening the Wharf process (at home, at work, travelling, other)?	What kind of sustainability behaviour would you say you engaged in before the Greening the Wharf process (at home, at work, travelling, other)?	What kind of sustainability behaviour would you say you engaged in before coming to work here (at home, at work, travelling, other)?
Tell me about the Greening the Wharf project – what was your involvement with it?	Tell me about the Greening the Wharf project – what is your understanding of it?	What kind of sustainability activities does STC engage in?
How did you find the process went in terms of what was easy, difficult, the response of staff, what worked well and what did not work so well?	From your observations, how did you find the process went in terms of what was easy, difficult, the response of staff, what worked well and what did not work so well?	Have you engaged in new or different sustainability behaviours at work compared to your previous employer?
How would you describe your knowledge of sustainability prior to Greening the Wharf?	What kind of sustainability activities does STC engage in?	Tell me what it is like to work here (engagement, being able to speak up about problems or ideas, how would you describe the management)?
What kind of sustainability behaviours did you engage in at work or at home before the Greening the Wharf project started?	Have you engaged in new or different sustainability behaviours at work since Greening the Wharf?	Since joining STC has your behaviour around sustainability outside of work changed? Do you do anything new or different than you did in your previous employment?
Have any of those behaviours changed since being part of this project? Can you give me some examples?	Tell me what it is like to work here (engagement, being able to speak up about problems or ideas, how would you describe the management)?	
Since Greening the Wharf has your behaviour around sustainability outside of work changed?	Since Greening the Wharf has your behaviour around sustainability outside of work changed?	

#### 4.7.1.5. Recording and transcribing interviews

I used the LiveScribe system to record my interviews and as my research diary. Livescribe consisted of a notebook and pen that had a Bluetooth facility to connect to an app on an iPad. For each interview, I noted the date, time and person being interviewed on a new page in the notebook and press a record button at the bottom of the page to activate the recording function on the app.

The app records both the interview and the content written onto the pages of the notebook. This meant that if I lost the notebook there was another copy of all of the notes held within. To ensure I had a backup of the recording I also used my iPhone to record the interviews, using the Voice Memo app.

Interview times varied depending on how forthcoming that interviewee was in their answers to my questions. The longest interview was just over an hour and the shortest was fifteen minutes. I conducted interviews with the staff identified by the human resources assistant in meeting rooms for the most part. There were two main rooms on site that I was able to use. It was reasonably comfortable, being one of the few air-conditioned spaces in the building, though I was sometimes interrupted by people coming in to adjust the thermostat. Interviews with change implementers took place in their offices for the most part. The other staff I identified for discussion were interviewed in their offices as well. I had follow-up discussions with a couple of the implementers in The Bar restaurant on site but I avoided it for most discussions due to background noise.

The Livescribe system allowed me to focus on the interview and not worry too much about taking notes. The notes I took during the interview were recorded in the notebook and then synchronised to the Livescribe app on my iPad. At the end of each interview, I took some notes about how I felt it had gone, my impression of the person interviewed and my own feelings during the interview.

I used a professional transcription service to transcribe the interviews. The service had indicated that they would provide details on the following aspects of the transcript as a standard part of the service.

- The duration of the interview
- Audio quality: high, average or low
- Number of facilitators:
- Number of interviewees:
- Difficult interviewee accents: yes/ no
- Other comments (such as level of background noise that might have interfered with the accuracy of the transcription).

The standard format of identifying the speakers as either the facilitator or interviewee offered by the service was suitable for my purposes as I was having one-on-one interviews, and the interviewee was being identified as indicated in the instructions below.

My recordings of each interview were in MP4 format and the file was named with the participant's name and the date of the interview. These were uploaded directly to the transcription service provider's website. My instructions to the service related to the following points:

- I instructed the transcription service to include the name of the participant and the date of interview at the top of the transcript in addition to the information they were providing as explained above.
- In coding the transcripts, I requested the service to:
  - use [] around words that were not clear, be it through problems with audio quality, uncertainty about the word or spelling of the word, and
  - use <> around descriptions of sound, silences or pauses in the proceedings due to interruptions.
- I instructed them to name the transcription file with the same name as the recording. The recordings were named with the participant's surname.

The transcription service returned the files electronically via its website once transcribed. They sent an email to alert me to their availability. I double-checked the transcribed interviews by going through the transcripts while listening to the original interviews and making adjustments as needed.

#### **4.7.2. Document access and analysis**

Documents analysed included press articles, annual company reports, a small number of internal company documents and photographs taken at the site. In selecting the documents, I was very lucky to be given access to both the archives department and the highly-experienced archivist at STC. All press related to STC activities were held in folders for each year. Hard copies of annual company reports were also held in the archives.

I also sought out press clippings because Blanchett and Upton had a very high public profile. Having been overseas for many years before taking up the appointment, there was a great deal of interest from the press about them, their roles at STC and the Greening the Wharf project. A key reason for drawing on the press clippings was to compare the public story to the one going on internally for triangulation purposes. Press articles covered newspapers, predominantly NSW and Sydney focussed; magazine articles and a smaller number of national and international publications.

I went through all of the press clippings and company reports looking for any items that related to the Greening the Wharf project. Those were photographed using my iPad. The documents gathered spanned the period from November 2006 to 2014 when I commenced my research.

- November 2006- Blanchett and Upton were announced as incumbent Co-Artistic Directors (CADs) and at the same press conference they announced an intention to make ‘theatre green’.
- 2007- Blanchett and Upton were in the press discussing returning to Australia to take up their roles and mentioning their intentions around environmental sustainability.
- 2008-2011 – the period when the Greening the Wharf project started and was brought to fruition.
- 2012-2014- the period after the major part of Greening the Wharf had been completed and when the behavioural changes should be evident.

I did request access to selected excerpts of Board meetings so that I could understand the perspective of the Board and triangulate certain claims made during interviews about the discussions related to Greening the Wharf that occurred as part of the appointment of Blanchett and Upton. I was not permitted this access but overall, I do not think that it impinged on the authenticity of the data as there were other sources of evidence to back up those claims. In particular, my interview with Rob Brookman confirmed that the greening idea had been floated to the board during the discussions about the appointment and he corroborated McIntyre and Upton’s assertions about board support.

I also accessed the websites for both the Federal and State Government initiatives that were relevant to their funding of parts of the Greening the Wharf project. The period in which this project was conceived and enacted coincided with a supportive political environment at both the state and federal level on issues relating to sustainability (2007-2010). As mentioned earlier, the [greeningthewharf.com](http://greeningthewharf.com) website was a valuable record of the public narrative of the Greening the Wharf project and its outcomes.

#### **4.7.2.1. Organisational Documents**

Documents gathered included public documents such as the annual report published in April each year to report on the preceding year. Copies of these reports were available on the Company website and older reports (pre-2010) were held in hard copy in the archives room and were photographed with an iPad. They included details about the Greening the Wharf project and the

financial status of the organisation. Other organisational documents included instructions for clients or contractors in relation to procedures informed by Greening the Wharf principles. For example, there was a document with advice for set and lighting designers regarding appropriate materials and limits on power usage. There was also a Green Events Guide for outside organisations or individuals wishing to host events at STC.

#### **4.7.3. Site visits**

I visited STC three times in my main data gathering phases over a four-month period in 2014. The number of visits was dictated by the availability of staff for interviews. The first two visits allowed me to interview the staff identified in the initial participant selection process. The follow-up third visit was to allow me to interview additional staff I identified as being of interest or who have been suggested to me by other participants as being of interest due to their involvement with the original Greening the Wharf project or greening activities post the project. My initial two visits were held in February and I visited again in April for some additional interviews. The visits enabled me to conduct scheduled interviews and to observe a little of the day to day running of the organisation, garner a sense of the culture more broadly and familiarise myself with the built environment as well. This was significant as the building was heritage-listed. Gaining approvals for some of the infrastructures such as solar panels was a challenge for the Greening the Wharf project implementers. I took a small number of photographs of points of interest (to my research focus) on each visit, the signage about printing and the recycling bins, for example.

#### **4.7.4. Research Journal**

I maintained a research journal throughout the entire research process. It was not used to collect data specifically but more to act as place for reflection and recording observations. During the data gathering phase, I made notes on each interview, including the pilot interview and my observations from site visits. I kept notes from my meetings with my PhD supervisors (which were also recorded using Livescribe or Evernote so that I could listen back to them). I also recorded any insights, questions or frustrations I experienced as I progressed through my journey. My notes were an invaluable source of insights and a memory aid to review before I embarked on each stage of the coding process, analysis and thesis writing, as mentioned. It proved particularly useful because this had been a long journey conducted part-time while juggling work and family commitments. I also used the journal to make notes as I started to engage in data analysis activities to assist me in thinking through what was emerging from the data.

## 4.8. Approach to data analysis

I chose to use a Computer Assisted Qualitative Data Analysis (CAQDAS) package to support my data analysis processes. I had twenty interviews to examine, many photographs of company documentation and press clippings as sources of triangulation and a software package allowed me the opportunity to link those data sources during the coding process in a variety of ways.

I chose MAXQDA 11.1.2 as my analysis software because of its flexibility, particularly around its coding and memo systems and data visualisation capabilities. The coding system was intuitive, and it had excellent visualisation options for using colours to delineate different coding levels and even emoji coding (though I did not use these). Document importation was easy across all file types used including MSWord, PDF and JPG files of photographs of archival material and photographs taken around STC. The screen layout was easy to configure to my preferences and its auto-backup facility was also a useful feature.

All interview transcripts and documents (press articles, company reports and internal documents) were uploaded into MAXQDA for analysis after I returned from the second site visit in April 2014. Any errors in interview transcripts were corrected by comparing the transcript to the original audio recording and amending the transcript before files were uploaded for coding. MAXQDA proved very intuitive to use. Coding in the documents was simply a matter of highlighting the relevant section of an interview, or document or photograph and clicking the right mouse button. It then opened a contextual menu which presented options to code *in-vivo* or code with a new code. The code then appeared to the left of the relevant item with vertical brackets to indicate exactly which area of the file it related to. Codes could be colour coded so that I could tell what higher order code a sub-code belonged to. For example, and not surprisingly, codes related to the Greening the Wharf project were green. Multiple codes could be applied to the same piece of data. Adding memos related to codes could be done at the time the code was created to describe the code and its purpose and any insights that emerged during my analysis. Memos could also be created for individual documents.

### 4.8.1.1. Coding

Data can be coded as they are collected, and the codes typically evolve through the cyclical data collection/analysis process but in the case of this research project, the coding was all done *post facto*. The codes assist with labelling, separating, compiling and organising data. In grounded theory, the coding practice can be open, axial or selective (Strauss & Corbin, 1998). Open coding

is the first stage of breaking down the data, examining it and devising categorising data to yield concepts. Axial coding is a method of putting data together in different ways after the open coding process by making connections between the categories developed. Codes are linked “to contexts, outcomes, patterns of interaction and to causes” (Bryman & Bell, 2011, p. 578). Finally, selective coding occurs by picking a core category around which to tell the story of the data and systematically relating it to other categories. An alternative way to describe coding is offered by Saldaña who talks about coding as occurring in cycles. The first cycle is akin to open coding where data are broken down and labelled with initial *in-vivo* (using words directly from the data) or descriptive codes. The second cycle involves focused coding where we are finding thematic or conceptual similarities; axial coding where we establish relations between a category’s properties and dimensions; and theoretical coding where we are discovering the central or core category that identifies the primary research theme (Saldana, 2009). This was the approach that I took in my coding of the data on Greening the Wharf.

My first cycle coding of interviews and documents was structural, following the topical landscape of the interviews. The purpose of this cycle was to gain insights across the interviews as to general responses to questions so convergent or divergent perspectives could be identified and explored (Saldana, 2009). Codes were allocated for metaphors and frames for sustainability, Greening the Wharf and impressions of what STC was like to work for (culture). Codes were also allocated for behaviour in order to capture reported behaviour engaged in by participants. This included behaviour at work before and after staff had lived through Greening the Wharf for Groups 1 and 2. Group 3 had codes allocated for behaviour at home and work before and after joining STC.

I established variables for each participant in MAXQDA that indicated their pseudonym/surname, role, length of time at STC (expressed as <5yrs or >5yrs), approximate age based on my subjective assessment and their gender. I also established temporal codes with a code for each year from 2006 to 2014 when I gathered the data. This assisted me in building my understanding of how the Greening the Wharf project had unfolded over time and who the key participants were at any point in time. While coding around the topic landscape I was already finding some of the responses to my questions intriguing. Given I was trying to establish a clear frame on the project in which to start diving deeper they related to key issues such as who ran the project and what constituted the project. This point of interest led me to create a code called **discrepancies in perception**.

I worked on the data throughout 2014 but could not get a clear frame on the project, particularly any great detail on the early stages. I had the impression the project had fallen together rather than

being tightly managed. On re-reading one interview with a member of the original implementation team I noted he had mentioned the former General Manager, Rob Brookman, as being a key individual. I arranged an interview with him that, as indicated earlier, proved invaluable. That interview added critical data in the form of the interview content and company documentation that he furnished me afterwards. That allowed me to build a clear picture in my own mind of the project end to end and that spring-boarded me into my secondary analysis processes.

I reorganised my coding tree to reflect the conceptual framework using the complex systems of dynamic influence around the organisational activity of Greening the Wharf (Cooksey, 2003). It provided a loose and general template that allowed me to apply the lenses of the model to the Greening the Wharf project and sources of influence from the environment, organisation, individuals and group contexts. I created top level codes for Greening the Wharf, environment, organisation, groups and individuals. I created a memo at each of the levels to capture any key insights or questions that emerged as I coded.

- *Greening the Wharf Project* capture all codes related to the project itself including timelines, the way staff framed the project, the details about how the project had unfolded over time, communication about it both internal and external.
- *Environment* created codes based on examination of reports within company documentation, public documents such as Government websites or press clippings, relevant internal documents and comments made by interviewees about the larger context(s) (e.g., state, federal, legislative, funding, etc) in which Greening the Wharf took place.
- *Organisation* – held codes related to the organisational aspects relevant to Greening the Wharf including the leadership and STC's culture, structure, communications, policies, financial aspects and business plan.
- *Groups* looked at the influences on people's behaviour from groups within and outside the organisation. These could include, family/friends, colleagues and work group dynamics. Codes captured the role of the teams involved in Greening the Wharf.
- *Individuals* coded for the experiences of the various individuals interviewed in terms of their personal past with respect to the sustainable behaviours at home/work; their current behaviours at work/home, their sense of the Greening the Wharf project and how part of the organisation culture has it become. It will also explore the interplay

between personal beliefs on the Greening the Wharf project and how the project may have impacted on personal behaviours.

By clustering codes that way I started to examine each sub-system for sources of dynamic influence that might have been enabling or constraining conditions and sources of feedback to the project. Codes were modified, added or changed as new insights and themes emerged. Codes that were no longer analytically useful were removed. I then examined how each of the subsystems was feeding back and forward with each other. For example, at the level of the individual system, I identified individuals who were critical enabling conditions for the project.

For all individuals I tried to capture how they framed their conception of sustainability, of Greening the Wharf and STC culture. I also captured their reported behaviour before and after Greening the Wharf or joining STC, if they had arrived after the project had formally ended. I added codes to capture if the reported behaviour was positive or if it was neutral/negative. This enabled me to explore themes that emerged through examining the three groups of participants. I was also able to use the variables to compare perspectives through the prism of level of involvement with the project, years of service, age and gender for any emergent themes.

A copy of the full coding hierarchy is available for review in Appendix 2.

## **4.9. Quality criteria for assessing research**

Research in the interpretivist tradition presents a challenge to the researcher. It requires the researcher to convince the audience that the social world under investigation has been appropriately represented. Cooksey and McDonald articulated four quality criteria that must be addressed if interpretivist/constructivist research is to be convincing (2011; see also Cooksey, 2008).

The **Transparency** criterion asks if another researcher could generate similar categories/meanings that facilitate the elaboration of the account or interpretation. I argue that if another researcher had access to the theoretical framework chapter, they could use Cooksey's (2003) complex systems of dynamic influences framework with the added attention to frames and metaphors, plus copies of the interview guides, transcripts and other documentation, they should be able to replicate a similar set of codes around the data gathered.

The **Authenticity** criterion asks if the interpretation generated by the researcher is an accurate depiction of the perspectives of those participating in the study. The danger of engaging in more

naturalistic forms of enquiry is the potential for researcher bias in distorting the results. Using a constructivist grounded theory approach, I was careful to allow the data to speak for themselves. Thus, I have tried to capture the actual utterances of the staff involved in explaining my findings in Chapter 5.

The **Sufficiency** criterion asks if enough people/instances/occasions/perspectives/documents been sampled to allow presentation of a sufficiently complete and convincing account? The interviews with 20 staff with different levels of exposure to the Greening the Wharf project provided a broad and deep picture of the project and its impact. I interviewed staff from all levels of the organisation, so I was satisfied that they were a representative sample who could offer a variety of perspectives. In addition, the information offered by the interviewees was triangulated against other data sources including company reports and internal documentation, press articles, government websites.

**Transportability** asks if the account and its perspectives have meaning/relevance in other contexts. As the study was based on a single case, this criterion was a bit more difficult to apply. However, any patterns I discovered might be argued to be relevant in similar contextual circumstances through conceptual extension (Cooksey & McDonald, 2011; Yin, 2014). There were relevant meanings and interpretations around the Greening the Wharf project as it unfolded and recounted by the staff in interviews that offered insights that other organisations might find informative if they are undertaking an organisational learning for sustainability project.

## **4.10. Presentation of the research findings**

There many ways in which to display research findings and I have employed several in telling the story through Chapters 5 and 6 (Miles, Huberman, & Saldana, 2014). The interpretive approach taken in this research required me to focus on analysing qualitative themes and relationships and to seek out similarities and differences in how the participants described their experiences in answer to my interview questions. To ensure that I captured those perspectives in their own voice I have made extensive use of verbatim quotes throughout the presentation of the data. Those findings are captured first in a narrative display because it offered a way to take the reader through my own journey into the data as alluded to above in Chapter 5 and the subsequent additional data, once analysed permitted the narrative of the entire Greening the Wharf process (Cooksey & McDonald, 2011). Quotes include the surname or pseudonym of the participant, the year and the section number or numbers from the transcript.

In addition to narrative display I have drawn on other sources of data display. These included summary tables in which I capture the details of the research participants including the variables added to contextualise them in terms of age, gender, years of service and role. A summary table was also used to capture the chronological narrative of Greening the Wharf. Further tables are used in assessing STC's level of sustainability.

I have displayed the complex dynamic influences on the project through a mind map using Inspiration software. Mind mapping was invented by Tony Buzan (Buzan, 1993). Mind maps allow for a colourful non-linear display for organising, ideas or research findings. It allowed me to capture the important enabling conditions and show feedback between the subsystems around the central activity of Greening the Wharf. In addition, I used a related tool called a concept map, also produced using the Inspiration software, to display the various stages of the Greening the Wharf project (Cooksey & McDonald, 2011). I captured its initiation and key stages across four different maps.

I have used diagrams to show the floorplan at STC and its organisation chart. Finally, I have used photographs of key aspects of STC to give the reader a richer perspective on the context and the visible impacts of Greening the Wharf on the building and cultural artefacts.

## **4.11. Conclusion**

This chapter has set out the research process by providing a background to the thesis topic. It then established the position of the researcher and laid out the guiding assumptions for the research. It then laid out the research process using a constructivist grounded theory approach to explore Greening the Wharf at STC as a single in-depth case study. The ethical considerations were addressed before discussing the data gathering techniques, data sources, pilot interviews and actual interviews. The data analysis process was explained and how it met the quality criteria for interpretivist/ constructivist research. Finally, I outlined how the research findings would be presented. Chapter 5 will engage with the first level of analysis by examining the contextualisation of my journey into the research, the chronology of Greening the Wharf at STC, and the perceptions of staff. That will be followed by a deeper level of analysis, reflections, and interpretations in Chapter 6.

# **Chapter 5. Contextualisation, chronology and perceptions**

## **5.1. Introduction**

This chapter will present the findings from the research conducted on Greening the Wharf at STC. It will start by explaining my own journey into the data and how it informed and impacted on my initial interpretations and follow up actions. It will then explain how the project unfolded and evolved over time from 2006 to 2011 and explore the impacts evident when the data were gathered in 2014. It will narrate the Greening the Wharf project as it was explained to me through those interviews and my initial analysis as this establishes some key points about framing that will be explored further in chapter 6. Once my own journey into the project and sustainability at STC is uncovered, I will then set out the chronology of the project from idea to completion and beyond. It will lay out the responses of change makers and non-change makers to my interview questions. The first part will look at the project itself, largely from the perspective of the change makers and canvas their impressions of what was easy, difficult, what was the level of resistance, what was successful and what was not. It will also summarise the behaviour changes reported by staff, in terms of sustainability related behaviours before and after Greening the Wharf both at work and at home. It will proceed as follows:

- 5.2. The researcher's journey into Greening the Wharf
- 5.3. Overview of the Greening the Wharf project
- 5.4. Perceptions
- 5.5. Behaviour changes
- 5.6. Conclusion

## **5.2. The researcher's journey into Greening the Wharf**

As indicated in Chapter 4, a first-person account provides an insight into the personal experience of an event and allows access to how the narrator frames and cognises that event through the choice of words and metaphors they use. Thus, the interviews conducted with staff provided a framework to explore their own sense of Greening the Wharf and its impacts. Taking that approach another step further, this chapter will provide a narration of how the story of Greening the Wharf unfolded to me in my capacity as the researcher through my preliminary access to publicly available

information and then through my site visits and interviews. The way in which the story came to me had its own influence on the research process as I tried to make sense of what was coming to me chronologically through my interviews and experiences at STC. My research journal was a critical source of reflections and comments about my journey as I gathered my data. A little later in the chapter, the full chronological narrative will be revealed and summarised as a reference point for the Chapter 6.

Once I had the green light to investigate Greening the Wharf at STC I set about the process of putting together my research approach as outlined in Chapter 4. In all, I conducted 20 interviews in 2014 with staff at STC. These took place over three site visits, two in February and one in April.

My first visit to STC was a source of nervousness and especially so for an anxiety sufferer. However, the receptionist was warm, welcoming and spoke with an engaged intelligence, telling me about her law studies and interest in human rights while I waited to meet Patrick McIntyre for my first interview. He was quietly spoken and very articulate as I remembered from our first meeting. He exuded a calm confidence that did not need to be fed with affirmations. His office which sits next to the Artistic Director's has harbour views but is modest in size and furnishings. We sat at a 4-person round table in the centre of the room for the interview. Our interview lasted for about an hour. At that time, I had no knowledge of how the project had started, who had run it and its timeframe. My main source of information had been the *greeningthewharf.com* website which was very professional and offered a neat narrative of the project and set of case studies related to various aspects of the project such as their energy strategy. As the site ceased to be available in late 2017, I have included copies of those case studies in Appendix 3. McIntyre had joined STC at the beginning of 2010 and was employed to replace the outgoing General Manager, Rob Brookman who left in June 2010 after a hand over period. I asked him about the language used for the project and he indicated that it was always referred to as greening. I also checked if the focus was purely environmental, particularly with some organisations operating with a triple bottom line focus. He said,

*It's exclusively environmental. Paul O'Byrne and I have been trying to talk more in terms of social sustainability, but that's not really got any traction. So one of the things we did try and do when I got here was the Green Wharf. They'd raised the funds for it, there was going to be the photovoltaic cells, the rainwater, all that kind of stuff.*

*The money was there but the work hadn't been done. What I faced when I first got into the job was that there was a lot of - there was still a lot of people going, why the hell are we doing this anyway? There was a perception that because it was the thing that Cate and Andrew were perceived to want to talk about most, that a lot of people in the industry and in the company were saying, what happened to theatre? So it didn't really have a logical home inside the business' mission, or business plan even. So what we did when I first got here was we completely recast the business plan. The first iteration of that business plan was called STC ABC, where ABC stood for Art, Business and Community. So that meant that art was the first thing and that was the reminder that we're still an arts organisation. B was there - for business - was there to remind people that without an effective business underpinning the art, things wouldn't happen. C was there to demonstrate that relevance and value to the community is - underpins both the art and the business performance. There are a whole lot of different ways that we work with the community in a non-theatrical way. One of them is education programs, another one, the regional touring programs or programs that explore mental health and wellbeing improvements through theatre. It's also where Greening went. So it was - we wanted a structure and an architecture for the business that clearly said Greening does belong here, and this is where it belongs.*

*The other thing we were really careful to talk about was that there were three pillars to the Greening project. One was infrastructure, which was hogging all the attention because it was the most visible and expensive bit. The second one was behavioural change and - which had started before the infrastructure projects, in fact. The third one was advocacy, so that's where it becomes really relevant to being a theatre company, because a theatre company is a public storyteller and we believe that the arts impart information and tell stories in a way that encourages the imagination and encourages empathy and insight (McIntyre, 2014, 14-16).*

When asked about how the project evolved he said that there were “nodes of interest”. He talked about Front of House Manager, Mike managing the infrastructure elements which were undertaken by NSW Department of Public Works, a relationship that Mike owned. He also mentioned the

Head of Set Construction who became interested in sourcing sustainable timbers and the Head of Lighting who looked into how wattage could be reduced.

*Then we had [Paul O'Byrne], who we hired to run the project. He ran the Green Team and he was the management team's conscience on this. So he - it was his single focus when he first got here (McIntyre, 2014, 37).*

My next conversation was with Mike, the House Services Manager. He had been a key part of the project since its inception. He spoke of a shift in the approach to maintaining the Wharf infrastructure when Rob Brookman became the General Manager and that they started to work to a three-year capital expenditure program rather than running on a twelve monthly basis as had occurred under previous managers. The Wharf building itself was first opened in 1912 and was also heritage listed.

*Rob was probably very important in terms of actually realising the greening of the wharf - the vision that Cate and Andrew wanted to bring into the company because he was already on the same page, in a sense. He already had - and so was I - we kind of already had a sense of an understanding of the need and the greening thing. But Andrew kind of came into the company and I think they were lucky in that in the important areas of change there were people already primed to do things. Because as far as I'm aware there was really no idea of how we would achieve what we did and even what we've achieved is not something we had in our mind when we started. Because there was just something that was said to the press at the launch. It was the first most of the staff heard about it (Mike, 2014, 36).*

Mike spoke about he and Brookman organising a review of the waste management which was done with the assistance of a consultant. He talked about a discussion around the potential for solar panels with a company and trying to consider a configuration which could work with the building. It had not progressed far when a representative from UNSW visited STC.

*He'd been put on to us by Arts New South Wales because of the professed greening of the wharf situation. He was at that time looking at Pyrmont Bridge as the project for Suntech to do. You've probably heard the story about Suntech wanting to give back to Sydney because of the doctor who -*

*Doctor Shi who went to University of New South Wales. At that time their goal was to find one or maybe two high profile places preferably on the harbour. .... that conversation started in earnest with University of New South Wales, Suntech and [Brookman]. Out of that came the proposal for them to donate. But then from there it grew organically in terms of them, well how much money do we have to raise? Is there government sources (Mike, 2014, 53)?*

Mike mentioned that STC had started a relationship with BigSwitch who were giving them advice and over time a business case was built covering how they might pay for it.

*So the Future Precincts Fund was brought in by the [Federal] Labor Government at that time so we then - there was an application made obviously to find funding there. There was obviously efforts made to raise funds through philanthropy and sponsorship and that sort of thing (Mike, 2014, 59).*

The second large aspect of the evolving Greening the Wharf project was rainwater harvesting, in consultation with another company. The challenge for a heritage listed site is where to put the harvested water and after much deliberation the idea was hatched to store the water under the building. Funding for this was sought and gained from the NSW State Labor Government.

*Again, all those things were kind of as we moved forward. We didn't have a list of things we were going to tick off at the start. We just, as the opportunities came up I think we kind of grabbed with them and whole heartedly went with them sort of thing (Mike, 2014, 77).*

There was a push from the NSW Government to include all the tenancies in the Wharf. The other tenants of the Wharf building are Sydney Dance Company, Bangarra Dance Company, Australian Theatre for Young People, Sydney Philharmonia Choirs and Accessible Arts. STC and Arts NSW co-operated to create a joint submission to the NSW Department Environment and Climate Change for that project along with a portion of the STC's photovoltaic (PV) array project and energy saving initiatives. The submission was successful and Arts NSW received and administered the grant. They contracted with the Department Public Works to undertake the rainwater harvesting project and energy savings projects involving other residents of Pier 4/5. Public Works developed tender documents for the rainwater project and energy saving projects and managed the tender process,

tender award and contract on behalf of Arts NSW. In all, \$1,177,000 was granted to STC from the NSW State Government.

I asked Mike about whether there had been a formal process of articulating what greening would entail. He indicated that he and Brookman had discussed possibilities but indicated that they were far more modest until UNSW approached the company and that kick started the process of building a business case.

*It was an evolution, it wasn't a list of 10 items we want to tick off over five years. It was more a belief that we wanted to go - it was this desire to go green (Mike, 2014, 79).*

That afternoon, I interviewed Paul O'Byrne who had been employed as the Sustainability Manager to oversee the Greening the Wharf project in July 2010 after Brookman had left the company. When asked about his role he said,

*I managed the entire project end to end. [Mike] obviously, was managing the infrastructural elements and the dealing with the public works, but I took a - I was, as a project manager, overseeing the broader budget envelope with [Cassie, Director of Finance] all the ongoing government acquittals.... So obviously we had \$2 million coming from federal and state government. So there were enormous government acquittals that needed to happen, so managing all of those kinds of stakeholder elements (O'Byrne, 2014a, 22).*

*For instance, [the PV solar array] was owned by Suntech. Water harvesting, rainwater harvesting, was owned by the state government. The waste was owned by Veolia. So we had to give each of that our press calls and each of our comms throughout the program. We had to give different people Cate and Andrew time, and we had to give them profiling and - so different people at different stages became our hero for that particular component. So that was quite interesting as well (O'Byrne, 2014a, 25).*

*I was constantly tracking budget with [Cassie], whereas [Mike] was - there were only certain things that he was across, which were the infrastructural pieces which I had no expertise in whatsoever. There I was sitting in meetings with engineers around photovoltaics and everything*

*else, but we had absolute experts and I didn't need to know that (O'Byrne, 2014a, 35).*

*I inherited a set of files. I didn't really get a handover as such, because Patrick... (Me: had only just started?)... Yeah, and that was really great because it was just like a greenfield opportunity, I just had to work it out (O'Byrne, 2014a, 40).*

After that interview I noted my impression of O'Byrne. Compared to my previous interviews I had the sense that he was selling himself and his role and seemed to believe that he had ownership of the whole project when Mike was managing the infrastructure, the main target of the funding. He did not mention Brookman and his role, though the two may not have met. He was brought in at a specific time in the life of the project where the planning had all been done, the funding had all been procured and the actual infrastructure elements were starting to roll out. The aspect that he was needed for was the management of the stakeholders. O'Byrne's background was not in environmental sustainability. It covered work in the arts, television production, corporate marketing and had an interest in corporate social responsibility. He undertook studies in the area of social impact and social entrepreneurship. When asked what had attracted him to the role he said,

*So why I took the job was because no other social impact program at that time had the level of - we had 25 financial stakeholders - I came into it with 25 financial stakeholders, philanthropists, government, not-for-profit, university, advocacy groups as well as an arts company. It was a really - and corporates. So it was - plus mums and dad audience as well that was supporting the program. It was such an interesting stakeholder matrix that really was unique in the country, and that appealed to me pretty much more than anything. The fact that I could quickly upskill on the environmental sustainability side was obviously appealing, but it was the fact that I was managing a very dynamic stakeholder matrix that I would need to give everyone equal air time. That's what appealed to me (O'Byrne, 2014a, 20).*

On his LinkedIn profile O'Byrne characterises his role in Greening the Wharf as follows:

*“Led “Greening the Wharf” project, a multiple national award winning US\$3.7m refit of an historic Sydney Harbour building resulting in dramatic reductions in energy (50%), water (75%) and emissions (50%), industry and community advocacy, plus a comprehensive program of changing the way STC makes theatre. See [www.greeningthewharf.com](http://www.greeningthewharf.com) for case studies” (O’Byrne, 2017).*

This characterisation seems to be the way that Greening the Wharf was framed for public consumption. It addresses the infrastructure element for the most part but leaves the comprehensive program of advocacy and behaviour change out of the frame.

I interviewed Andrew Upton a couple of weeks later during my second next visit. Needless to say, I was very nervous about meeting him but he put me at ease immediately and our conversation was very engaging and enjoyable. He struck me as highly intelligent, engaged and passionate about what he does and the world around him. He also did not seem to take himself too seriously.

Upton mentioned that one of the first things they did to communicate the importance of greening was to invite Tim Flannery to address the company and then invite staff to participate in the project.

*One of the first things we did, because Cate had quite a good relationship with Tim Flannery, so quite early on, I think before Patrick's time, well we announced it as a thing that we would do. ... sometime in the first eight months of our time here and Tim Flannery came and spoke. So he sort of talked the whole company through the whys and wherefores of climate change and how to go about doing it on a daily, kind of personal basis.*

*There's no kind of compulsory attendance, either; you can buy into this or you don't have to buy into it. The designers have to, they have to find a balance and obviously the office place is run on those kind of sustainable principles. But it's not, you don't have to, you don't have to vote green (Upton, 2014, 46-54).*

Following on from this I asked if they had come up with a clear definition of what greening meant, whether they were looking at it in triple bottom line terms or purely environmental. He said

*We started with what we considered a symbolic gesture. ... That triggered inside the board and from our then what was called general manager, Brookman, a kind of much more rigorous series of questions and plans*

*which we sought. So no - the short answer is no, we didn't have some kind of plan, but we knew we needed one and we knew we needed to root it deeply in the business and in the daily practice and rigorously, that it needed to be a proper plan, it couldn't just be some kind of whim (Upton, 2014, 109).*

*We made a greening committee and we got cracking and we took their advice. A couple of them were businessmen, I think Ian Darling was on it and he's quite a high powered businessman himself. He knew another guy who was on our board briefly for a while, Cameron Riley, a very high powered green businessman. Rob Brookman himself, who was the general manager then, as I said, had his own green credentials and has been running theatre companies for a while. So it was quite easy to very quickly come up with a properly integrated plan (Upton, 2014, 113).*

Upton also left me with the impression that Paul O'Byrne was pivotal to the project's success when it started to roll out. Brookman was mentioned only in the quote above.

He articulated the initial idea thus:

*So the idea of creating a battery, if you like, on our roof that charged, free of charge from the sun and allowed us to have our shows at night was the kind of core idea (Upton, 2014, 28).*

*Then also inside that idea was the fact that there are changes happening and, we believe, sceptics aside, and that that would eventually affect the way we design shows or might choose to design shows, so we started to implement - we've been trying to - trying, like it bumps, sometimes we miss the boat with green design practice, but we've been essentially trying to green all of our design practice, our workshops, our lighting, so we kind of pushed right through to everything, because we felt that this was a place to have that conversation, engagement of conversation (Upton, 2014, 30).*

He said that the idea of greening,

*was part of our job application, if you like, was that these are the things we would do, this is how we would approach programming, this is how we*

*would approach the industry and this is how we would approach the building (Upton, 2014, 38).*

Here we see that Upton initially conceived of greening as being about the building, hence the name Greening the Wharf. However, that was not as clear cut as it might seem at first glance.

My interviews with different staff offered varying levels of insight into the project and I kept bumping into differing perspectives on it. Of those who had been purposively selected for interviews I had two from the Ticketing office and two from Sydney Theatre. Sydney Theatre is in a separate building across the road from STC. It was renamed the Roslyn Packer Theatre in 2016 but I will refer to it as Sydney Theatre or ST as its name was significant to my research because I framed them as being synonymous with each other due to the similarity of the names. ST was an old industrial building beautifully converted to a theatre space and restaurant. STC own the building under a leasing arrangement and it is used to put on some of its shows in addition to the two theatres housed at the Wharf and Sydney Opera House's drama theatre. The two staff identified were its Building Services Manager, Bob and Kim, the Venue and Events Coordinator. Bob seemed mystified as to why I was interviewing him about Greening the Wharf. In his mind it had nothing to do with ST and therefore, nothing to do with him. He ran ST as efficiently as possible and had installed lower wattage lighting and efficient bathroom fixtures and fittings as part of that efficiency drive but was adamant that it was on his own initiative and nothing to do with Greening the Wharf. Kim, on the other hand, saw ST and STC as a part of one entity and was keen to see some of the greening initiatives at STC (the Wharf) being rolled out at ST. This was very confusing for me as the two names were so similar and the fact that two staff from ST were on my interview list suggested to me that ST was part of Greening the Wharf in some way.

On this point of confusion, I approached Mike, the House Services Manager, for an explanation. He indicated that ST was not considered as a part of Greening the Wharf project because the building was only five years old at the time the project was being put together. However, ST staff attend company meetings and were being kept abreast of greening activities, so there is an aspect there of some sense that they were included in the conversation about greening activities. I also asked for his clarification on O'Byrne's role. Mike indicated that he had been brought in by Patrick when he took over the role of General Manager. Patrick handed over the Greening the Wharf project to him as it was too big to handle on top of the workload of taking on an over \$20 million theatre company.

In between interviews, I visited the Archives area. My time there was a welcome relief from

Sydney's humid February heat as it was one of a handful of air-conditioned spaces in the building. The archivist, Jane, had been at STC since the early 1990's and had a wonderful corporate memory and collection of press clippings relevant to the period and annual reports. I spent many cool hours photographing them with my iPad. The clippings were extensive during the period leading up and during the co-Artistic Directorship of Cate Blanchett and Andrew Upton. Once Blanchett had finished her tenure, the press articles dropped off markedly! These documents helped me to establish the chronology of the project and triangulate against what was being reported in the interviews.

Subsequent interviews contributed to more confusion for me. One area that I received many mixed messages about was the issue of theatre flats, which are the pieces of ply timber used for set building. On my first day at STC, I was invited to view what's called a company run of a play that was in rehearsal. This is where the staff in the company are invited to be the audience for a play that is in the late stages of rehearsal in order to mimic having a live audience present. McIntyre pointed to one of the flats which had the name of a different play written on it. He said that this was an initiative in recycling old flats that had started happening since the Greening the Wharf project. Yet, when I interviewed Mike, he indicated that flats had always been reused where possible, saying "*it's always been in the blood to utilise the stuff that's there*" (2014, 115). Similarly, Jack, the Production Workshops Manager made the same point about reusing as much of old sets as possible.

*I guess historically we've always been hoarders. So we've sort of always, without us really thinking about it, recycled a lot of things that we do. Yeah, there's lots of different things that we use in that. But yeah, we've never - especially in the early days, back in the '70s. In the late '70s when the company started - I mean I've worked in theatre since 1969, but with this company since '78. It has, it's - anything that's a reasonable size, like what we call a flat which is a piece of wall scenery. If it's a geometrical, rectangular or square size that we know that we can reuse we always collect those and hang onto those. Doors, things like that are all items that we sort of are a bit hesitant to let go, because you just never know. We may store things for three or four years and then not use them and you think, oh, why are we hanging onto that? Occasionally we have recycled them and then we need them (Jack, 2014 28-38).*

The issue was finally clarified when I spoke to Joe, the Head of Set Construction who said that some reuse had always taken place but that it was a more embedded practice than previously. The new practice was to screw rather than glue sets together where possible so that they could be dismantled and reused, perhaps for a rehearsal set.

Mike, as the Front of House Manager had a similar ethos to the building Manager of ST- one driven by efficiency and cost saving. “I think you'll find that most people who do what I do in buildings, it is about bottom line but there is an innate logic I think to being green. It just seems silly to waste something” (Mike, 2014, 275).

The two points of confusion for me relate to just how green STC was being in its normal day to day running before Greening the Wharf and how much Greening the Wharf had contributed to its green credentials. Further, I was confused about what was part of Greening the Wharf project and what was not. This can in part be a function of taking a retrospective view of a project that had already been formally wrapped up for two years at the time of the research. My understanding of the early days of the project were murky, particularly the period leading up to the major press announcement in mid-2009. Nevertheless, I set to loading the data into MAXQDA including the press clippings, annual reports, some internal documents furnished to me by O’Byrne and the interview transcripts. I set about pulling the data into some order around the interview questions in the first instance, and later started coding for themes. A key code that emerged from that process was “discrepancies in perception”.

So, was greening about a building or something more? I was struggling for clarity around that issue, particularly as McIntyre had indicated that infrastructure as only one of three pillars to Greening the Wharf with the other two being behaviour change and advocacy. Further, Upton spoke about a properly integrated plan but no such documents were presented to me. I was not sure if that was due to commercial in-confidence issues or a lack of actual documentation or corporate amnesia. So, the specifics were quite elusive apart from those that were reported in the press or annual reports.

My sense of the project was of one that had unfolded over time and there was no evident grand narrative for it in the minds of those I interviewed. I still felt that there was a grey area around the period from the time that Blanchett and Upton were announced in November 2006 and articulated vision to make theatre green to April 2009 when Greening the Wharf was announced as a fully funded project worth \$5.2 million. By the end of 2014, it became apparent to me that the missing piece of the puzzle was Rob Brookman, the former General Manager, who had left in 2010,

succeeded by Patrick McIntyre. I sought permission from Patrick to contact Rob which he granted without reservation. I contacted Rob at Adelaide Theatre where he was working as the General Manager and arranged a Skype interview with him in February 2015.

I asked Rob to tell me what he recollected about Greening the Wharf and he spoke for an hour without pause about the project. His knowledge was encyclopaedic. This was definitely what was missing – the person who could connect the amorphous notion of greening theatre to the \$5.2million dollar April 2009 Greening the Wharf announcement and subsequent rollout. He was the missing piece, literally. Describing himself as an ‘organised hippy’ who had been an active environmentalist since the 1970’s he said that the opportunity was a dream come true for him and he poured huge energy into it from 2007 to mid-2010 when he left the company. The following account of the project only takes this form because of my interview with him. The other accounts formed and reinforced parts of Rob’s narrative and the data in the annual reports triangulate his account of the chronology and they make more sense with the meat he has put on the bones of those reports. So, we can begin, and, in Chapter 6, we will return to a discussion of those discrepancies in perception and how they might be explained in terms of the conceptual framework developed in Chapter 3. For now, the story of Greening the Wharf from 2006 to my visit in 2014.

### **5.3. Overview of the Greening the Wharf project**

This section charts the Greening the Wharf project and further sustainability initiatives from announcement in 2006 to 2014 when I conducted the research. STC is the largest theatre company in Sydney, formed in 1978 and eventually finding a home in a heritage listed derelict Walsh Bay Wharf refurbished to fit its purpose in 1984 (STC, n.d). The building houses all of the production staff (including scenery and costumes); a ticketing office, archives department; administrative offices; rehearsal spaces; two theatres and a casual dining restaurant called *The Bar* which is run by an external operator under contract. Some productions are staged across the road at Sydney Theatre (ST), a much newer building than STC. Staff at ST are employed by STC.

On 6 November 2006, then Artistic Director of Sydney Theatre Company (STC), Robyn Nevin, suddenly announced her resignation from the role that she had held for the preceding seven years. At the press conference she announced that actor, Cate Blanchett and her play-wright husband, Andrew Upton, would take on the role as Co-Artistic Director’s, commencing in 2008 after shadowing Nevin through her final season in 2007. This was an unusual announcement in that the new Directors had been appointed by the Board without going through a recruitment process.

More unusual was the new director's vision for STC under their direction. Rather than discussing anything artistic they announced that they intended to make STC 'green'.

*"We intend to initiate discussions with companies with the aim of making the building self-sufficient, to green the building. We are talking solar panels, rainwater, the works," Upton said. "This would ideally generate enough power to do a whole season off the grid. This would be the first theatre company in the world to do that" (Bennie, 2006).*

It is still striking that two novice Artistic Directors who had not held anything other than freelance roles would be so audacious as to make such a non-artistic vision the centre piece of their anticipated tenure. The appointment was met with much excitement in the press and in the arts as it was bringing a major international star of stage and screen to the helm of a major Australian theatre company, though some discontent was expressed, notably in-house actor Colin Moody who resigned in protest regarding the pair's lack of experience in running a theatre company.

*STC actor Colin Moody quit the company's full-time actors' ensemble saying "an Oscar for acting is not a suitable recommendation to run the biggest theatre company in the country". ... Neither had worked in management nor been tied to a particular company in their careers to that point, working successfully as free lancers previously (Maddox, 2007).*

In the background of the public announcement, was a supportive Board and General Manager, Brookman. It had been part of the discussion of the appointment from the outset. "The board were very supportive and always have been, actually" (Upton, 2014, 40). Those discussions had commenced when the pair had worked with the company on productions in 2004 and 2006.

*I was their prospective GM, we started talking way ahead of any announcement being made about them taking over the artistic direction. The idea of greening came up very early in the piece, probably a year before any announcement was made (Brookman, 2015, 12).*

Work began in 2007 during the period when they were shadowing Nevin through her final year before they formally commenced their role in 2008.

In August 2008 they were interviewed by the Sydney Morning Herald and mentioned that

*"They hope to raise \$4 million to make the theatre "environmentally friendly" with a goal of it being carbon neutral within five years. On a more prosaic level, they need \$400,000 to install a lift and to renovate the toilets. Some subscribers have reacted angrily in newspaper letters columns to the appeal for cash, suggesting the couple should foot the bill themselves. (BRW magazine estimated Blanchett's worth at \$41 million in 2007). "Well that's completely unrealistic," laughs Upton. "On what level? Should Kevin Rudd pay for the toilets at Parliament House?" Blanchett offers a more conciliatory view: "But I think [subscribers] feel the company asks for a lot and doesn't return them a lot" (Dabscheck, 2008).*

It was not clear that there was immediate support from the subscribers for the greening idea and funding had not been secured. Brookman was already in discussions with the State and Federal Government and other potential stakeholders about possible funding. It took two years of planning and fundraising to bring it to fruition. It was announced formally in 2009 and work commenced in 2010. Brookman described the planning process as the same as putting on any other theatre production.

*In many ways we treated it like a giant theatrical production and brought all of the project management skills you need in making theatre to bring a production to the stage. It is a very precise industrial process – staging, design, lighting, performance, marketing, sponsorship. So, this project had similar requirements (Brookman, 2015, 16).*

This suggested an organisational metaphor for Greening The Wharf as a theatre production for STC; i.e., to produce 'Greening The Wharf', a play in two acts. Characterising the project within the norms of STC's core activities allowed the project to be more accessible to those involved and integrated into normal day to day activities.

The full chronological story of the project from announcement to 2014 is captured in Table 5.3. Over the period of the project it evolved as milestones were achieved and key personnel changed. In keeping with the theatre production metaphor, there were two identifiable acts to the project due to those changes in personnel.

### 5.3.1. Act I: Transformation 2007/8 - June 2010

STC started the Greening the Wharf project with a strong, whole of organisation approach to the Greening the Wharf project. Table 5.1 shows the steps taken by STC in the early days of the project.

Table 5-1 Summary of early steps on the path to greening the wharf

Year	STC Steps
2007	BigSwitch Projects audit the Wharf building for resource usage funded by NSW State Government.
2008	Tim Flannery addresses the company about climate change and need for action.
	Arts NSW funds BigSwitch to run a series of workshops to establish a vision and plan of action.
	Workshops sought volunteers willing to investigate how to improve company practices and key change champions emerge. They become the first Green Team, Green Team I.
	<p>The Green Team take on key leadership roles:</p> <p>General Manager- overall project management.</p> <p>Head of Development – fundraising</p> <p>Head of Set Construction – green set construction</p> <p>Head of Lighting- reducing wattage for productions</p> <p>House Services Manager – dealing with Department of Public Work</p> <p>Plus:</p> <p>Production Workshops Manager – looking at waste stream management.</p> <p>Director of Finance – managing budget and acquittals.</p>

Brookman had been in discussions with Blanchett and Upton before their appointment when their ideas were very nascent. He was responsible for taking Upton’s nebulous idea of turning the long wharf building and its extensive roof into a ‘big battery’ that could power the shows being produced there. He put together a comprehensive project plan that dealt with all aspects of the Company. He negotiated funding and support from the NSW State Government (Arts NSW), particularly Bob Debus who was the Minister for the Arts and the Environment, a serendipitous combination for STC. Another serendipitous moment happened when a representative from the University of New South Wales (UNSW) was on a scouting exercise for a showcase solar photovoltaic (PV) array. UNSW alumnus and solar millionaire, Dr Shi Zhengron wanted to make a significant donation back to the city of his *alma mater* in the form of a showcase PV installation to be installed on a prominent site. Arts NSW had directed UNSW to contact STC as it was aware of the intention to green The Wharf. Initially, the Pymont Bridge was in favour but Brookman lobbied hard for STC be the site. It took nearly two years of negotiations to convince Dr Shi that

STC would generate the most public awareness about the array due to Blanchett's profile, emphasising that bridge climbers and air traffic would be able to see the array. The eventual donation of solar panels was worth just over \$2 million.

When Blanchett and Upton commenced in 2008 staff were advised formally of their intention to 'green the wharf' at the first Company meeting they addressed. From my interviews it is evident that it was this announcement and not the one in the press in late 2006 where most staff reported hearing of the initiative for the first time. The impression from my interviews was that the company were broadly supportive of the idea. Early in their tenure, Blanchett and Upton invited Tim Flannery to address the company on the issue of climate change. The talk was attended by over 90% of the staff, according to Brookman.

Following from that, Brookman engaged BigSwitch Projects via the Arts NSW to run a series of workshops to audit what STC did across all of its functions. The workshops were attended by about 40% of the staff which is an impressive figure. Out of that, champions emerged, who undertook to review and found solutions to the challenges they were facing within their particular spheres.

Notably:

- Head of Set Construction (Joe)- raised the issue of the ply used for set building.
- Head of Lighting (no longer with STC)- elected to research more energy efficient lighting.
- Head of Development (no longer with STC) -elected to engage in the fundraising and project management required to procure a solar array and water harvesting system.
- House Services Manager (Mike) – was to be the liaison point between government and suppliers for the infrastructure elements.

They became the members of Green Team I. Finance Director, Cassie and Jack, Production Workshops Manager also made significant contributions but did not seem to be part of the core team. A full project plan was drawn up and covered all aspects of STC. Opportunities identified included, a review and replace of inefficient lighting; water capture and savings; a comprehensive waste stream management plan for paper, cardboard, timber, metal and organic waste; a PV array, and modifications to administrative functions. Green Team I raised funds and liaised with governments at both State and Federal level to realise the ambition to make STC the greenest theatre in the world. A major challenge that Brookman faced was the heritage status of the building. He had to work very closely with a NSW Government heritage architect to ensure that

any changes would meet the strict criteria for the building. Federal and state funding was sought and won for different aspects of the project and philanthropic donations also made up a significant contribution. In all \$5.2 Million was raised to achieve a number of objectives that completed the steps on the transformational path. The program of changes was announced in mid-2009, refined in the internal project planning document in 2010 with the following final objectives captured in their project planning case study (STC, 2011b, p. 2):

- significantly reduce on site energy and water use
- reduce carbon emissions
- develop a leading sustainable theatre venue
- stimulate conversations about sustainability
- demonstrate and communicate practical steps to sustainability to encourage action from other organisations and individuals
- demonstrate the combination of sustainability and heritage buildings can work
- showcase best-practice innovation and technology
- demonstrate active arts leadership on Climate Change.

Joe, the Head of Set Construction, who did not identify as particularly green stepped forward to advise that the lauan ply which was used ubiquitously in theatre and film set construction was very problematic if STC wanted to be a green theatre. Lauan is a generic term for many species of hardwood timbers grown mainly in Indonesia, Borneo in particular, and much of it is logged illegally. It produces lightweight and robust ply that is ideal for building theatre and film sets. STC stopped using it in 2008 and adopted the use of a birch ply which is twice the price and weight. Joe decided to investigate alternatives. He successfully applied for an Australia Council Skills and Arts Development Grant to travel around the USA and Europe in 2009 talking to other theatre companies about what they used with financial support from STC. He produced a report based on his investigations and of the alternatives available. Birch ply emerged as the best option. STC ensured that it was certified by one of three certification schemes- the Programme for the Endorsement of Forest Certification Scheme (PEFC) or the Forest Stewardship Council (FSC), the Australian Forestry Standard (AFS) where possible. Chain of Custody (CoC) is a process for tracking wood products through their life cycle and is encouraged by the forestry certifications organisations but it can still be problematic. However, at the time of the research STC continued to work with suppliers to improve practices around chain of custody.

The Head of Lighting investigated alternative lighting options in 2009. That was before the new wave of low wattage, Light Emitting Diode (LED) bulbs had become available. His final report made five recommendations. These included upgrades to some of the existing lighting systems, investment in non-incandescent lighting fixtures, reconfiguration of the dimming system in one of the theatres and the introduction of a wattage cap for theatre productions.

Solar panels were installed in mid-2010 and Brookman successfully applied for a NSW Green Globe Award for the work they had done to that point. Then Environment minister, MLA Frank Sartor presented the Community Sustainability award and the Premier's Award for Sustainability Excellence to Blanchett and Upton in July 2010 (STC Company Report, 2010; Cambourne, 2010). In addition, STC earned a Banksia Award for leading in sustainability – setting the standard for small organisations, as it was “considered the most comprehensive environmental program of any arts company globally” (Banksia Foundation, 2011). The Banksia Foundation was established to inspire excellence in sustainability. The water harvesting system was installed in bespoke pipes under the building in 2011.

STC had also made significant efforts to communicate the work done to the broader community to really engage the community in a conversation about sustainability. The communication plan for the project as at June 2010 included public screens showing energy and water savings achieved, education programs, the bi-monthly Wentworth Talks hosting the Wentworth group of concerned scientists to discuss climate change issues, participation in various public fora, a media plan to keep the public informed of initiatives and inclusion of Greening the Wharf in the tour guide scripts (STC Greening the Wharf Project Plan, 2010).

Rob Brookman resigned in early 2010 to pursue a new passion sparked by Greening the Wharf.

*We were probably talking to people who were converted and my response is that they need to have more information to help influence others. That idea was one that I took forward to found a foundation to run a festival called WOMAD Earth Station in 2011. We took the Wentworth talks idea and took it to a festival (talks in one tent, music in the other). It was a financial disaster (Brookman, 2015, 26).*

WOMAD refers to World of Music, Arts and Dance – a global festival that is hosted locally in Adelaide each year and the Earth Station was an addition to that. Brookman ended up back in Theatre, becoming the General Manager of the Adelaide Theatre Company after the Earth Station

failed. Brookman was replaced by Patrick McIntyre. He worked with McIntyre for the first six months of 2010 before leaving in June just as the first solar panels were being installed. The Head of Development who had been pivotal to the fundraising had resigned and moved to the UK before him. So, two key personnel from Green Team I had left. This changing of the guard signalled the continuation of the project with new frame and new personnel.

### **5.3.2. Act II: Consolidation – July 2010 to 2011**

The management of the STC and Greening the Wharf fell to the new General Manager, Patrick McIntyre. In addition to taking on a new role running a \$30 million theatre company, he also had to contend with a greening project that had grown to a value of \$5.2m with multiple stakeholders including the NSW State Government, the Federal Government and the Shi Family Foundation. He hired Paul O’Byrne to project manage Greening the Wharf. As mentioned, O’Byrne had come out of a marketing, social impact and stakeholder management background rather than environmental sustainability.

The infrastructure components were in the process of being installed during this period, a new Green Team (Green Team II) was created from volunteers in the organisation to come up with ideas to encourage behaviour change and the advocacy component was an extensive effort to engage the broader community. Initiatives organised under Brookman such as the Wentworth talks and ABC TV panel discussions, lunchtime talks, education publications continued. In addition, initiatives such as Acting Green were added, which were “*case studies written for the Australian curriculum for secondary school students*” about how to produce theatre sustainably (O’Byrne, 2014a, 46).

In October 2011 the British Arts Council funded arts sustainability organisation, Julie’s Bicycle to visit Australia and co-host a collaborative sustainability workshop with STC and other Australian theatre companies to share knowledge and build ideas.

Company reports began to talk about the achievements of the Greening the Wharf project and, year on year, the cumulative results were reported. McIntyre and O’Byrne decided on four key metrics in to report on and those were energy and water consumption, energy generated from the solar panels and waste diverted from landfill. The measurements were taken and averaged across the number of productions per year. These were captured very effectively in simple graphics and the data are verified by Australian energy company, COzero through their proprietary monitoring system. Refer to Figure 5.1 for the achievements to 2015.

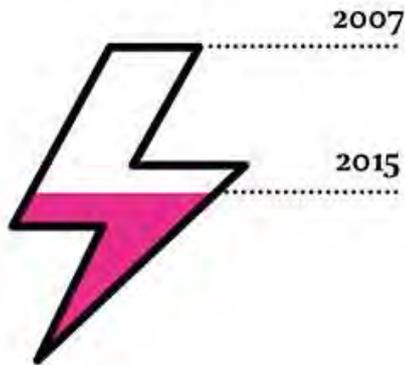
The Greening the Wharf project proper came to an end in mid-2011 but the Company continued to manage the web site established to showcase what had been achieved ([www.greeningthewharf.com](http://www.greeningthewharf.com)) until it was decommissioned in late 2017. O'Byrne employed a professional writer to construct the content for the site and it uses a series of case studies drawing on a standard template to discuss the key aspects of the project and how they were achieved. These include:

- Project planning
- Energy
- Water
- Waste
- Theatre Production- sets, lighting, costumes
- Advocacy
- Results (See Figure 5.1)

Copies of the case studies had been downloaded as part of the early research and they are included in Appendix 3.

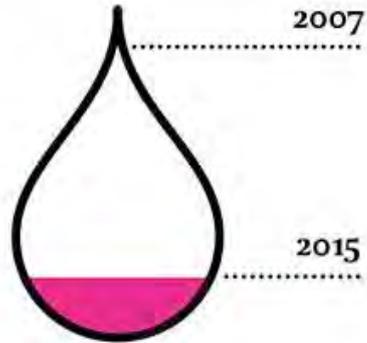
**GRID ENERGY CONSUMPTION DOWN 50.9%**

enough to power 65 homes each year



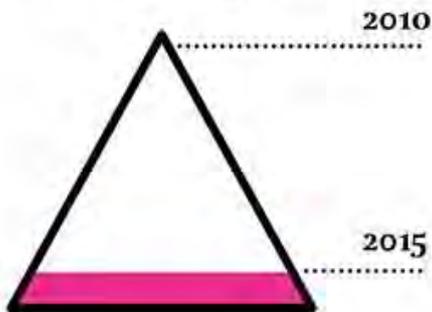
**WATER USAGE DOWN 71.3%**

saving 4.5 Olympic-size swimming pools



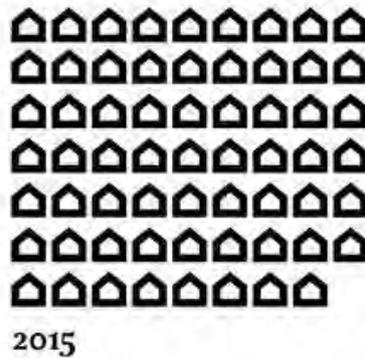
**WASTE DIVERSION RATE UP 13.0%**

(materials recycled / energy recovered)  
24 tonnes diverted, equivalent to 2.7 garbage trucks



**SOLAR ELECTRICITY GENERATED 457 MW**

enough to power 61.8 homes each year



Environmental results verified by COzero  
† electricity and gas only

Figure 5-1 STC Greening the Wharf Results as at 2015

O'Byrne continued to manage the stakeholders involved in the project through to its completion. He stayed on with the company becoming the Director of Community Programs and then, Director of Community and Corporate Partnerships. He continued STC's sustainability journey as part of his subsequent roles. A report by Green Team II in August 2011 identified a range of new priorities

including embedding sustainability responsibilities alongside work health and safety (WH&S) duties in job descriptions and in the staff induction kit; establishing priorities for the Green Team including initiatives like ride to work days and the awarding of the Green Gnome to the staff members who made the best suggestion for improving green practices. These were handed out at the quarterly company meetings after the Green Team had reported on their activities to the whole company.

The Advocacy Plan put together in 2011 built on the communications and education plan developed under Brookman (STC, 2011a). It included three key areas:

- Industry- visible leadership. This included HR induction, Green Team II, signage, marketing, publicity, conferences, Greening the Wharf case studies and curriculum.
- Education – stimulating conversation. This included continuing with the Wentworth Talks and ABCTV panel discussions, STC channels, education publications, conferences, work with schools such as the aforementioned ‘Acting Green’.
- Community – meaningful advocacy. This included hosting green team events, setting monthly objectives, media promotion, hosting a sustainability conference, promoting Greening the Wharf to Sydney Harbour Bridge visitors and running a teacher’s workshop.

One of the major initiatives was the sustainability workshop to be held by STC and including arts organisations and other businesses to have a discussion about how organisations were implementing sustainability.

*No charge. Strictly invited companies only. Provided by Sydney Theatre Company as part of their Greening The Wharf program, and desire to share their case and lessons learned with other performing arts companies (STC, 2011a).*

This event was well attended by Arts organisations and they heard from speakers in other sectors as well as STC about how they were implementing sustainability in their own organisations. Out of this day, an alliance called the Green Arts Project was formed. Their website states:

*The Green Arts Project is a network of Australian arts professionals, organisations and venues working towards greener practice.*

*Formed in January 2012, the core group of companies came together to share their knowledge and experience and to collaborate on initiatives for sustainable practice (GAP, 2012).*

### **5.3.3. After the Show - 2012 and beyond**

McIntyre and O'Byrne's own sustainability plans for STC continued to reach out to the community both through advocacy and education while bringing community into theatrical productions like *The Long Way Home*, a collaboration with the Department of Defence. It featured stories of the difficulties experienced by returning defence personnel after their deployments, and was performed by professional actors and Defence personnel.

O'Byrne developed a sustainability road map for STC 2012-2015 (STC, 2012). It continued with the three pillars of infrastructure, behaviour change and advocacy, though the latter expanded to education and advocacy. In addition to continuing the environmental commitments in what he terms Greening the Wharf Phase 2, he introduced social as a specific aspect of Sustainability. The three key areas he identified were reconciliation, social access in partnership with Accessible Arts, and inclusion. O'Byrne was working to have regular Indigenous interns working at STC and wanted to reach out to potential employees with disabilities. Internally, job descriptions now mention sustainability responsibilities alongside WH&S duties and the greening web page is included on the staff job pack, stating:

#### *Environmental Sustainability*

*To support the Company's vision of becoming the world's most sustainable theatre company, the [applicant] must ensure that she/he:*

- *takes reasonable steps towards minimising the environmental impact of their role and that of the Company;*
- *works in an environmentally responsible manner and follows procedures introduced to this end;*
- *participates in any training or education necessary to enable them to work sustainably including familiarisation with the Company's various green policies;*
- *brings to the attention of the internal Green Team any situations or practices that could be improved in relation to environmental performance;*  
*and*

- *co-operates with Sydney Theatre Company in their efforts to lead in the area of environmental sustainability (STC, 2017).*

The new Green Team continued to encourage ongoing behaviour change. They instigated a number of initiatives, some more successful than others including:

- File Fling (recycling of files no longer in use)
- Ride to Work days (more achievable than public transport days given the lack of it to Walsh Bay)
- Green gnome awards for sustainability related staff suggestions
- Automatic double sided printing
- Single sided printed pages set aside for notes
- The Big Switch off (chocolates left on staff desks if they were found to have turned off computer the night before).

The STC Sustainability Roadmap 2012-2015 represents the evolution of Greening the Wharf to a broader sustainability commitment that explicitly addresses environmental and social aspects of sustainability and how STC can educate and advocate around both (STC, 2012).

**Table 5-2 Summary of Greening the Wharf project at STC**

Year	Key Activities	Key personnel
2006	Negotiation of appointment of Blanchett & Upton as Co-Artistic Director's at STC. Appointment to commence 2008. Announce artistic vision as 'make STC "green" (Bennie, 2006).	STC Board General Manager, Rob Brookman (Brookman) Artistic Director, Robyn Nevin Cate Blanchett Andrew Upton
2007	Scoping and planning commences – moving from big gesture like solar to the entire Wharf building UNSW speak to STC about Dr Shi Foundation wanting a showcase site for a donated PV solar array Discussions about greening start with Arts NSW	Brookman Head of Development (HD)
	Fundraising commences- government and philanthropic	
2008	Blanchett & Upton (Blanchett and Upton) commence Artistic Director roles. Announce greening as key to their tenure at first Company meeting they chair. Tim Flannery addresses full company on challenges of Climate Change. Almost 100% attendance. BigSwitch run planning workshops – about 40% staff attend. Green Team I (Green Team I) forms to engage in thorough project planning. Planning continues – announce plans for PV Array, Water harvesting, Reticulation	Blanchett and Upton Brookman, Head of Development plus Heads of Lighting, House Services Manager, Set Construction, Production Workshop

Year	Key Activities	Key personnel
	system, efficiency program, waste reduction program, ethical purchasing, public education. To be rolled out in 2009/2010 subject to funding.	select to work on their areas.
2009	Full project plan revealed and funded including: Wide-ranging energy and water reduction measures Rainwater harvesting, storage and reticulation Best practice waste handling and recycling Significant organisational culture change The generation of solar power through Australia's largest building-mounted photovoltaic (PV) array Extensive public education	Brookman Head Development Blanchett and Upton
2010	Execution of project commences Resignation of Head Development Application for Green Globe award (subsequently won) Resignation of GM and hand over to new Executive Director (ED), Patrick McIntyre (first six months) Infrastructure installation commences with Solar Hiring of Sustainability Project Manager (SPM), Paul O'Byrne to continue project execution and management of 25 stakeholders involved.	Brookman House Services Manager Head Development McIntyre Board Blanchett and Upton
2011	Continued execution of project Greening the Wharf – given 3 pillars: infrastructure, behaviour change and advocacy <a href="http://www.greeningthewharf.com">www.greeningthewharf.com</a> launched to share knowledge and project formally wraps up	O'Byrne McIntyre House Services Manager
2012 and beyond	Behaviour change continues to be encouraged via volunteer 'green team' (Green Team II) Greening the Wharf wrapped into a broader sustainability narrative that includes a social dimension.	O'Byrne Role changes to Director, Community Partnerships Feb 2012-Apr 2013, then Director, Community & Corporate Partnerships Apr 2013- Jun 2015.

## 5.4. Perceptions

During my interviews I asked participants to reflect on their perceptions of the Greening the Wharf project, what the term sustainability meant to them and their perceptions of their own sustainability behaviour before and after Greening the Wharf (or joining STC for those who joined since the project finished) at work and at home. The following subsections deal with those three sets of perceptions.

### 5.4.1. Participant perceptions of the Greening the Wharf project by staff

The staff involved directly in the project were asked to reflect on what was easy, what was difficult, what was successful, whether resistance was encountered and what was still challenging. These are gathered in Table 5.3. The quotes are largely from those involved directly with the project implementation.

Some of these points relate to the issue of embedding practices in a company that employs freelance workers for their productions. A key part of the Greening the Wharf was improving the efficiency of the very resource hungry theatre productions. They created a green design policy for productions for designers but they need to be reminded of this and monitored (see Appendix 4). This creates an additional challenge for STC not experienced by organisations that are only dealing with a permanent staff base. In addition, a green events guide was created for staff to assist them in advising those who use STC for events how to run them in a green way (STC, 2011c).

Table 5-3 Staff Reflections on the Greening the Wharf project

Aspect of project	Relevant Interview Comments
What was easiest	<p>Getting staff support - <i>"there was a real sense you were throwing a good idea into extremely fertile soil (Brookman, 2015, 40).</i></p> <p><i>"I mean most of them were already kind of relatively inclined that way (Upton, 2014, 61).</i></p> <p>Getting media attention - <i>"it was early in Cate's tenure. She could have been clipping her toenails and the press would have been interested" (Brookman, 2015, 46).</i></p> <p><i>"The media work" (McIntyre, 2014, 57).</i></p> <p>Infrastructure - <i>"there are issues of difficulty with any building project but it's a building project" (Mike, House Services Manager, 2014, 117).</i></p> <p><i>"The infrastructure stuff wasn't hard in that when my predecessor went out to raise the funds, we were in a - there was a bubble of public interest where both state and federal governments appeared to be - to have a fleeting genuine interest in the environment. So there were pockets of money available for things" (McIntyre, 2014, 57).</i></p>
	<p>Collaborative effort of staff - <i>"if you get the right amount of people in the right places, you end up with something that's ... better than what any one person could have done out of that group" (Upton, 2014, 227).</i></p> <p><i>Things like our materials recycling and energy recovery, that's increased, but that's again - in a way it's through infrastructure, it's an infrastructural response because we're putting stream bins around, we've got - they're the triple bins. There's also better engagement in the bar within production. So again - but that's an infrastructural response (O'Byrne, 2014a, 84).</i></p>
What was difficult	<p>Getting Heritage approval for the infrastructure changes (Brookman).</p> <p>Getting Dr Shi to commit to STC as a showcase site for PV array (Brookman).</p> <p>Embedding behaviour change - <i>"you can change people's behaviour. They'll go back to their old habits if it's easier" (Mike, House Services Manager, 2014, 127).</i></p>

Aspect of project	Relevant Interview Comments
	<p>Ensuring freelance set designers stick to the Green Design Policy (McIntyre, Upton).            Giving Greening the Wharf a logical place inside the business mission – (McIntyre).            Accommodating such a huge project on top of normal work (McIntyre).  <i>“The process of acquittals to government partners was really maddening and difficult”</i>            (McIntyre, 2014, 62).</p>
<p>What was the level of resistance</p>	<p>Minimal to none (Brookman, Upton)            Some questioning of why are we doing this- <i>“what I faced when I first got into the job...a lot of people in the industry and in the company were saying, “what happened to theatre”</i> (McIntyre, 2014, 14)?            Some pockets of <i>“benign disinterest”</i> (McIntyre, 2014, 28).            Some questioning of the expense (Pam, Payroll Officer).</p>
<p>What was successful</p>	<p><i>“We still have volunteers on the Green Team and we're still awarding Green Gnomes for people who have an idea that they submit to the Green Team”</i> (McIntyre, 2014, 104).            Coming up with novel solutions to ensure productions are green, e.gg working with the City of Sydney to reuse a large amount of water used in a production where it rained on stage for all of Act II. The water was subsequently collected by City of Sydney Council and used to water public parks (McIntyre).            The Green Design Policy for set, lighting and costume designers (Dave, Production Assistant).            Water harvesting (Upton).            Infrastructure and reporting, waste stream management, HR alignment, green design and events guides, education, advocacy, encouraging behaviour change (O'Byrne).</p>
<p>Challenges</p>	<p>A few issues with green design policy being adhered to by freelancers– <i>“we've just discovered that there was some materials used in the set of one of the shows that ... didn't demonstrate an environmental awareness first approach to design”</i> (McIntyre, 2014, 26).            Continuing to encourage behavioural change, particularly with freelance staff. We need <i>“to bring them in on that story - and when they're making decisions, be it design, be it marketing, be it IT, whatever it might be, it's bringing them up to speed and bringing them along on the journey”</i> (O'Byrne, 2014a, 117).            Trying to balance keeping greening front of mind without making staff jaded – <i>“So it's that balance of you're trying to generate this sense of this is actually who we are, how we do things around here”</i> (O'Byrne, 2014a, 93).</p>

Embedding behaviour change required a balance between risking disengagement by being seen to nag staff and keeping the behaviour change front of mind, particularly with permanent staff. One particularly successful initiative came up during interviews. It was called the Big Switch off. It was an initiative of the Green Team II and was described by one of the members:

*So we did the big switch-off, which was two stealthy surveys of all the offices across the wharf and Sydney Theatre. So both of these activities are across here and Sydney Theatre. This involved us going around with a bag of lollies and seeing - this was first thing in the morning - who had*

*switched their monitors and their modem things on. So you got a chocolate if you have both of them off. We didn't put a negative prize because we thought the negative prize was not to get one, but we found overall most people were switching their computers off but they weren't switching their monitors off. So the first one we did we just gave it if they switched their computers off and then the second time we did it was only if they'd switched both off. It was quite fun everybody coming and saying why I have I got a Redskin, what's happening. Yeah. Nobody knew we were coming - we didn't tell everyone. We sent out an email about two weeks before saying this is a project that the Green Team are working on, be aware that we might - there'll be some sort of raid in the next two week period where we'll come around and do this. That was quite fun but we found by the second time we did it about 90 per cent of the company was already switching stuff off (Cynthia, Corporate Partnerships Coordinator and Green Team II volunteer, 2014, 113).*

This was a popular initiative with the staff based on the number of comments about it during the interviews and demonstrated that the carrot approach, particularly one that injects a little fun, has a bigger impact than more staid or punitive measures. The fact that it involved both STC and ST is also an indication of the evolution of the Greening the Wharf project which focussed exclusively on the Wharf building to a broader greening agenda targeting the whole organisation. It also points to a key issue around the aforementioned discrepancies in perception about Greening the Wharf and what it meant over time.

The overall themes that emerged from the analysis of staff perceptions for those who experienced the Greening the Wharf project through their involvement in its implementation or observing it as it unfolded include the idea that the project proposal landed in fertile cultural soil. The staff were largely open to the rather tangential proposal of the environmental sustainability program being proposed. A further key theme is the idea of collaboration which was reinforced across the broader data analysis. The organisation has a strongly collaborative culture and that helped to facilitate the project roll out across STC. The key challenges identified dealt with the issue of really embedding behaviour change in response to the project's objectives.

## 5.4.2. Conceptions of sustainability

Over the course of the interviews I tried to ascertain what staff conceived of when they thought of sustainability. Coming in with an academic background I consider sustainability, as it pertains to organisations, in terms of the triple bottom line. That is, organisations need to be economically sustainable and also environmentally and socially sustainable as outlined in Chapter 2.2. The Benn et al. (2014) Sustainability Phase Model describes the latter two as ecological and human sustainability, though for consistency, I will continue to use the term environmental instead of ecological. A project called Greening the Wharf implies a high level of attention on the environmental side of the equation but I was interested in whether any explicit link to a social dimension was considered by the change makers. However, for the interviews, I was interested in canvassing the views of all of the participants to ascertain what was front of mind and how their frames varied. Certainly, their frames on sustainability were quite varied but the term sustainability itself did not seem to be something that most staff seemed to have reflected on. Over the course of the interviews I was able to ascertain the understanding of and level of commitment to sustainability exhibited by the participants in the way that they spoke about their own attitudes and behaviours. With the exception of two participants, the focus was on the environmental dimension. I will return to the exception a little later.

Staff over 40 were quite concerned about not wasting things – energy being a big one. The ethos of ‘waste not, want not’ was mentioned in various forms. Blanchett herself, has used that phrase in a press interview when asked about her own environmentalism (Elliott, 2010). Three of the key change makers – Brookman, Upton, and O’Byrne could all be described as having strong levels of environmental commitment. Mike and Cassie, who were also part of the implementation could be described as proactive – they were concerned about reducing waste, resource use in general and were engaged in pro-environmental behaviours. The one standout from the implementation team interviewed was Joe, the Head of Set Construction, who expressed no particular commitment to the environment but raised the issue of the lauan ply being used in their sets. Younger staff were more likely to mention food as a sustainability issue with one mentioning sustainable fisheries and others spoke about making ethical purchasing choices.

On the social sustainability aspect, I specifically asked McIntyre and O’Byrne if a social dimension had been considered. McIntyre said that the focus of Greening the Wharf was purely environmental and that while he had discussed social sustainability with O’Byrne he felt that it had taken off as much as it was going to. O’Byrne, who had come out of a social impact rather than environmental

impact, seemed to have the most clarity about what social sustainability might involve. His Sustainability road map 2012-2015 explicitly addressed the social dimension (STC, 2012). It addressed three key social areas – reconciliation, access (in partnership with Accessible Arts) and inclusion. During the research phase STC had an indigenous intern working with the human resources manager. O’Byrne was also looking at how to employ some staff with physical or intellectual disabilities. Lastly, the inclusion aspect was to broaden STC’s reach to include regional areas and provide better access for seniors and other under-represented demographics. The social dimension as indicated by O’Byrne was about out-reach to community rather than having any particular focus on social sustainability among the staff themselves. This will be discussed further in Chapter 6.

## **5.5. Behaviour changes**

The staff interviewed were asked questions about their understanding of sustainability and what behaviours they engaged in before and after Greening the Wharf (or joining STC for those who had been there since the project officially finished) at work and at home. The aim was to explore the nexus between the personal and organisational spaces because sustainability requires behaviour change in all of our contexts. I was interested in whether the organisational learning had impacted on personal learning and change around sustainable behaviours. As mentioned in Chapter 2, organisations themselves don’t learn, the organisational members learn and then that learning can be codified into organisational processes, practices and supporting documentation. When the learning relates to behaviours that are relevant to all contexts in which people live I wondered if the learning was carried from the work space to the home space. The responses have been summarised in three separate tables, one for each of the key groups interviewed – those directly involved in the implementation, those not directly involved but who lived through it and those who had joined STC after the project had formally wrapped up. Each table is followed by my own reflections and observations. Table 5.4 provides a key to understanding my assessment of level of environmental commitment evident through my interview with each respondent, and graphics to represent the types of ecological behaviours they engaged in. Then, Tables 5.6, 5.7 and 5.9 cover the responses of the three groups. I devised the symbols and sourced them from creative commons sources on the internet for ease of presentation to the reader.

### **5.5.1. Commentary on reported behaviour by staff involved in the implementation of Greening the Wharf**

The first five people on the list represent the key implementers and leaders of Act I of Greening the Wharf. They were members of GT I with the exception of Upton who was part of an oversight group with Brookman and other industry members. Upton and Blanchett were the instigators. The latter two, McIntyre and O'Byrne came into the picture in Act II after Brookman left. Brookman described himself as an 'organised hippy' during our interview and described Greening the Wharf as a 'dream come true'. He had been a committed environmentalist since the 1970's and built his own environmentally friendly home in the Adelaide Hills. This helps to explain the extensive efforts he went to in order to see it succeed. It would be fair to say that neither he nor any other of that original group could have known just how successful it would be and the scale to which it grew. As the General Manager of over ten years and very experienced in producing theatre, he described the project as being like a giant theatre production. So, his skill set translated well to working on the project. In addition, to the three staff interviewed (Cassie, Joe and Mike), he was also assisted by the Heads of Development and Lighting who had both left the company by the time the research was conducted. Brookman's personal values played an enormous role in his enthusiastic embrace of such a large task and he managed it ably. It may also have lead him to leave STC to pursue his ill-fated Earth Station Adelaide project, a similar festival to WOMAD (World Of Music, Adelaide festival) but with a focus on sustainability. It was not a success and he returned to managing theatre running the Adelaide Theatre Company. He has installed an extensive PV array at his home since finishing with STC and mentioned that he would love to audit his life with the thoroughness that Big Switch employed in assessing STC.

It is evident in the reported green behaviours of the original Green Team I members that there was an evident commitment to the environment or at least to not be needlessly wasteful. Joe, the Head of Set Construction, was the exception because he was described by others and himself as not having any particular green tendencies before joining Green Team I. However, he was aware that the ply they used in the sets was unsustainable and it would need to be addressed if STC was going to go green. The changes in work practices in the Production area as a consequence of his research and that of the Head of Lighting were extensive. Joe did not consider that he engaged in particularly green behaviours at home and had not modified his home behaviour despite the extensive learning he had undergone on sourcing sustainable timbers and on waste stream management. Mike, the House Services Manager, talked about having a natural affinity for saving energy and water,

Table 5-4 Key to reported perceptions and behaviours by staff

KEY:						
Level of environmental commitment		Neutral – no particular commitments to the environment		Proactive – engages in some greening behaviours		Environmentalist – engages in strong greening behaviours.
Guide to symbols		Reduce, reuse, recycle Increased levels from previous		Minimise energy use		Composting
		Using green cleaning products		Installed a PV array		Being water wise Being water wise and harvesting water
		Double sided printing		Minimise printing		Switch off devices at night.

Table 5-5 Reported behaviour by staff involved in the implementation of Greening the Wharf

Pseudonym/surname	Role	Aprx Age	Level of green	Concept of sustainability	Behaviour at home before Greening the Wharf	Behaviour at home after Greening the Wharf	Green behaviour at work before Greening the Wharf	Behaviour at work after Greening the Wharf
Brookman	General Manager (left June 2010)	50's		Self described "organized hippy". Active since 1970's				Sustainable sets, lighting, costumes
Upton	Artistic Director	40's		Not a climate change sceptic		No change	n/a	Green design policy for sets
Joe	Head of Set Construction	50's		Ongoing conversation in industry about unsustainable ply.		No change	Unsustainable ply used in sets	Green design policy for sets, 
Mike	House Services Manager	50's		Waste not childhood, composting and reusing.		No change		
Cassie	Director Finance	40's		Grew up love of nature, believes in climate change.		No change		 Won a green gnome award.
McIntyre	Executive Director	40's		Waste not, conserve energy		Purchased smaller car		Flight offsets
O'Byrne	Director, Community and Corporate Partnerships and former Sustainability Project Manager	40's		Social impact background now moving to environmental sustainability	 flight offsets	Purchased smaller car	N/A	Promoting behaviour change as head of Green Team. Created Green Gnome awards

reusing and recycling. His childhood promoted those ideas as being sensible rather than part of a particular environmental commitment and it continued into adulthood in behaviours both at home and at work. As he was already engaging in many green behaviours before Greening the Wharf he did not make any further changes since. He had already renovated a house, installed solar panels, water tanks and a grey water harvesting system.

Director of Finance, Cassie, grew up surrounded by a beautiful natural environment in the Adelaide Hills and was imbued with pro-environmental values by her mother. She lived in a set of units in Sydney which limited her personal behaviours but she recycled extensively and was active in a community garden established at the units. So, there was little additional behaviour change she could engage in. She indicated that she would take public transport to work if she could but the Walsh Bay area was not serviced by Sydney Buses, something she had been lobbying the City of Sydney to change, not just for her but for patrons of STC as well. Upton, of course, had excellent green credentials, having renovated his and Blanchett's home to include water harvesting, grey water recycling and solar panels. On the day I interviewed him, he had cycled to work from Hunters Hill, though he did indicate that it was not an everyday thing. One of the other staff conveyed a comment from him that he feels less guilty on the days in drives the Porsche to work if he cycles some of the time! Despite his status in the company he was obviously aware of the need to set a positive example to the staff at STC.

McIntyre did not describe himself as a strong environmentalist but had the commitments to not wasting resources needlessly. He mentioned his father reminding him to turn of lights or put on a jumper rather than switching the heater on when he was a child. He was acutely aware of being scrutinised by the media around the time that Greening the Wharf was rolling out. He purchased a new car around that time and convinced his partner that a four cylinder model would be preferable to a larger six cylinder because he was somewhat concerned about any negative press that might attract. If he had purchased the car later, it is difficult to know if he would have made the same decision. He also indicated that he refuses to own a clothes dryer. O'Byrne indicated that in his work life, the environmental side of sustainability was relatively new to him, he demonstrated a strong commitment to green behaviours in his personal life prior to joining STC. He had kept chickens in the garden of his block of units at Bondi until other residents asked him to remove them because they found them too noisy. He had purchased flight offsets since they became available. He had a property outside of Sydney as well where he was as green as possible. He had also downsized his car.

Overall, the impression from the group of implementers was of people who were committed to the environment on some level and that may have been why they were the ones to put up their hands to roll out the project. In Joe's case I would suggest his commitment to the organisation and the potential reputational risk around not investigating the ply was more important than his lack of personal commitment to the environment. McIntyre was handed Greening the Wharf as part of his taking on the general management of STC, so he did not have the passion that Brookman had, nor the capacity to take on such a huge new role and the Greening the Wharf project. Hence, the employment of O'Byrne to manage that. However, it was McIntyre who said that a project like Greening the Wharf could not be deemed as successful unless the culture changed so that greening behaviours were part of business as usual, though he did not express full confidence that it had been achieved during our interview. The research process produced sufficient evidence to provide that confidence to him.

### **5.5.2. Commentary on reported behaviour by staff not involved in the implementation of Greening the Wharf but lived through it.**

Of those interviewed, only archivist, Jane and Data Analyst, Alan indicated any pro-green commitments and behaviours prior to the Greening the Wharf project. Alan was the most committed and expressed frustration at the ticketing practices in STC. He described the ticketing stock as being quite a source of waste because the base stock would change and old stock would be dumped. He also spoke about lots of paper membership forms and that he had been pushing for online forms but that the age of patrons was an impediment to changes in that regard. He spoke about being quite pro-environmental in his personal life and this did not change with Greening the Wharf. His purchasing of a smaller car after Greening the Wharf would probably have happened regardless of Greening the Wharf.

Jane, had always tried to recycle and reuse both at home and work. She reused folders in the Archives area and she and Alan were also convinced that STC were already recycling paper and cardboard before Greening the Wharf, whereas McIntyre seemed to think it was a Greening the Wharf initiative. Jack, the Production Workshops Manager who had worked at STC for over thirty years did not express a particularly green commitment but mentioned that theatre companies reuse and recycle what they

Table 5-6 Reported perceptions of behaviour by staff who were not involved in the implementation of Greening the Wharf but lived through it

Pseudonym /surname	Role	Approx. Age	Level of green	Concept of sustainability	Behaviour at home before Greening the Wharf	New behaviour at home after Greening the Wharf	Green behaviour at work before Greening the Wharf	Behaviour at work after Greening the Wharf
Hannah	Accountant	40's					Always turned off computer	
Alan	Data Analyst	40's		Trying to use resources as efficiently as possible, reduce car use,	 	Purchased a smaller car	Trying to change ticketing practices.	  
Jane	Archivist	60's		Waste not want not ethos, always committed to recycling and reuse		No change		
Pam	Payroll Officer	50's					No change	   
Jack	Production Workshops Manager	60's		Theatre has history of reusing and recycling to save costs.		No change	 Some reusing of old sets and props	  
Bob	Building Services Manager, Sydney Theatre	40's		Not particularly green – driven by efficiencies for cost saving		No change	 	

can. He had been critical in the waste stream management and had attended training to improve their practices along with Joe, Head of Scenic Art. He maintained and updated the database that STC used to track their waste stream so that STC could measure the tonnage of waster diverted away from landfill. He was very enthusiastic in describing the lengths he and his team would go in order to find a new use for parts of sets whose only alternate destination is landfill. It was somewhat surprising then that he did not indicate any particularly green behaviours in his personal life since Greening the Wharf. He engaged in the usual kerbside recycling, but it did not seem that he had made a connection between the work and home context.

Bob, the Building Services Manager at Sydney Theatre was similar to Mike, the House Services Manager at STC in that their roles were to run the built environment of the theatre as cost effectively as possible. All the initiatives he engaged in at ST were driven by that and not a particular commitment to the environment or participation in the Greening the Wharf project. He had installed efficient lighting, water and energy saving fixtures and fittings in the public bathrooms among other measures but it was all to reduce the cost of running the ST building. In his home life, he did not express particular green commitments, mainly harping at his kids to turn off lights.

Hannah and Pam were both very shy interviewees and thus, not very forthcoming with their answers. Neither expressed strong commitments before Greening the Wharf and Hannah mentioned recycling at home afterwards, but her lack of confidence and the fact that the interview did not record makes me reliant on my notes. I don't regard these two interviews as strong data sources.

### **5.5.3. Commentary on reported behaviour by staff who joined after Greening the Wharf project had formally wrapped up**

The staff who were interviewed consisted of five purposively selected from the staff list by the human resources intern and two I specifically targeted. Of the five who were randomly selected, two were recent migrants from Ireland (Will and Connor) and had grown up in rural settings which influenced their early values. Will was particularly reflective about the state of the world and read to educate himself about issues like climate change and tried to do things like grow his own food despite living in a city setting. Connor had been surrounded by environmental values at home, school and college but his move to Australia seemed to have stopped his own environmentalism in its tracks. Living in

a city was a big shift of context and one that can make the same level of involvement more difficult but as with many interviews my sense was that he had not really thought about the home context despite being well versed in and positive about STC's green credentials. He listed many pro-green behaviours in the workplace and expressed pride in being a staff member.

**Table 5-7 Reported perceptions of behaviour by recent staff who joined after Greening the Wharf project had formally wrapped up**

Pseudonym/surname	Role	Approx. Age	Level of green	Concept of sustainability	Behaviour at home before joining STC	New behaviour at home after joining	Behaviour at work after joining
Susie	Ticketing Specialist	20's		Grew up in rural area - very water conscious, concerned about food chain	buy ethical /local	No change	Sensor lighting, bathroom notices to report leaks
Dave	Production Assistant	20's		Using correct timbers	reusing	Walk/public transport to work	reusing, Green design policy, training
Will	Ticketing Specialist	20's		Grew up on farm – raised his consciousness of environment	reads	Grows vegetables	
Connor	Company Manager	30's		Family, school and college pregreen and conservation.	None-	No change	Reuse single sided printing for notes.
Kim	Venue and Events Coordinator Sydney Theatre	20's		Being efficient with your usage; minimise waste, sustainable food, buy local, minimise packaging	buy local, sustainable food choices	No change	Wants to rollout same practices at Sydney Theatre building.
Cynthia	Corporate Partnerships Coordinator	20's		"Not a huge greenie"		Community garden, walks to work	Green events guide policy used for all events. Member of green team, encouraging behaviour change
Trina	Manager of the Bar	40's		Committed to buying food from farmers markets	Buy-local-food	No change	Sourcing local food and wine

Susie and Dave both seemed to have a reasonable level of environmental awareness and were engaging in pro-environmental behaviours, Susie's behaviour was informed by the lived experience of growing up on a drought prone farm which also focussed her attention on food security. Dave had become a production assistant after Greening the Wharf had wrapped up and this would have put the Green Design Policy at the centre of his work (Appendix 4). This was reflected in his knowledge around sustainable timbers and his own expressed commitment to try to use an iPad for much of his own work in preference to paper. He also indicated that he was choosing to walk or catch public transport to work. Kim also showed some pro-green attitudes and behaviours. She was also spending some time with members of the Green Team and expressed interest in having some of the Greening practices from the Wharf transferred to Sydney Theatre. It had not been included in the initial Greening the Wharf project due to the age of the building but as the project evolved and greening was being discussed as a company-wide program she picked up on the differences and was actively pursuing them. However, Bob, the building manager still saw ST as something quite separate from Greening the Wharf which he saw as sitting in the Wharf building.

I targeted two other people for interview. The first was Trina who ran "The Bar" restaurant at the far end of the Wharf building. I wanted to get a sense of how much the Greening the Wharf project had impacted on the tender process for her organisation when they applied to run it and how green their own work practices were given they were a separate company to STC. She indicated that they had to operate The Bar with the same green ethos as STC. They shared the same waste management company. They had installed worm farms and compost to deal with food waste, minimised the use of lights during the day, and used candles at night to minimise electricity use. They were drawing power from the PV array. Food and wine were purchased as locally as possible. Trina's own sense of what sustainability was about was informed by her work in the food industry and she followed the same local purchasing ethos that she uses in STC.

The second was Corporate Partnerships Coordinator, Cynthia, who was a member of Green Team II and O'Byrne had recommended I speak to her about their activities. Cynthia had joined STC within the preceding 18 months. While aware of the solar panels she did not have extensive knowledge of Greening the Wharf and did not think of herself as being particularly environmentally aware. However, as she worked with sponsors, she started to notice some of their involvement with greening and became more interested in exploring it. One of her colleagues was also studying sustainability which heightened her interest. Her work involved events management

which brought her into contact with the Green Events Guide (STC, 2011c) and actively guiding clients using the Wharf on what was appropriate practice. She is one of the only staff members who seems to have genuinely changed her personal behaviour in response to this increase in knowledge, saying that she recycles far more, buys green products, is involved in a community garden and walks to work each day.

#### **5.5.4. Summary discussion of behaviours at work before and after Greening the Wharf or joining STC**

What is evident from the research is that staff are aware of and have reported on behavioural changes they have engaged in since the Greening the Wharf project or joining the organisation. It shows that it is within the awareness of staff as it applies in their particular area. Staff in production were more likely to mention the Green Design Policy (Appendix 4) and sourcing of timbers from sustainable sources. Staff involved with events were more aware of the Green Events Guide and how it helped them to ensure compliance by organisations using STC to host events (STC, 2011c). Staff in the administrative areas were more likely to mention being encouraged to switch off devices and the changes to printing practices as these were the most prominent issues for them. However, across the interviewee sample it was clear that changes had occurred across the organisation. Some of the more long serving staff spoke about a culture of reuse and recycling even before Greening the Wharf but newer staff tied all greening behaviours to the Greening the Wharf project.

I think it is worth distinguishing between those reported behaviours that could be described as requiring minimal to no effort and those that required actual behaviour change on the part of the staff. For example, several staff mentioned that the printers had been switched to automatic double-sided and black and white ink. Thus, the positive behaviour requires no effort. However, being encouraged to minimise printing by drawing attention to the amount of water and energy required to produce paper does require staff to make a conscious choice to share files electronically rather than printing and sharing hard copies, or to avoid printing unless it is absolutely necessary. Recycling required a conscious effort on the part of staff but it was supported by the presence of recycling bins across the organisation. Staff had to make the effort to switch off their monitor and computer at night. The production area had to make an even bigger effort as they had to consider how to reuse and recycle a range of materials used in productions including metal and timber and other materials that could not be taken by the waste stream management company. As at 2014,

staff were still undertaking training to improve their waste stream management and recording the material diverted from landfill so it could be reported in the annual company report and on the STC website.

### **5.5.5. Summary discussion of behaviours at home before and after Greening the Wharf or joining STC**

This area was the most unexplored in the literature on sustainability. Given the pervasiveness of the environmental problems faced by society, and if an organisation could positively influence the behaviour of its staff outside of work, that could be an avenue for pursuing pro-environmental behaviours among the broader population. Overall, there seemed to be minimal to no influence on greening behaviours engaged in by staff as a consequence of living through the Greening the Wharf project. Those who were already proactive or committed to the environment continued in that vein but those who were neutral, while reporting changes in their work-based behaviours, did not modify their behaviour at home. As discussed, McIntyre may have downsized his vehicle but it seemed to be more a choice of being consistent with the Greening the Wharf messaging than a particularly environmental decision.

A notable standout among the interviewees, was Corporate Partnerships Coordinator, Cynthia who I would describe as neutral going into her work with STC. She joined STC after Greening the Wharf formally wrapped up but she was asked if she would be interested in joining Green Team II in 2013. Her own job involved events management and so, she was using the Green Events Guide (STC, 2011c) as part of her job. In addition, as a member of the Green Team II, she was actively seeking ways to encourage ongoing behaviour change among the staff, so was likely to be thinking about the project and about behaviour change more than her non-Green Team II colleagues. She reported significant behaviour change at home, as discussed above. In the case of Cynthia and McIntyre, their involvement in Greening the Wharf and Green Team II had drawn an explicit link between the work and home context that does not seem to have been the case for other staff.

In the main, it seemed that a proactive or environmentalist attitude from the home context was an influence on those who enthusiastically embraced the Greening the Wharf project as Green Team I was populated by staff (those interviewed) who fit into either category, with the exception of Joe. In addition, there did not seem to be the same strength of directional influence from the work context to the home context. Those who were already committed continued in that vein and those who

were not were engaging in positive behaviours in the workplace but it did not translate to the home context. So, it seemed to be a successful organisational learning exercise though less of a personal one. Of course, there was never a stated intention to modify staff behaviour outside the workplace as part of the Greening the Wharf project, although there was an intention to engage the community in a discussion about the environment and climate change as part of the project and significant culture change was also a part of the project's intentions. So, it was not improbable to think that through those two elements that staff might have considered the home context as well.

## **5.6. Conclusion**

This chapter has laid out the preliminary research findings about Greening the Wharf at STC. It has introduced the staff interviewed, the researcher's journey into the data, the chronology of the project as it unfolded, the impressions of the staff about the project and its impacts and the behaviour changes evident in the home and work contexts engaged in by staff post-project and post-joining STC.

Was the success of Greening the Wharf down to the valiant efforts of Brookman and his Green Team I? It was always more complex than that and, of course, Green Team I was largely disbanded after three of its members moved on from STC. The new management team had to continue the project roll out alongside the key individuals who remained with the company and held the corporate and project knowledge. It evolved and took on a slightly new form over that process which was also very successful but perhaps not exactly as it might have been envisioned initially. This will be explored in Chapter 6 where I will also examine the project using Cooksey's (2003) systems of dynamic complexity framework to ascertain what key enabling conditions and feedback were most crucial to the project; if organisational learning is evident per the features articulated in Chapter 2.2; how we might measure the success of STC's sustainability credentials using the Benn, et al Sustainability Phase Model (2014); and, examine the role that various frames and metaphors played at multiple levels.

## **Chapter 6. Deeper analyses, reflections and interpretations**

### **6.1. Introduction**

This chapter will present discuss, integrate and theorise about the findings outlined in Chapter 5. Chapter 5 discussed the experiences of various players, some involved with Greening the Wharf and some not directly involved at all. It also covered the way in which the results of the Greening the Wharf project are reported on by STC each year since 2011. Those results only give us a small window on the larger changes evident at STC and the process by which they were achieved. In order to explore the broader question of whether organisational learning for sustainability took place and how it affected staff behaviour we need to examine STC more broadly than just through the lens of Greening the Wharf and those particular metrics. This chapter will proceed as follows:

- 6.2 will assess the level of sustainability commitment attained by STC;
- 6.3 will explore how the organisational learning for sustainability unfolded over time through the lens of Cooksey's complex systems of dynamic influence;
- 6.4 will examine what organisational learning features were evident at STC; and,
- 6.5 will explore the nexus between organisational learning and PL for sustainability

### **6.2. Assessing STC's level of sustainability commitment**

The results outlined in Figure 5.1 are a succinct and easy to digest set of metrics for the casual reader to grasp but too shallow to explore the range of deeper changes that had occurred at STC. There was evidence that O'Byrne was considering a more widely accepted form of reporting to augment the graphical results. The STC Sustainability Roadmap 2012-2015 (STC, 2012) mentioned in 5.3.3., canvassed the possibility of reporting along the lines of the Global Reporting Initiative.

*GRI helps businesses and governments worldwide understand and communicate their impact on critical sustainability issues such as climate change, human rights, governance and social well-being. This enables real action to create social, environmental and economic benefits for everyone. The GRI Sustainability Reporting Standards are developed with*

*true multi-stakeholder contributions and rooted in the public interest*  
(GRI, 2018).

At the time the research was conducted, there has been no evidence that this form of reporting had been taken up by the organisation. However, it is valuable to consider the STC's sustainability overall inclusive of and beyond the Greening the Wharf project by drawing on a more publicly available evaluation tool. Though Greening the Wharf had an environmental focus, many tools for evaluating sustainability address environmental, economic and human sustainability or combinations thereof. As STC already report on their economic outcomes as part of their annual report, that leaves the issue of human sustainability unmeasured and therefore, unreported. The level of human sustainability both within and beyond the organisations has been described in various models and assessment tools, some which have already been mentioned (Benn et al., 2014; Elkington, 1998; Nattrass & Altomare, 2016). By explicitly looking at the human and environmental aspects of sustainability at STC, we can gain a more comprehensive understanding of how well it is embedded in the organisation. In fact, it could be argued that the core meaning of 'sustainability', centres not on what organisations do to become sustainable, but how behaviours and cultures need to change in order for greening activities to become sustainable through time; sustainability is less about what organisations do to become greener, but how they do it (Dalton & Cooksey, 2018). I applied the Sustainability Phase Model (Benn et al., 2014) to assess STC.

### **6.2.1. Applying the Sustainability Phase Model to STC**

As discussed in Chapter 2.3 and 2.4, the sustainability phase model assesses organisations across two dimensions – human sustainability (HS) and ecological sustainability (ES). Ecological sustainability relates to engaging in reworking organisations in order to promote sustainable economic development and to protect the environment. Human sustainability is about capacity building among staff in an organisation so that they have the skills for achieving and maintaining sustainable organisational performance and the well-being of the broader community. Six phases of commitment are identified – (1) rejection, (2) non-responsiveness, (3) compliance, (4) efficiency, (5) strategic proactivity and (6) the sustaining corporation. Benn et al. (2014) provide a checklist for each level across the human and ecological dimensions to allow assessment of where an organisation might sit within the six phases and show what characterises each phase as organisations progress. By examining those checklists, we can assess how an organisation is travelling in terms of its human sustainability (HS) and ecological sustainability (ES).

Organisations can operate at different levels across the two dimensions. For example, an oil company may have excellent Human Resource practices and engage in positive behaviour in the community, giving it a rating of HS5 but its core business is damaging the environment which will put it at ES1 or ES2. The model allows different levels across and within those dimensions over time. I was impressed *prima facie* with the ecological achievements of STC and decided to apply the checklist for a sustaining corporation to them, having examined the criteria for the previous phases and discerning strong evidence that they met those criteria.

While STC have couched their achievements much more strongly along the ecological dimension, the underpinning philosophy of what Benn et al. describe as the sustaining corporation are evident in the STC's intention to 'green theatre'. There was a strategic intent at the outset to use the profile of the company to raise awareness around environmental sustainability, particularly climate change and to leverage the traditional 'forum' role of theatre as a place for engaging with the important issues facing the community. In the context of having such high profile Co-Artistic Directors in Blanchett and Upton, that objective was certainly met. The Greening the Wharf project attracted extensive media coverage. However, underpinning that strategy were the strong ecological commitments of Blanchett and Upton who were known for their environmental activism and thus, their underpinning objective for greening theatre was to do the right thing.

The focus was purely environmental but as the sustainability phase model examines the human dimension, I applied the checklist for it as well, and it became the source of a key insight. Table 6.1 provides an overview of the characteristics of the HS and ES across the levels with an indication of where STC was at in 2008 when the Greening the Wharf project started and in 2014 when the research was conducted. I rated them as ES2 due to the lack of engagement with environmental sustainability. While there was evidence of the reuse of materials, it was not due to environmental concerns but more to do with saving money in an industry that is often underfunded. I have rated them as being at HS5-6 based on the interview data, specifically the commentary on the organisational culture from those who were with the company during the period prior to and during the Greening the Wharf project. They were able to provide insight into the way the company treated its staff at the time.

The pinnacle of the SPM, the sustaining corporation can be described in more detail as providing the following to human and ecological sustainability.

Human sustainability (HS6)	Ecological sustainability (ES6).
<p>The organization accepts responsibility for contributing to the process of renewing and upgrading human knowledge and skill formation in the community and society generally, and is a strong promoter of equal opportunity, workplace diversity and work-life balance as workplace principles. It adopts a strong and clearly defined corporate ethical position based on multiple stakeholder perspectives and seeks to exert influence on the key participants in the industry and in society in general to pursue human welfare, equitable and just social practices and the fulfilment of human potential of all. People are seen as valuable in their own right.</p>	<p>The organization becomes an active promoter of ecological sustainability values and seeks to influence key participants in the industry and society in general. Environmental best practice is espoused and enacted because it is the responsible thing to do. The organization tries to assist society to be ecologically sustainable and uses its entire range of products and services to this end. The organisation is prepared to use its influence to promote positive sustainability policies on the part of governments, the restructuring of markets and the development of community values to facilitate the emergence of a sustainable society. Nature is valued for its own sake. (Benn et al., 2014, pp. 31-32)</p>

Table 6-1 Human and Ecological characteristics of the stages of the Sustainability Phase Model (Benn et al., 2014)

	Rejection	Non-Responsiveness	Compliance	Efficiency	Strategic Proactivity	The sustaining corporation
HS	Instrumental and exploitative approach to staff.	Seeks compliant workforce.	Being a decent employer by attending to healthy and safe workplace.	HR systems used to gain productivity and efficiency in way staff do their jobs which can promote better environmental outcomes as well.	Good citizenship seen as means to attract and retain better staff. <b>STC 2008</b>	All human stakeholders seen as having value in their own right. Organisation is committed to renewing knowledge and skills. <b>STC 2014</b>
ES	Exploitation of natural resources. Oppositional to green initiatives by government or activists	Ignorant rather than oppositional. Natural resources are a free good. <b>STC 2008</b>	Acts in order to reduce sanctions for environmental damage. Compliance is a risk minimisation strategy.	Being environmentally sustainable is a path to efficiency gains	Uses innovation to create more environmentally friendly products and services because it is a source of competitive advantage.	Active promoter of environmental sustainability because it is the right thing to do. <b>STC 2014</b>

Table 6.2 demonstrates the assessment of STC against the checklist for a sustaining organisation. It uses three symbols to indicate the extent of the evidence for the relevant item (Dalton & Cooksey, 2018).

**Table 6-2 Assessment of STC as a Sustaining Corporation (Source: Benn et al., 2014)**

Key	○	Unknown/ no evidence/ irrelevant	◐	Some evidence	●	Strong evidence
Characteristic	Possible Activities					Level
Vision/goals	Review basic corporate values; create codified set of company values.					●
	Ensure top-level support for a strong sustainability position.					●
	Re-examine organisation values against changing external expectations by active workshoping with stakeholders.					
	Codify corporate values.					●
	Broaden stakeholder analysis to include society as a whole, future generations and the natural world.					◐
Change agents	Ensure that the senior executive team deeply internalizes and acts on sustainability principles.					●
	Build strong collaborative networks between internal and external change agents to create momentum on progressing sustainability					●
Corporate Policies/Strategies	Build on the sustainability achievements of previous stages					●
	Use external bodies to conduct social and environmental audits; cultivate transparency and accountability					●
	Communicate achievements to employees, the community and other organizations and share learning with alliance Partners- build reputational capital					●
	Develop new market opportunities; provide customized Services					○
Structures/ systems	Contribute to maintaining the biosphere					●
	Develop a networked, flexible corporate structure.					◐
	Form alliances and emphasize collaboration.					●
Stakeholder relations	Create a strong corporate culture around core sustainability values.					●
	Develop a shared vision with non-profit organizations.					◐
	Share employee work hours with non-profit partners – not applicable as company is already not for profit					○
	Encourage active engagement in community activities.					●
Human Capabilities (internal)	Be proactive in pursuing sustainability agenda with governments and other community bodies.					●
	Build the personal and professional capability of the workforce					●
	Build intellectual capital within the organization and in collaboration with alliance members					●
	Include ethical concerns in staff performance measures					◐
	Ensure staff relations are based on potential for contributions, not status; support participative decision-making					●

Key	○	Unknown/ no evidence/ irrelevant	◐	Some evidence	●	Strong evidence
Characteristic	Possible Activities					Level
	Ensure staff recruitment policies are proactive towards minority groups; foster workforce diversity and equal opportunity					◐
	Ensure highest standards in workplace health and safety					●
	Adopt family-friendly policies					◐
	Develop higher-order employee capabilities (process skills, self-confidence, sharing)					◐
Ecological Capabilities	Contribute to ecological renewal					●
	Be proactive in negotiating with other corporations for the design and production of more sustainable products					◐
	Assist smaller corporations to be more responsible by sharing knowledge and expertise					●
	Use life-cycle assessment to reduce packaging, eliminate waste, increase dematerialization					◐
Tools/techniques	Consolidate and integrate the systems adapted in earlier phases					●
Production/ service systems	Redesign products to ensure environmental safety					●
	Redesign supply chains to become material processing loops to eliminate waste and pollution					●
	Dematerialize physical products where possible to emphasize service activities					○

Table 6.2 indicates that there is strong evidence that STC were a sustaining organisation across the ecological and human dimensions. Benn et al. (2014), describe sustaining organisations as having six pillars: a new social contract; a focus on human sustainability; purposive values-based action; a focus on ecological sustainability; building strategy into culture; and, proactive leadership. The following sub-sections examine how STC addressed each of those pillars.

### 6.2.1.1. A new social contract

The social contract relates to the organisation's relationship with its stakeholders and provides the basis for the organisation's continued existence, legitimising its right to operate. The stakeholders include those who directly engage with the organisation and are essential to the survival of the organisation, or primary stakeholders. There are other, secondary, stakeholders who may influence the organisation or be influenced by the organisation. The range of stakeholders can thus include the owners, customers, suppliers, the community, the government, the environment and future generations. As a non-profit, part government fund organisation, STC already had the first five stakeholders as part of its social contract. In undertaking Greening the Wharf, they extended their

social contract to the ecological environment and future generations. They encoded the terms of the contract into company documentation. That will be explored in the discussion related to the other pillars.

#### **6.2.1.2. A focus on human sustainability**

Human sustainability has both an internal and external focus (Benn et al., 2014). Internally, it focusses on the commitment to develop staff who are knowledgeable and flexible and who are capable of taking responsibility for their own development. Such staff are more capable of being responsive to change efforts. Externally, it focusses on having a strong ethical stance in relation to its stakeholders and developing strong relationships with them and being a source of positive influence on them.

STC's corporate values are *Creativity, Play, Rigour and Commitment*. Keywords that flesh out those values include curiosity, flexibility, collaboration and continuous improvement. The organisational structure is flat with an executive team comprising the Artistic Director and Executive Director, then departments with a single manager including Finance and Administration, Marketing and Customer Services, Philanthropy, Community, Corporate Partnerships, House Services and Production. The structure is represented graphically in Figure 6.5. Staff at STC speak of a company that they are proud to work in, a place that encourages work-life balance, where contributions from staff are welcomed and supported for exploration. Human Resource recruitment practices enforce the values around Greening the Wharf and greening is incorporated into the staff induction process. Work Health and Safety practices and documentation are rigorous.

In a section of the 2015 Annual report headed *A Great Place to Work*, staff education initiatives were documented, staff engagement with the other organisations or the community were applauded and long serving staff were honoured (STC, 2015a). Staff interviewed for the case study expressed pride in being staff members and demonstrated high levels of morale. This approach to human resources greatly assists the company to draw on the best of the talents of their employees. Staff are supported to develop their skills and share their knowledge within and beyond the company. Long-serving staff members are honoured with an award named after their longest serving staff member at the quarterly company meetings. The culture is relaxed, creative and collaborative.

STC engages with the community in a variety of ways, promoting its sustainability journey with schoolchildren, other theatre and non-theatre organisations and the public. The Community section of the company website details the extensive work that STC does in terms of adult drama and literacy,

juvenile justice and providing disadvantaged students with access to live theatre. In 2015, STC made another visible contribution to their human sustainability credentials by releasing statements related to its commitment to human rights and against corruption, stating “Sydney Theatre Company (STC) takes seriously its role as a responsible leader and influencer within the arts industry and wider community” and “our obligation to ensuring transparency and accountability of our business decisions and dealings” (STC, 2015b).

Though Greening the Wharf did not specifically set out to address human sustainability as such, the way in which the company deals with its staff strongly contributed to a culture that was open to and willing to change to support environmental sustainability through investigating and modifying organisational practices as well as it has. The sustainability phase model (Benn et al., 2014) provides a key to understanding the success of the Greening the Wharf project at STC. STC would have been at level ES2 two, non-responsive, in the Sustainability Phase Model when the project began (Benn et al., 2014). The ecological environment was not a factor in the day-to-day business of the company. It became a focal point for the company when Blanchett and Upton took up their co-artistic directorial positions. Had their human sustainability been at HS2, where staff are viewed as a cost and industrial relations is more focussed on making sure that staff do the work they are employed for, the level of buy-in from staff when asked to engage in how they could ‘green’ their work practices would have been minimal, in all likelihood. At this level, significant barriers to organisational learning are usually evident. Staff may be cynical, feel it is adding to their workload and become defensive, avoiding engagement so as to maintain the *status quo*. The fact that staff were consulted on this already indicates that they were valued beyond the specific skill set that they brought to their roles.

The process of engaging the staff, of empowering them to explore their ideas and the continued commitment to gaining their input on improving greening practices indicates that STC were operating between human sustainability HS5 and HS6 when the Greening the Wharf project was starting. At these levels, staff are valued for all that they can contribute, and the workplace works on attracting and retaining the best staff it can by providing excellent working conditions. The people who work for the company are seen as having value in their own right. The high human sustainability rating at the start of the project provided the fertile cultural soil for planting the greening idea, and perhaps, any other initiative. Staff knew that their input was valued, they showed high levels of commitment to the organisation and a willingness to go on the greening journey precisely because they were valued for what they could contribute beyond their functional roles. This was critical to the success of

Greening the Wharf and STC's attaining the status of sustaining organisation. In complexity terms, it was a key enabling factor.

### **6.2.1.3. Purposive, values-based action**

A sustaining organisation is based on strong values and attract staff who are committed to the same values. As mentioned above, STC's corporate values included creativity, curiosity, collaboration and continuous improvement. Their commitment to environmental sustainability was captured in its job descriptions. The Sustainability road map 2012-2015 indicated continued commitment to educate and advocate for environmental sustainability within and beyond the arts industry (STC, 2012).

### **6.2.1.4. A focus on ecological sustainability**

In addition to the savings made through infrastructure changes, STC's commitment to the environment was demonstrated in its continued refining and embedding of sustainable practices into organisational activities, as detailed in Chapter 5.3.

### **6.2.1.5. Building strategy into culture**

Benn et al., (2014) discuss the importance of culture in setting an organisational strategy if an organisation wants to become a sustaining one. To achieve a change on that scale requires that all of the organisation's members embrace sustainability values so that they become part of the way they go about their roles, a core shared ideology that is enacted in day to day practices. A strong culture binds the environmental and human sustainability in the organisation.

STC was able to leverage an already strong culture with a high level of human sustainability in embracing its environmental sustainability program. As indicated in 6.2.2.2, without its high human sustainability rating, it is unlikely that they would have attained the level of buy-in from staff when Blanchett and Upton announced the intention to green STC. However, it should be noted that McIntyre had to try to make sense of Greening the Wharf when he developed the business plan for STC under his leadership. When he joined in 2010, Greening the Wharf had become a multi-million dollar juggernaut that was attracting more attention in the press than the core business of producing theatre. In developing his business plan of STC, ABC – arts, business, community- he was able to retain the commitment to greening while reasserting the core role of the company (STC, 2010). STC was an arts company. STC needed to be financially viable and STC had a role in being embedded and engaged with its community. Greening became part of that community engagement because it

provided STC with a platform to engage the community in a conversation about environmental sustainability.

#### **6.2.1.6. Proactive leadership**

A strong organisational culture is underpinned by a commitment to having sustainability as a core part of its strategy needs to be reinforced by proactive leadership at all organisational levels (Benn et al., (2014). At every stage of Greening the Wharf there was evidence of proactive leadership, key staff who emerged as champions and role models, inspiring others to act through their actions. The members of Green Team I were the first leaders and built the momentum for greening to become part of the organisational culture. Green Team II continued the process of culture change, retaining a role in being a focal point for suggested continuous improvements in environmental sustainability at STC. Leadership was encouraged at all organisational levels which allowed STC to capture knowledge across the organisation.

The sustainability phase model deals with the human and ecological levels of sustainability but does not specifically address the financial sustainability of the organisation, though Benn at al., (2014) articulate that a strategy with sustainability at its core must ensure that it attends to the financial viability of the organisation. In 2.2, I articulated my own definition of sustainability that could be applied to all organisation types and was based on the concept of the triple bottom line. I argued that to operate sustainably, an organisation must

- a. Ensure its ongoing financial viability; while
- b. ensuring that it extracts no more from the ecological environment than can be replaced all along its supply chain, by minimising its carbon footprint, minimising waste to landfill; and,
- c. engaging in management practices that promote the development and well-being of both employees and community-based stakeholders.

In attaining an ecological and human rating of level of ES6 and HS6, STC met b. and c. above. Their financial performance over the tenure of Blanchett and Upton also improved substantially. The 2013 annual report indicated a surplus of \$430, 837 compared to a \$254, 420 deficit in 2012. The 2013 ticket sales netted \$4.851 million compared to \$2.047 in 2012 (STC, 2013). STC could thus be characterised by the metaphor of a sustaining organisation across all three measures.

## **6.2.2. Insights about STC's level of sustainability commitment**

This section has assessed the level of organisational learning for sustainability evident at STC through the application of the Sustainability Phase Model (Benn et al., 2014). It found that STC could be described with the metaphor of sustaining organisation across both the human and ecological dimensions as captured in Table 6.2. STC also addressed the six pillars of a sustaining organisation (Benn et al., 2014). This section found that a critical contributor to the level of organisational learning for sustainability was the high human sustainability rating evident at STC prior to the Greening the Wharf project. This was a critical enabling condition in the success of the project. Staff were already empowered to lead their own learning and valued for all that they could contribute to the organisations in an organisation with a strong and collaborative culture. This was one of many enabling conditions that contributed to the success of the project. They are explored in the next section where I apply a Cooksey's (2003) complex systems of dynamic influence model to organisations and organisational learning to Greening the Wharf at STC.

## **6.3. Complex systems analysis of organisational learning for sustainability**

Chapter 3 established the conceptual framework for the analysis of this project as an example of organisational learning for sustainability within the Complex Adaptive System (CAS) that is STC and using metaphors and frames to dive deeply into each of the subsystems. Figure 3.1 explored the contextual complexity of organisational activities (in this case, Greening the Wharf) as developed by Cooksey, (2003). There are a range of influences of greater or lesser power in around any focal organisational activity when we consider the range of contexts within which those activities occur. These include the environment, the organisation itself, intra and interpersonal contexts which are interacting dynamically through positive (destabilising) and negative (stabilising) feedback loops. Within those influences and feedback analysis allows for the identification of enabling factors. I already mentioned one such factor in the previous section – the high level of human sustainability operating at STC at the time that Greening the Wharf was introduced. This was so important that I would describe it as a critical enabling factor. I will distinguish those that were absolutely essential to the project as critical enabling factors from those that were important which I will describe as enabling factors. I have created a series of flow diagrams to express the process graphically.

- Appendix 5 captures the dynamic influences and key points of feedback between them in a mind map. It provides a single perspective on the sources of dynamic influence in graphical form for readers who find visual representations a useful augmentation of the written analysis.
- Figure 6.1 - a flow diagram of the announcement of greening and its impact on the start of organisational learning for Sustainability at STC, indicating the type of feedback and learning loops evident. This figure indicates the positive destabilising feedback that prompted the examination of what STC's purpose was and the opportunity presented to engage in double loop learning. Once the company had decided that its role was to engage the community in a conversation about the important issues facing society, the key one being climate change, all the subsequent learning that took place was single loop. That is, the new vision of becoming the greenest theatre in the world established performance gaps that needed to be closed so that existing practices could be done in a green way. The subsequent figures do not include notations for positive or negative feedback because all of that subsequent learning was single loop. The detail is then captured in the following figures:
  - Figure 6.2 – a flow diagram examining Act I: 2007-mid-2010
  - Figure 6.3 – a flow diagram examining Act II: mid 2010-2011
  - Figure 6.4 – a flow diagram examining After the show: 2012 and beyond

Blanchett and Upton's strong environmental commitments were the first critical enabling condition by making the idea of greening theatre part of their job application and subsequent tenure. Without that there would never have been a project. Their subsequent announcement to the Company that their artistic vision for STC was for it to be green was a source of positive, destabilising, feedback to the system and pushed it out of equilibrium. Theatre is a resource hungry activity and STC had not shown evidence of really trying to produce shows in an environmentally sustainable way even though at least the Set Construction area was aware of the poor environmental credentials of the ply being used for set construction. The environment was just not part of the way they framed what they did. The announcement of the strategic intention to green theatre provided a key opportunity for double loop learning where the assumptions that underpinned the reason for the organisation existing were brought into question. Should STC stop producing theatre to help mitigate against climate change? Should it redefine its purpose as being to engage the public in a conversation about climate change by becoming

an exemplar of how this resource hungry activity could be done in a way that does not damage the environment and share the story? They chose the latter and set in train the Greening the Wharf project proper. There were key enabling conditions evident across the domains of dynamic influence that provided key feedback into the system and ultimately enabled STC to emerge as a sustaining corporation.

Exploring the domains of dynamic influence allowed me to look at the contextual complexity around the unfolding of Greening the Wharf over time and the behaviours that emerged as STC adapted to the feedback. Appendix 5 provides a graphical representation of those influences. The following subsections look at the four domains influencing the focal activity of Greening the Wharf – (6.3.1) Environment, (6.3.2) Organisation, (6.3.3), Individual and (6.3.4) group.

### **6.3.1. Environmental influences and enabling conditions**

The environmental context in which any organisational activity takes place includes anything that sits outside of the organisation proper, but which can impact on the organisation and its activities. These can include socio-political circumstances, legal issues, professional associations, media and other information sources, the ecological environment, cultural and cross-cultural influences.

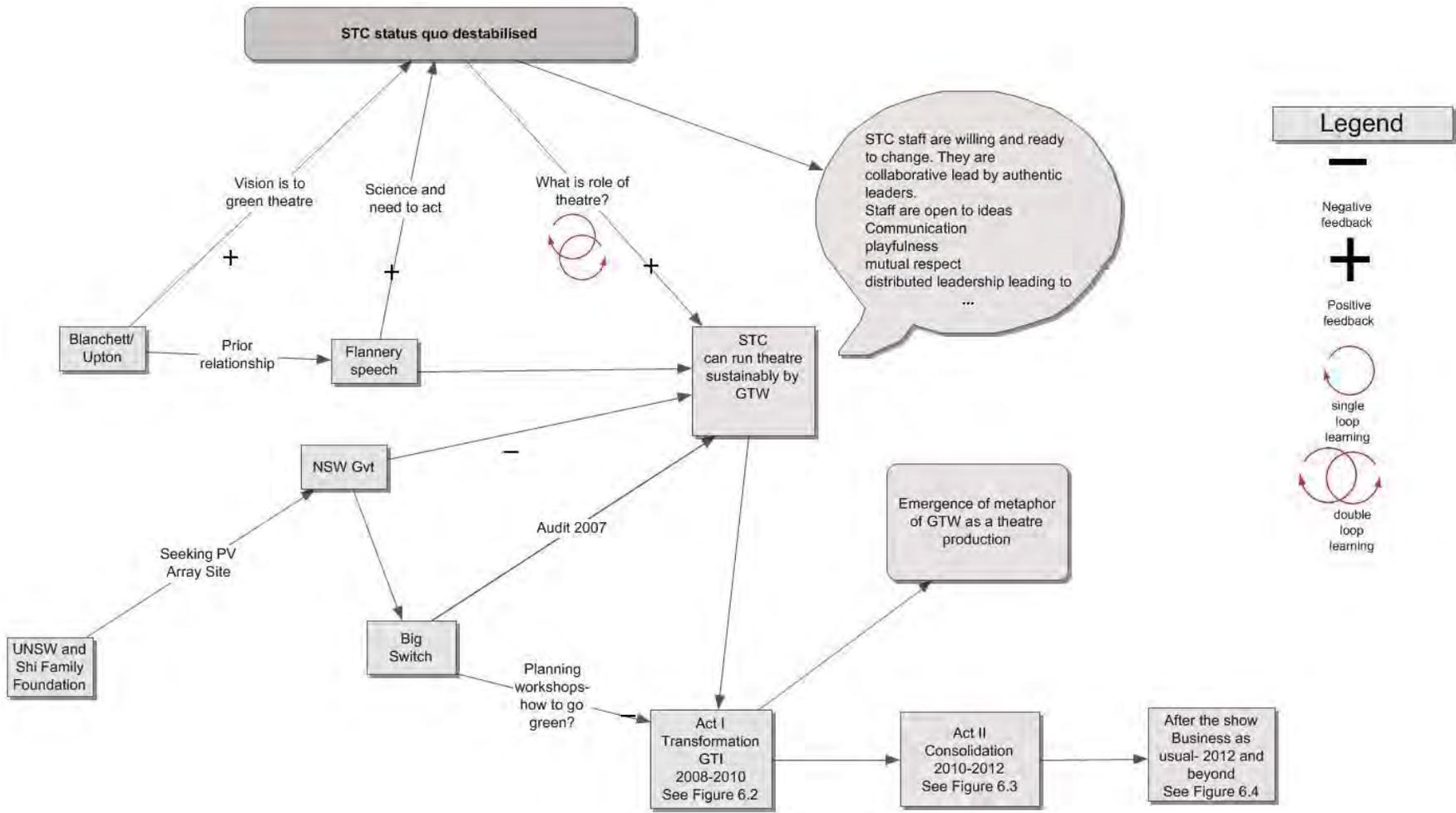


Figure 6-1 Flow diagram of the announcement of greening and its impact on the start of organisational learning for Sustainability at STC

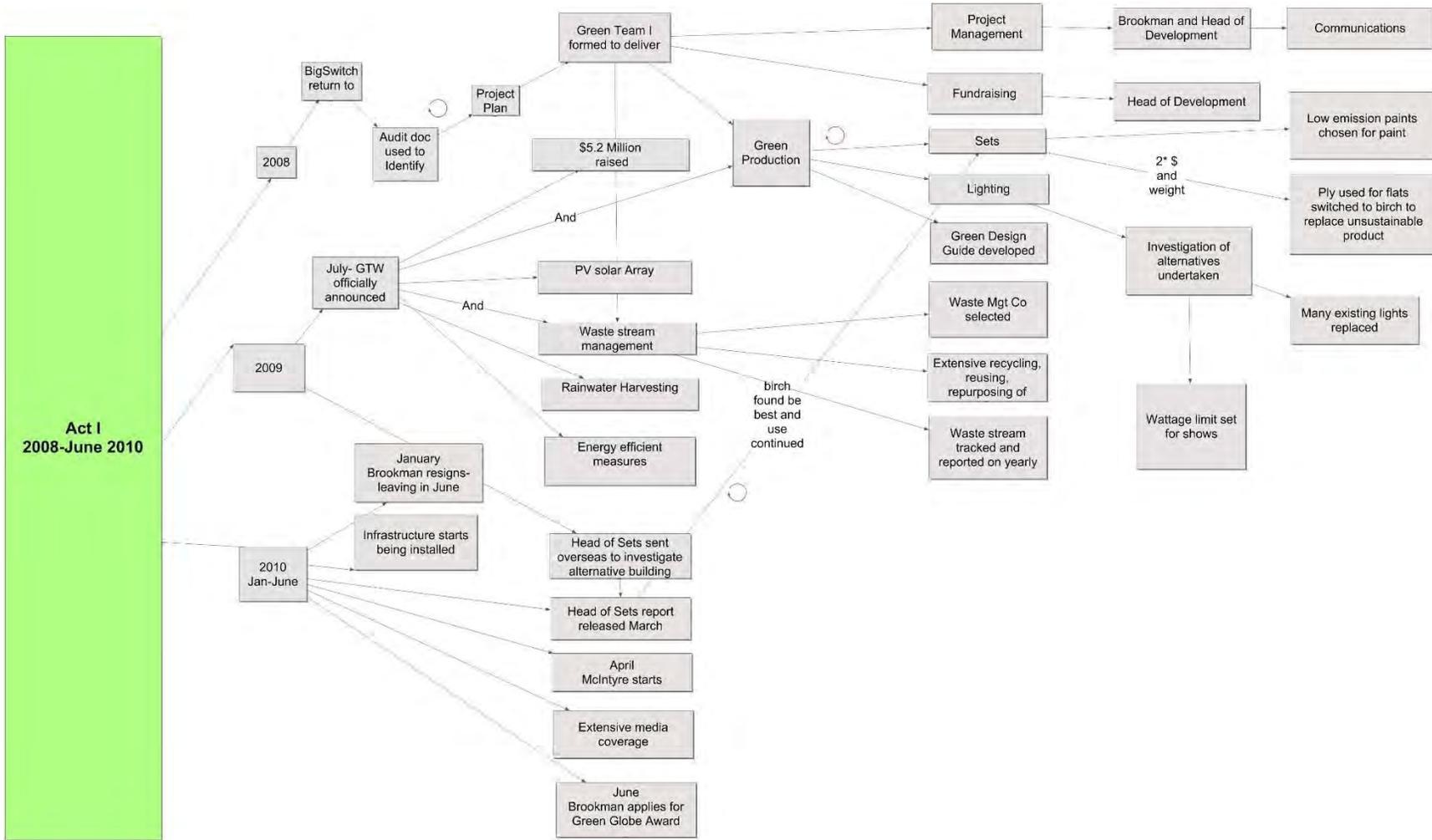


Figure 6-2 Flow diagram examining Act I: 2007-mid 2010

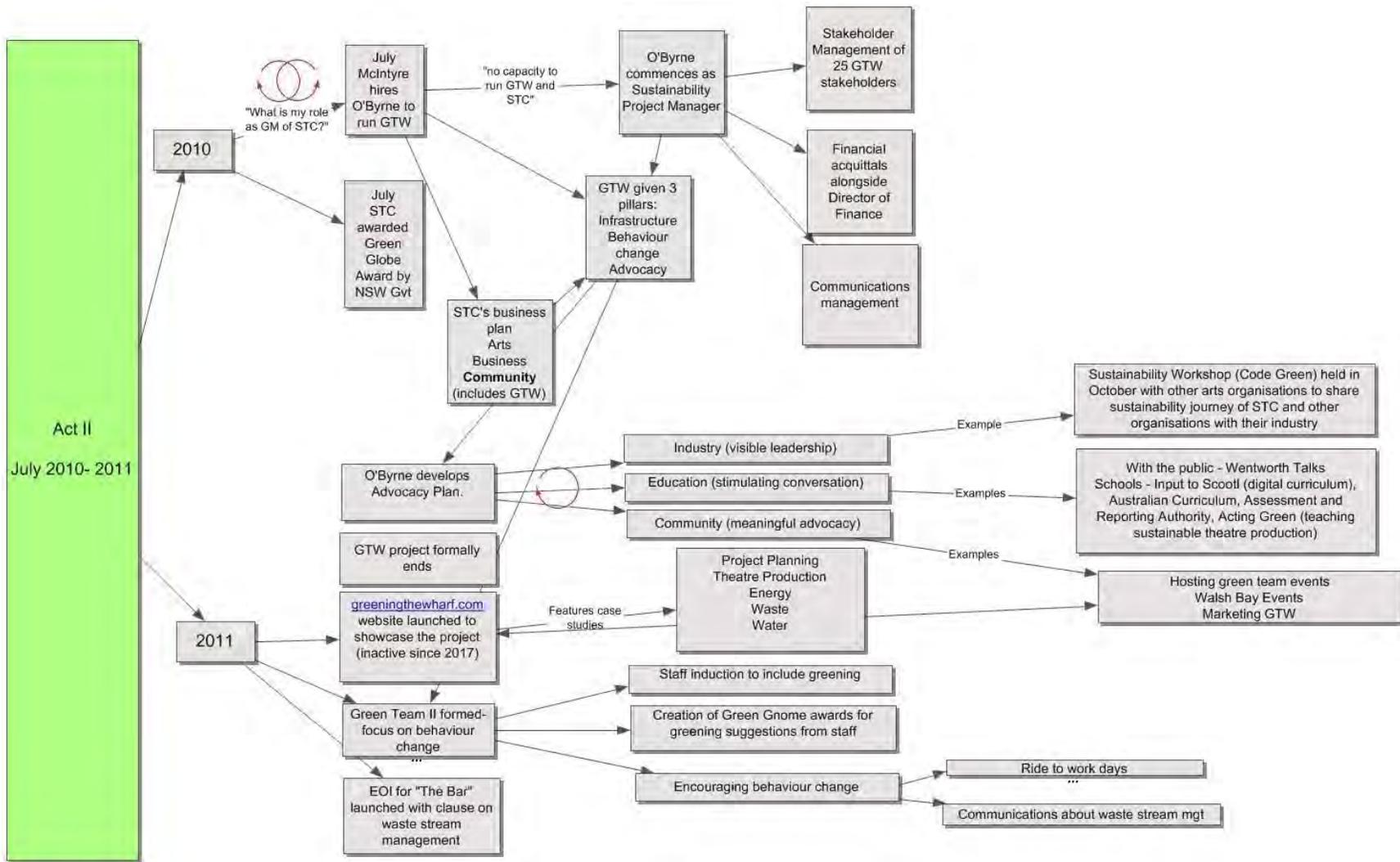


Figure 6-3 Flow diagram examining Act II: mid 2010-2011

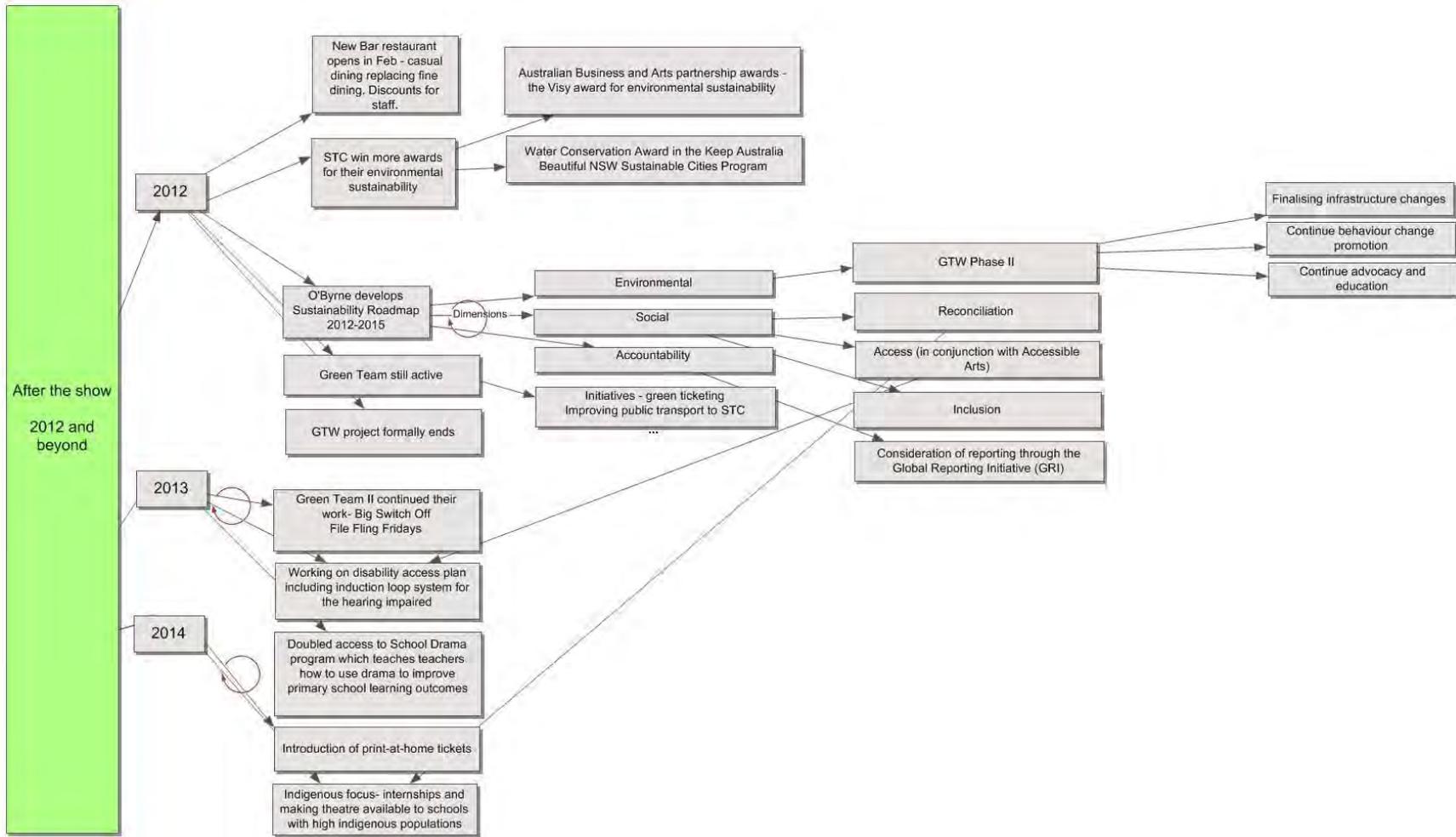


Figure 6-4 Flow diagram examining after the show: 2012 and beyond

A number of enabling conditions were evident around the time that Greening the Wharf was being conceived and planned. A critical condition in the success of Greening the Wharf was the timing of the announcement to ‘green theatre’ and the subsequent project rollout. This meant that the idea had the most fertile of socio-political circumstances for exploring an environmental sustainability project in the last twenty years. Australia had been in grip of a drought from 2000 and did not see significant easing until April 2008 for Sydney, though many other parts of the country did not get any relief until the La Niña of 2010. The climate statement from the Bureau of Meteorology 2007 stated:

*Australian annual mean temperature for 2007 was 6th warmest on record (0.67°C above normal). Australian annual mean maximum temperature for 2007 was 0.73°C above normal and annual mean minimum temperature 0.61°C above normal; highest on record annual mean and maximum temperatures across much of the south; warmest year on record for Murray Darling Basin, South Australia, New South Wales and Victoria; and longterm droughts persist in the far southwest and southeast (Bureau of Meteorology, 2008).*

Former US Vice-President, Al Gore’s documentary, *An Inconvenient Truth*, was raising public awareness of climate change and its potential impacts (Guggenheim, 2006). The impact of the movie has been researched in several studies, one of which reported a significant relationship between coverage of the movie in the media and public perception about climate change being an urgent issue (Brulle, Carmichael, & Jenkins, 2012). According to Upton, he and Blanchett already knew Gore, having met him in the US and discussed his slide show about climate change. When he visited Australia in 2007, “Cate threw a [fundraising] dinner for about 50 people and they got to hear from her and Al Gore” (Brookman 2015, 17). In all, the philanthropic donations to the project totalled about half a million dollars.

Another critical enabling condition in ensuring commitment was having the Australian of the year, Tim Flannery, speak to the whole company about why tackling climate change was so important. He was able to back up the greening vision with science, reinforcing the positive feedback into the system that it could not keep operating within the *status quo* of consuming huge resources to produce theatre. *97% of the staff turned up to his talk. It was great because it was a palpably inspirational moment. Most of the staff were already on board because of what Cate and Andrew had brought but Tim was*

*able to give one of his amazing talks in which he laid out the science and what needed to be done. He was depressing enough about the possible future we could face but optimistic enough that people could see an alternative if they took action (Brookman, 2015, 15).*

Of course, the talk must be seen alongside the already established enabling condition of STC's high human sustainability rating at the time. This meant that Flannery's message was falling on engaged ears. Such a speech, like many an inspiring message, can create an initial surge of passion for action that quickly dissipates once people return to their normal routines. At STC it galvanised staff into action. This was assisted by the nature of the work that they do, particularly in the production area, which was the first part of the organisation to explore and take action. They are constantly creating new productions, putting on around 16 shows a year. Each show has a combination of permanent and freelance staff who have to come together within a finite time and have a functioning set ready for opening night. The speech by Flannery gave them the impetus to carry on that work but with an added dimension – to do so in an environmentally friendly way.

#### **6.3.1.1. NSW State Government**

The New South Wales (NSW) State Labor Government in power during 2007 was another critical enabling condition. During 2007, Blanchett and Upton were already working with STC, shadowing the outgoing Artistic Director, Robyn Nevin, ahead of taking over in 2008.

*We also went to see Bob Debus the NSW Environment minister who also happened to be the Minister for the Arts which was a handy confluence. As soon as we introduced Cate and Andrew to him we floated the green idea to him (Brookman, 2015, 14).*

Debus occupied the role of Minister for the Environment from 1999 to 2007, and took on the Arts ministry in August 2005 in addition to that role. During most of his tenure, Bob Carr was Premier until Carr resigned in 2005. Carr had a strong record of supporting environmental programs. Unlike their Federal counterparts, the State Labor Government were not climate change sceptics. Arts NSW provided funding for the consulting organisation Big Switch to audit existing practices and infrastructure at STC, to find ways to reduce energy and water use, and improve their recycling. The internal project-planning document also stated that 2007 set the base line against which the targets

were set. In 2008, STC brought Big Switch back to run workshops with the staff, engaging in detailed analysis and consultation to develop a comprehensive project plan.

In providing the funding for the audit and subsequent planning workshops, Arts NSW provided another enabling condition. Rather than flying blind in terms of what they might be able to achieve, the audit gave STC the benchmark data from which to launch. It was a source of negative feedback as it showed STC the gap between where they were at environmentally and their aspiration to be green. This data from the audit provided a focus for the staff on what needed to be addressed so that STC could close the performance gap and fulfil its objective of producing theatre in an environmentally sustainable way.

Debus was also instrumental in connecting STC and UNSW and the Shi Family Foundation. UNSW had contacted him to advise that they were looking for a site for a large photovoltaic (PV) array to be donated by the Shi Family Foundation not long after Brookman had visited with Blanchett and Upton to announce their plans for greening STC. The serendipity of the timing of bringing these key players together was another enabling condition. The funding from the NSW government totalled \$1,177,000 and the along with the \$2.5 million donation from the Shi Family Foundation comprised 71% of the total \$5.2 million raised for Greening the Wharf.

#### **6.3.1.2. Federal Government**

The Federal political climate was not a supportive one at the time when Blanchett and Upton were appointed. Then Prime Minister, John Howard, had refused to sign the Kyoto Protocol, the treaty among industrialised nations to set mandatory limits on greenhouse gas emissions. The ground became more fertile after the 2007 election, which swept the Rudd Labor Government to power, creating a further enabling condition. One of the key election commitments was to sign the Kyoto Protocol and to start tackling the issue of climate change. This brought the Federal and State government of NSW into alignment on environmental issues and programs to support action to mitigate climate change. To that end, one of the key initiatives was the development of a Green Precincts Fund, the purpose of which was to:

*Prepare Australia for a future with less water and to encourage local communities to better manage their water and energy use. The Green Precincts Fund supports high-profile demonstration projects that deliver*

*water and energy savings while educating the community about water and energy efficiency*

*Sydney Theatre Company, Walsh Bay NSW – Greening the Wharf: \$1,200,000  
Efficiency measures: rainwater harvesting, storage and reticulation; water efficient fittings; energy efficient appliances; a building management system upgrade; and a rooftop solar photovoltaic system to generate electricity  
(Department of Agriculture and Water Resources, n.d.).*

Kevin Rudd had also invited Blanchett to attend the Australia 2020 Summit the government hosted in April 2008. The summit, held in April 2008 and attended by over 1000 invited delegates, was aimed at shaping a long-term strategy for Australia and to tackle some of its long-term challenges across thematic areas such as productivity, the economy, population and sustainability, communities, indigenous issues, creativity, governance and security. Blanchett accepted and co-chaired the Creative Australia policy group (Australian Government, n.d.).

The role of both the state and federal governments in seeing this project get to the level that it did cannot be underestimated. As Rob Brookman (2015, 37) reflected, “*if we had been trying to do this under the current government we would not have got there*”. In similar vein, Paul O’Byrne commented,

*I remember at the end of 2011 meeting someone from the State Government, from the Office of Heritage and Environment. She said, if you guys try to do that now you wouldn't have got even a fifth of the way (O’Byrne, 2014b, 56).*

As mentioned, UNSW and the Shi Family Foundation were serendipitously seeking a site for a showcase PV Array site being sought by, and ultimately won by STC. The installation was subject to a feasibility study commissioned by Arts NSW and input was sought from a firm of heritage architects to ensure that the installation would be sympathetic with the building’s heritage listing.

### **6.3.1.3. The Media**

Cate Blanchett’s return home to Australia, after several years living overseas and building an international reputation as one of the leading actors of her generation, sent the Australian press into a

feeding frenzy. Her role at STC garnered incredible amounts of press for STC compared to the time prior to her joining with Upton and since she left the role.

In all, there were 63 articles about the couple or Blanchett or Greening the Wharf over the period from late 2006 to end of 2013. These were clustered mainly around 2007 when the couple had just returned to Australia and were yet to take up their appointments but had announced greening (19 articles) and then in 2010 when around 30 articles were published, focussing mainly on Greening the Wharf at STC as it rolled out and won awards, most featuring photos of Blanchett.

While gathering data for the research, I was overwhelmed by the amount of publicity that had been attracted around the Directors themselves. However, in 2010, the number of articles on Greening the Wharf in 2010 was impressive and photo opportunities featuring Blanchett were an obvious attraction for any media outlet. What was surprising to me was that staff did not mention the press articles. Only one member of staff interviewed mentioned an article and she had joined STC after the project had wrapped up:

*I think I would actually associate it with work, with STC. Before I even started working here I had read an article, or an interview, that Cate and Andrew had given in MiNDFOOD. I think it was when they first were rolling it out and I think that was one of my first - it was just after I graduated, actually, so it was one of my first really like, oh, we can have buildings that are sustainable and like, oh. It was kind of a new concept (Kim, Events Coordinator 2014, 36).*

So, the media was an enabling condition in that it raised public awareness of the project and engaged the community in a conversation about responding to climate change. It was probably significant in terms of the funding the project attracted. Greening the Wharf was guaranteed to get significant media attention due to Blanchett's celebrity. As Brookman put it, "she could have been clipping her toenails and the press would have been interested" (2015, 40). However, it had little impact internally among STC staff.

#### **6.3.1.4. Summary of key environmental enabling conditions**

As mentioned at the beginning of this chapter, without Blanchett and Upton's aspirations to green STC there never would have been a Greening the Wharf but that vision could not have come to fruition without the enabling conditions from across the various contextual domains of dynamic influence on

the project. Of all of the influences articulated above, the positive socio-political environment was certainly key. The enabling conditions were the timing of STC wanting to pursue an environmental sustainability project, the support of the NSW State Government in providing access to Bigswitch projects to audit STC's environmental footprint and in running the planning workshops where the gaps were filled; in their own funding and in connecting STC to UNSW and the Shi Family Foundation. The 2007 election of a Labor Federal Government was also an enabling condition. This created the funding environment and those three sources were the major contributors to the multimillion-dollar pool of funds STC managed to raise. The media were significant in reporting on climate change and efforts to mitigate it because the millennium drought had brought the issue home to a significant number of Australians. In addition, there were powerful voices in the public sphere such as Al Gore and Tim Flannery. It must also be said that the media were likely to have been less interested if the Artistic Directors had a lower profile. Internally, the media coverage had little impact on staff and was less of a key source of influence. Tim Flannery's address can be seen as a reinforcing source of positive feedback to STC, backing up the greening vision with the science and forcing them to question what their purpose was. This helped to create a strong momentum for change as evidenced by the forty per cent of staff electing to attend the workshops that followed.

### **6.3.2. Organisational context**

The organisational context encompasses the structure, culture, communication patterns, policies, procedures and practices and leadership styles within an organisation. STC was founded in 1984 at its current location. It had a small core staff of about one hundred and employed a variety of free-lance staff for their various theatre productions. The organisational structure was relatively flat. Refer to Figure 6.5 for details.

#### **6.3.2.1. Policies and procedures**

STC has a small number of formalized policies and procedures, including the staff recruitment and induction, guidelines for freelance staff (actors, directors, designers) who are employed on a production basis covering lighting and set design and an events guide to organisations hosting events at STC.

- Green Design policy (Appendix 4) advising freelance staff and reminding permanent staff about how to run theatre production with minimal impact on the environment. that

specifies the use of sustainable ply in set construction, sets a wattage limit for each show to save electricity, encourages the reuse of existing flats, props and costumes, use of steel rather than aluminium because aluminium has a less sustainable life cycle, use of low VOC paints, and choosing more sustainable materials where such options exist.

- Green Events Guide (STC, 2011c) is an internal document that offers five basic steps to ensure events align with STC's green ethos. These include:
  - Decide the environmental goals for the event and distribute them to all involved in the event.
  - Incorporate greening into the event planning and budgeting.
  - Appoint a green leader for the event.
  - Select vendors that meet the green goals for the event.
  - Review the event timeline to ensure there is adequate time to meet those green goals.
- The Workshop area has procedures for diverting waste from landfill and using a spreadsheet to track the tonnage for reporting purposes.
- While not a specific policy, the Sustainability Roadmap 2012-2015 was guiding STC's ongoing sustainability journey (STC, 2012).
- Job descriptions carry a paragraph discussing the requirement for staff to engage in their work in an environmentally sustainable way (STC, 2017).

The policies are a succinct but important guide and reminder to freelance staff and external organisations about how to maintain the green ethos.

### **6.3.2.2. Infrastructure**

The built environment of STC is unique and makes its own contribution to organisational life and practices. Situated at Pier 4/5 on Walsh Bay, it is housed in one of the finger wharfs – a long thin building jutting out into Sydney Harbour with views of the Harbour Bridge and Opera House. I have created a floor plan based on my memory of the building, as I did not have a copy of the actual floor plan. Refer to Figure 6.14 for details. The Bar, STC's informal dining and bar area at the end of the building enjoys the most spectacular views, though Figure 6.6 is a photograph of the view from the preparation bench in the kitchen of the Bar. The management offices have a view of the harbour, but administrative staff share open plan cubicle spaces that are largely viewless. However, walking out

into public spaces and The Bar affords staff and visitors access to the views. I have included a number of photographs in this section to give the reader a sense of the building and its context and some of the evidence of changes to organisational practices as a consequence of Greening the Wharf.

The shape and length of the building keeps its staff quite separate from each other in silos. Functionally, the various departments have little overlap with their work which could also create silos but it did not seem that STC was negatively impacted by this.

The proximity of the rehearsal and theatre spaces also has an interesting impact. On my first day, I was invited to attend a 'Company Run'. Initially I was wondering if this was a jogging exercise around the Wharves, but the human resources manager informed me that the staff attend a late rehearsal of a play that is close to opening so that the actors can experience how a live audience will react. It is a luxury available to STC due to that proximity. It benefits productions by providing a live audience and it connects the staff with the core business of the company even if they are not directly involved in the production process.

The location of the building is attractive, though not well serviced by public transport. For the staff, it probably fades into the background a little, though lunch at the Bar restaurant affords those beautiful harbour views. It could have been a constraining condition for Greening the Wharf but instead, it seemed to have had a neutral impact.

### **6.3.2.3. Leadership**

The leadership team had comprised a few different combinations from the time Blanchett and Upton's appointment through to 2014. Initially Blanchett and Upton were working with General Manager, Rob Brookman. From 2010 to the end of 2013, they were working with Patrick McIntyre and Paul O'Byrne (on the Greening the Wharf project specifically) and from early 2014 to the end of 2015 the executive team was Upton and McIntyre. Comments made specifically about Blanchett's own leadership capacities include:

*Cate has been a lead actor, kind of all her life and that - you know, people*

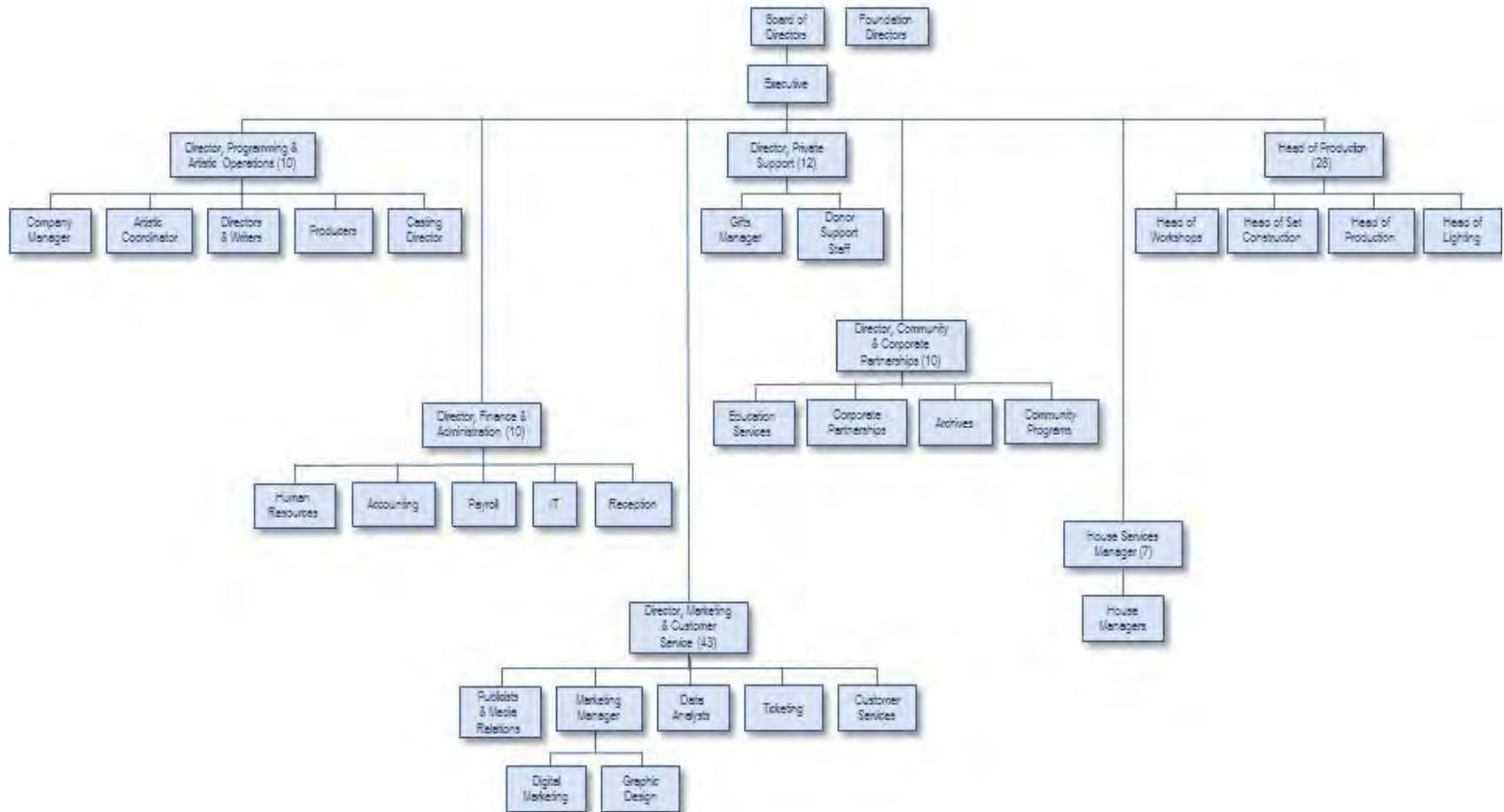


Figure 6-5 STC Organisational Chart



Figure 6-6 Sydney Harbour Bridge from window of the kitchen of The Bar (author's photograph).



Figure 6-7 Side view from Sydney Harbour Bridge showing length of the building (Destination NSW, n.d.)



Figure 6-8 View from The Bar at STC (author's photograph).



Figure 6-9 Front of House showing the stairs up to STC. Box Office is on left of the stairs (STC, n.d.).



Figure 6-10 The long public corridor leading to The Bar. Wall on the left hides the private corridor and the production and rehearsal spaces (Theatre Now, n.d.).



Figure 6-11 Blanchett, Upton and guests at the opening of the PV Array (Stage Whispers, n.d.).161

Figure 6-12 My impression of STC's Floorplan.

STC occupy the top two floors of the building. Other tenants such as Sydney Dance Company occupy the bottom floor. The drawing is of the second floor where most of the organisational activity takes place. The top floor houses two theatres and a top floor section of the Administrative area.

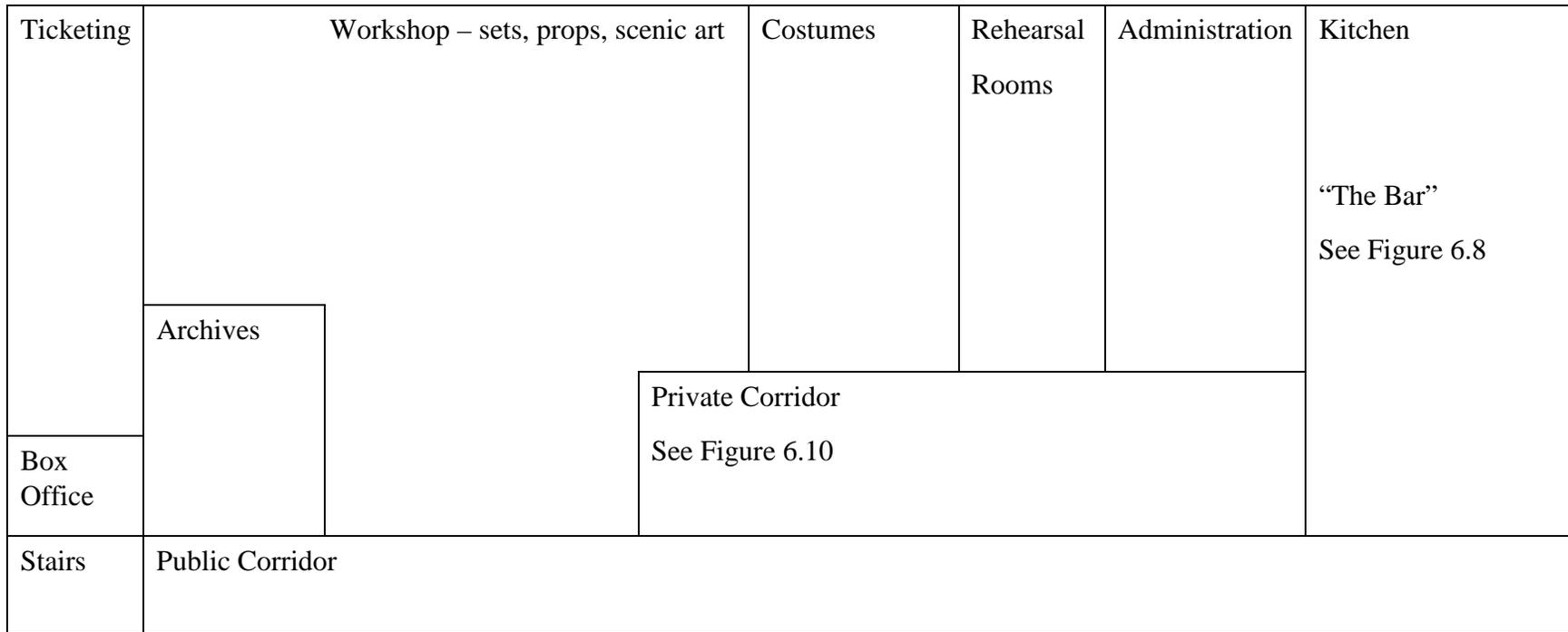


Figure 6-12 Impression of STC's Floorplan

*think, oh leading actor means star, but it - a lead actor is a leader, that's what defines a leader, not that they're handsome or good looking or have the most lines, it's that they lead a company. ... So Cate is naturally quite - well not quite - naturally a great leader (Upton 2014, 87, 89).*

*Cate has a such a wide-ranging intelligence I think at one point that Robyn [then Artistic Director, Robyn Nevin] said to Cate half-jokingly, 'one day you should run a theatre company' (Brookman, 2015, 10) referring to a conversation during rehearsals for a production of the play, Hedda Gabler in 2004.*

A quite telling physical manifestation of the Blanchett and Upton leadership style was the way their shared office was furnished. A single computer sat on a tiny desk in the corner of the room and in the centre of the room was a large yellow couch flanked by two smaller red couches around a generous coffee table. A rattan sign on the wall proclaimed, “no point being King Shit of Turd Island”, so striking that I had to photograph it! See Figure 6.13. It makes that claim to a lack of ego blatantly and the space invites conversation. The word ‘conversation’ came up repeatedly in press releases featuring Blanchett and Upton and in interviews.

In fact, the constant references to conversations pervaded my interviews and related to the ethos of STC, the Greening the Wharf project and the role of theatre in society, particularly as it related to the project. It engages in a dialogue with its internal and external stakeholders, including staff, patrons, other organisations and the broader community. Blanchett spoke of using Greening the Wharf to engage the public in a conversation about how we can respond to climate change, even in a heritage-listed building.

Upton for example, in describing the start of the project contextualised it thus:

*The building itself has always been - I think this is a really - in fact I think it's a real thing and possibly in the world, but definitely in New South Wales and definitely in Sydney, this was the first place that got into these old wharves and kept them as old wharves, but modernised them and there's a beautiful kind of dialogue in the old and the new and we felt that that was an extension of that conversation into the next - into the future.*

*So they became the kind of guiding principles, I suppose, that it would extend the conversation (Upton, 2014, 23 -24).*



Figure 6-13 Poster in Andrew Upton's office (author's photograph)

The dialogue extended from STC at the organisational level to the wider environmental contexts within that STC interacted with. There were conversations with the public through the Wentworth Talks hosted at STC. It allowed the scientists of the Wentworth Group to speak with the public rather than other scientists. The ABC Panel discussions were another opportunity to engage the public in conversation. The workshops held very early in the project encouraged the staff in attendance to converse around how they could respond to the challenge of climate change in their own spaces and work practices. At the meta-level, Blanchett and Upton are quoted on the [greeningthewharf.com](http://greeningthewharf.com) website as saying that the “*theatre has always stimulated both visionary conversations and practical action*”. Additionally,

*climate change is the most pressing challenge facing the human race today. One of the roles of art is to imagine the future. To do this effectively it must be both visionary and practical. We believe Greening the Wharf not only delivers enormous practical outcomes for Sydney Theatre Company but offers a vision of how we might all creatively embrace the challenge and opportunities that Climate Change presents.*

The previous discussion is suggestive of a metaphor that captures the way STC, at least under the leadership team at the time of the research, could be described. That metaphor is STC as interlocutor, an organisation that achieves its outcomes whether internally or externally, through dialogue or conversation.

After Blanchett finished her tenure at the end of 2013, Upton was persuaded to continue in the role until the end of 2015. The new leadership team comprised Upton and new General Manager, Patrick McIntyre. Within twelve months McIntyre was made an Executive Director because,

*... we changed the kind of role, ... it became executive director and artistic director. ... I think the biggest change we've made to the STC, actually, is that it is still artistically led but it's not led at the whim of an artist anymore. It's too big for that (Upton, 2014, 145, 147).*

So, the two were co-directors of STC with Upton more focussed on the artistic side and McIntyre on running the business side of STC. In one interview, the Company Manager who joined just as the solar panels were being installed described the leadership thus:

*I do think particularly because the executive team here at STC, just the executive directors kind of invite that kind of conversation. I think they genuinely are deeply collaborative people and there's a really - the thing I've noticed most and I've probably said it many, many times in my three and a half years is the remarkable lack of ego in our organisation at the top. So by contrast to say all of the other many artists I've worked with in theatre, the ego is quite low here. This thing of having to prove oneself, it's just really kind of open collaborative spirit as much as there can be in this, which really impresses me too because again we're so big (Connor, 2014, 163).*

When Paul O'Byrne took up his appointment in July 2010 to take over the lead on Greening the Wharf, he emphasised the importance of having passionate people in the organisation willing to take on the work while also having support from the executive. His observations of other organisations demonstrated the need for top down and bottom up support so that there is a distributed responsibility for contributing. This approach suggests an approach akin to Cooksey's (2003) concept of "learnership".

*I think there was an element of that. I think that they each found that they - even though there was real passionate individuals within their organisations, they didn't get the top down support that we had from board and executive, and you need that. You need it. Not only do you need it, you need it consistent and where are we up to with that, what's going on with that. I'd have my fortnightly catch up with Patrick and I'd*

*have my monthly catch up with Cate and Andrew and keep them abreast of stuff. They were totally across it all, and it was really important (O'Byrne, 2014a, 118).*

As part of the Behaviour Change pillar of the Greening the Wharf under his and McIntyre's leadership, he reported on progress at company meetings, as did the Green Team II.

*Then we had Paul ... he ran the Green Team and he was the management team's conscience on this. So he - it was his single focus when he first got here, so he was able to keep poking people when it was a relatively new movement (McIntyre, 2014, 37).*

*Then there was the ongoing internal practice, particularly into the design, which Paul really took over, really championed and has been driving really ever since (Upton, 2014, 167).*

With so many shifts over time, greening at STC could have simply ended with the installation of the infrastructure elements and the financials acquitted. The level of passion shown by Brookman and his small team was unusual and sustained. When he left, there was a real danger that the momentum for moving greening from the Wharf to STC culture would be lost. However, in bringing O'Byrne on board, McIntyre was able to ensure that not only did the Greening the Wharf get managed to its completion but that the greening of STC more broadly would continue and expand. This was partly due to O'Byrne shifting roles during his tenure. His official positions, as described on his LinkedIn Profile were:

- Sustainability Project Manager – July 2010-Feb 2012
- Led "Greening the Wharf" project, a multiple national award winning US\$3.7m refit of an historic Sydney Harbour building resulting in dramatic reductions in energy (50%), water (75%) and emissions (50%), industry and community advocacy, plus a comprehensive program of changing the way STC makes theatre
- Director, Community Programs – Feb 2012-April 2013
- Director of STC's program teams across education, sustainability, precinct and urban and regional communities.
- Director, Community and Corporate Partnerships April 2013-July 2015
- Directing STC corporate support program plus direct and lateral management of education, sustainability and precinct engagement teams and programs (O'Byrne, 2017)

With the shifting roles and his background in Corporate Social Responsibility, the increased focus on the social dimension of sustainability in terms of community support is evident. Sustainability seems to have been central to all three of the roles. Even when his formal project management role with Greening the Wharf wrapped up, sustainability remained key and informed his approach to his next two roles. This in turn enriched STC's approach to sustainability.

The leadership at STC may have changed over the course of the Greening the Wharf project but that did not change the words I would use to describe it – open, authentic and collaborative. By authentic, I mean that there was no artifice evident with the members of the leadership that I interviewed. That lack of artifice was also evident in the interviews with other staff members.

#### **6.3.2.4. Communication patterns within the organisation**

Most staff I interviewed indicated that they heard about what was happening in the company through the company meetings chaired by the senior management team and attended by all staff at STC, including those from across the road at Sydney Theatre. The announcement of and continuing updates about Greening the Wharf and ongoing greening activities occurred at these meetings.

For more day-to-day communication, the administrative space was quite compact and that facilitated conversation. The Production area and Administrative areas, Archives and Ticketing areas were very distinct spaces and there was little evidence of regular communication flows between those areas, but one would have to be present for a much longer period to observe such communication. However, the nature of the work undertaken in those spaces is quite distinct as well and the need for such communication is likely to be reasonably minimal.

Within individual departments, and within production teams that come together for individual shows, the sense I had was that communication took place through collaborative conversations with team or department members. The interactions that I observed between staff regardless of their position within the organisation were friendly and respectful. They treated me in the same open and friendly manner. The staff involved in producing the shows themselves would need to communicate with each other frequently to ensure they can get the show ready for opening night. Each show has just six weeks to rehearse and for the production team to bring all of the other elements together, including the set, props, lighting, costumes and stage management. They put on around sixteen shows per annum.

In terms of visual communications around the building, at the time of the research STC were approaching the promotion of shows in a unique way that avoided having to print posters. They had employed a marketing assistant who would create the posters on blackboards along the public corridors and invite the public to engage with STC’s social media around the production or a question related to it. See Figures 6.14 and 6.15. Plus Figure 6.16 shows reminders to print less and Figure 6.17 is an example of a reminder to recycle. All are the author’s photographs.



Figure 6-14 Invitation to join STC on social media

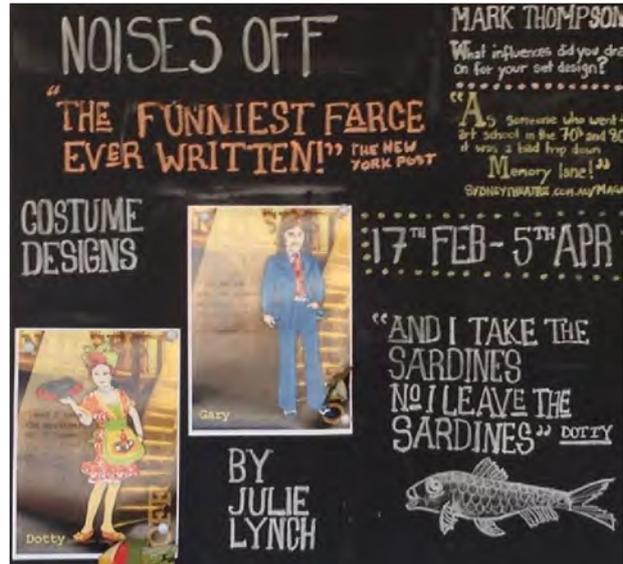


Figure 6-15 Poster for Production of Noises Off 2014



Figure 6-16 Reminder to print less



Figure 6-17 Visual reminder to recycle

### 6.3.2.5. Culture

The culture that I encountered at STC was characterised by a strong commitment to the organisation, underpinned by a sense that staff were proud to work there and felt that the

management valued them. This was indicative of the high human sustainability rating they achieved on the sustainability phase model (Benn et al., 2014). From the first encounter with the receptionist on my first visit, I met staff who were open, friendly, generous with their time and who seemed very happy to be at STC. There is a culture of openness to ideas and staff are valued for themselves, not just their skillset. There is a sense of playfulness as well and that might be nurtured by the nature of what they do - creating multiple theatre productions every year. The staff reinforced this impression during in my interviews when I asked specifically how they felt about working at STC. The following quotes capture the overall sentiments expressed.

*“I don’t have trouble voicing opinion where it’s appropriate in general anyway. I do think particularly because the executive team here.... kind of invite that kind of conversation. I think they genuinely are deeply collaborative people”* (Connor, Company Manager, 2014, 163-164).

*“There’s an emphasis put on work life balance and not working too many hours”* (Susie, Ticketing Specialist, 2014, 34).

*“I think greening’s sort of an integral part of who we are now”* (Cassie, Director of Finance, 2014, 68).

*“I think the massive change with me was coming from corporate. It didn’t feel like it was a corporate company and I think people are a lot more relaxed as well. So that took a bit of time to adjust to that, you know, because it tends to make you be yourself, more than that corporate image that you have to portray, which I had to portray when I worked for a corporation”* (Bob, Building Services Manager, Sydney Theatre 2014, 146-148)

*“I would say it’s an excellent company to work for certainly and it’s a responsible company. ... If I were to leave then whatever company I would choose I would hope that they would have the same responsibility in and outlook as STC has. It has influenced me in that way”* (Will, Ticketing Specialist, 2014, 116).

... *“one thing that can’t be underestimated is that some people find themselves in jobs, they don’t really know why they’re there, but very few people find themselves in theatre and not know why they’re there”* (Upton, 2014, 395).

During a follow-up discussion with McIntyre I mentioned my positive impression of the organisational culture and he brought up a quote he had read somewhere to the effect that “culture eats strategy”. This is sometimes attributed to management guru, Peter Drucker, though no literature was found to support that. However, it was put in slightly different terms by organizational culture expert, Edgar Schein who argued that strategy is determined and limited by culture (2010). In the case of STC, the culture (the way we do things around here) is one where staff were happy and described an organisation where they were allowed to be themselves. They were motivated by more than remuneration for their work. Staff were also encouraged to express ideas and to follow them through. They were supported in exploring them and rewarded for positive contributions. This led to a level of fearlessness that is not evident in most organisations. They just explored ideas and enacted them, assured that they had the support of the executive to achieve their outcomes.

This was evident with Joe, the Head of Set Construction, with the Head of lighting and with Green Team II who were tasked with coming up with and enacting ideas to encourage behaviour change without being micro-managed or having to seek approval at every turn. The leadership encouraged and modelled a collaborative and creative approach to solving problems. This latter point relates to the Upton and McIntyre leadership team. I did not have the capacity to comment on the previous leadership team but in a follow-up conversation with McIntyre and Upton (2015) they alluded to the previous Artistic Director favouring the creative staff over the administrative staff. O’Byrne also commented that McIntyre had put in great effort into extending the valuing of staff to all members of STC.

Green Team I was populated by managers who volunteered their time and energy. As mentioned in Chapter 5, once the project plan was in place, Brookman described the process of it as a giant theatre production. Refer to section 5.3 for the interview quote. This suggested another key metaphor of Greening the Wharf as theatre production and led to my describing it as a play in two acts in section 5.3. However, the metaphor offers a deeper level of analysis of the process. This metaphor facilitated a transformational change by casting it within the existing job-related frames of the team so that they could engage in single loop learning to close the gap between existing practices and environmentally sustainable practices. The role of a general manager in theatre is to produce the shows, so it is understandable that the approach to Greening the Wharf would take that form. Each production requires pulling a team of permanent and freelance staff together to work together to put on a quality piece of theatre. As Upton commented to me, no one sets out to make a turkey. It is perhaps that regularity of different people coming together to work on productions that made it easy for Green Team I to just jump in and get on with producing Greening

the Wharf as if it was another production. The nature of theatre production also requires that staff have to be open to ideas, to fulfilling the creative vision that the set designers and directors have for staging the plays. McIntyre described a play put on after Greening the Wharf had launched, in which it rained on stage for all of Act II. Because of their green ethos, they did not simply want to dump the water into Sydney Harbour, so they arranged the removal of the water with the City of Sydney Council so it could be used to water plants in public spaces. Their creativity had to extend beyond the immediate challenge of meeting the artistic vision for the show to ensuring it met STC's environmental commitments. This suggests an openness to ideas and a willingness to explore the space of possibilities in realising a creative vision or responding to challenges at STC. Other organisations could potentially benefit from embracing such an approach to problem solving.

#### **6.3.2.6. Summary of organisational enabling conditions**

Although STC had a strongly siloed functional breakdown in terms of both the organisational structure and the built infrastructure, it did not seem to suffer from a siloed approach to Greening the Wharf and related greening activities. There was a strong identification with and commitment to the organisation evident across all of the staff I interviewed or had casual conversations with while undertaking my research. There is a very strong culture of collaboration and creativity supported by the leadership team and reinforced at company meetings, at least in relation to the ongoing commitment to greening. Brookman consulted widely with staff in the planning stages of Greening the Wharf and he collated and prioritised their ideas. Blanchett and Upton's conversational and democratic approach to their leadership complemented Brookman's style. The leadership team of Upton and McIntyre continued the approach of collaboration and conversation as the way to engage staff across the organisation and this seems to be a significant factor in the enthusiasm of Green Team II for their work under O'Byrne's leadership. In the case of Green Team I, once STC had raised the funds, the Greening the Wharf project ran like a theatre production. Each manager found ways to become more environmentally sustainable within their own context and then influenced their individual team's processes and practices.

#### **6.3.3. Group - interpersonal enabling conditions**

STC's flat organisational structure contributes well to intra-departmental communication. However, it is both physically and functionally siloed as shown in Figure 6.5, which depicts the organisation chart and 6.12, which depicts my impression of the floorplan. The separation is most evident particularly in the case of production and administrative staff. The staff involved in the

production of the shows would work together on given productions, coming together as a team of disparate individuals comprising permanent and freelance staff. In this case, teams are discrete in terms of membership and time together. The organisation is supported through its administrative areas including Archives, Ticketing, Information Technology, Human Resources, Finance, Philanthropy, Community and Partnerships. I did note that Archives and Ticketing sit at the front of the Wharf building and are quite a distance from the other administrative area, separated by the production, rehearsal and theatre spaces. The archivist said that she did not venture down to the front of the building unless the company was hosting a specific function or meeting. Alan, the Data Analyst who worked in Ticketing expressed a sense of disconnect from management, though this was not reinforced by the two ticketing specialists I interviewed. Such physical and functional separations could make any major organisational change project like Greening the Wharf difficult to enact. However, STC staff seem to identify themselves as Team STC through their strong commitment to the organisation. This commitment to that identity and the organisation, the strong organisational culture and open communication channels contributed to the lack of silos and manifested in the two iterations of the Green Team.

#### **6.3.3.1. Green Teams**

The comprehensiveness of the project plan that emerged from the well-attended 2008 workshops suggest they that involved open and critical dialogue and an exploration of the space of possibilities about existing practices across all aspects of STC operations and what might be possible. Green Team I was made of managers from various functional areas and they were a key source of influence on the processes and practices undertaken therein. Each manager focussed on their key skill set and the role played by his or her department and worked on how to reduce its environmental impact. Brookman and the Head of Development focussed on overall project management and fundraising in the early days. The Heads of Set Construction and Lighting investigated the various challenges, then found and implemented solutions. They made changes to material inputs such as lighting and timbers and made appropriate changes to the relevant work practices to accommodate those. Mike, the House Services Manager worked with the Department of Public Works on the infrastructure pieces of the project. While Green Team I was a team in terms of the overall goal of Greening the Wharf, they each operated individually on a specific, contextually relevant, aspect of the project through a downward distribution of responsibility and leadership where each team member was encouraged to investigate and resolve the issues relevant to them. Each managed their own teams and the changes they made impacted on the work practices of those teams through localised actions aimed at achieving the broader organisational greening goal. I am unable to comment on how collaborative each individual manager was in

relation to his or her own teams. This was a somewhat different to the role played by the next iteration of the Green Team.

Groups or teams came together at STC for each of their sixteen annual theatre productions. These were comprised of permanent and freelance staff. To ensure that STC's productions are environmentally sustainable, freelance staff are given the Green Design Policy (Appendix 4) to ensure they understand STC's sustainable approach to theatre production while working collaboratively with the permanent staff across the various parts of the production department (sets, costumes, lighting, props, and scenic art). Further teamwork is required when shows are finished to manage the waste stream. When sets are deconstructed the Production Workshops Manager and his team must work with production staff to work out what can be reused, recycled or redistributed to minimise waste to landfill. Figure 6.18 shows a couple of photographs that capture the spaces where anything reusable is stored.

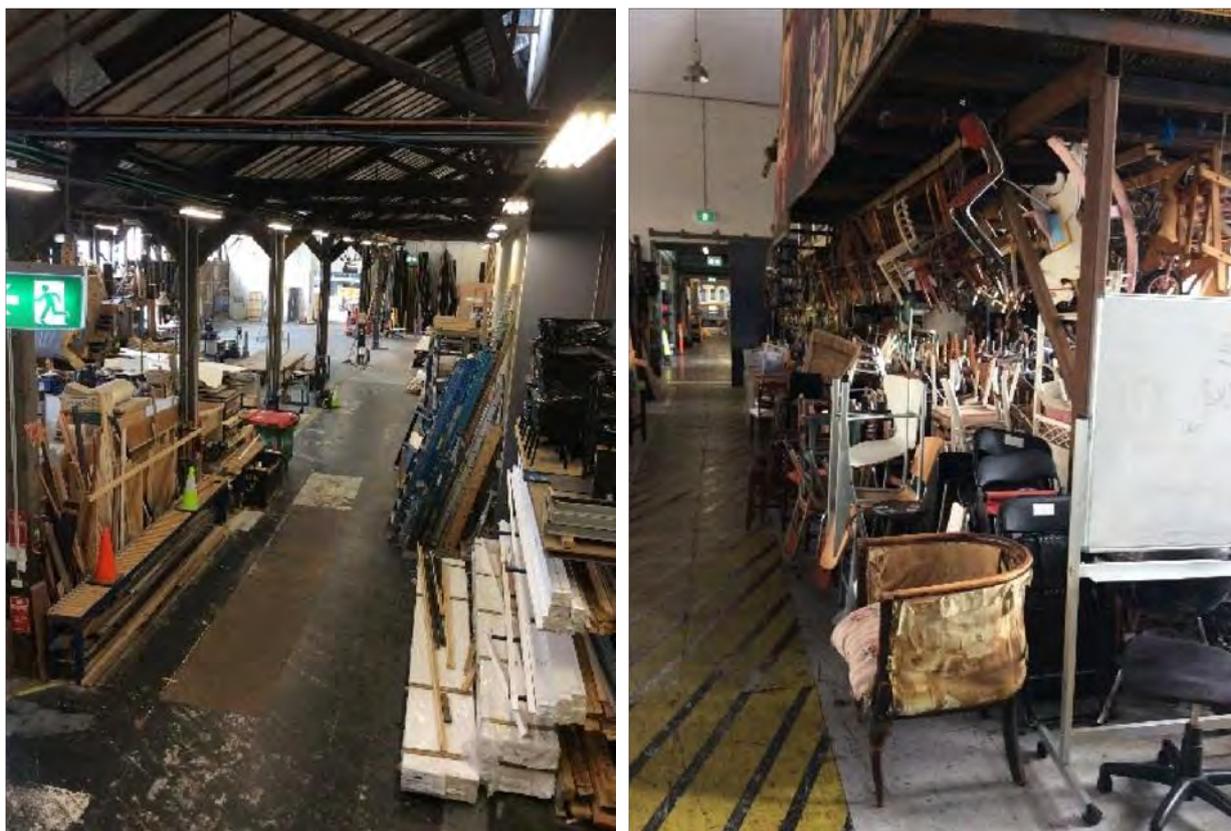


Figure 6-18 Storage of reusable items for theatre production (author's photographs)

### 6.3.3.2. Green Team II

By the time Green Team II was brought together, many of the infrastructure elements were in place and the balance shifted to more of a focus on coherent action as a team in order to promote ongoing behaviour change across the organisation as well as localised actions. This group of volunteers operated more like a team, compared to Green Team I, in that they came together to

develop ideas collectively on how to improve green behaviours among the staff at STC and ST. The team implemented those ideas in consultation with O'Byrne. Staff had the freedom to explore the space of possibilities and act on the ideas that emerged from their explorations. They were introduced with great enthusiasm by the executive at a company meeting which signalled to whole company the value placed on the ongoing commitment to greening at STC. This provided top down as well as bottom up support for encouraging behaviour change.

In both iterations of the Green Team, it is evident that staff were encouraged to be creative and to collaborate within and beyond the company to find solutions to any issues identified. STC supported The Head of Set construction and Head of Lighting to consult broadly with other companies in their investigations. Green Team II tended to brainstorm within the group to come up with novel ideas for encouraging behaviour change among staff. More broadly, at the level of what I call Team STC, the same sense of safety in expressing opinions and ideas in the company meetings was evident. The sense of openness to ideas across the organisation provides a way for the company to benefit from the collective intelligence and creativity of all of the staff rather than relying on the executive or management to come up with solutions.

#### **6.3.4. Individual influences and enabling conditions**

The individual or intrapersonal context encompasses all of the characteristics of the individuals involved in an organisation including their life history, education, skills, gender, age, cognitive capacities and frames, values and psychological function (Cooksey, 2001). While I spent significant time covering the individual perceptions of participants in Chapter 5, I now want to focus on those individuals who were enabling conditions for the Greening the Wharf project in this subsection. One can safely argue that the genesis of Greening the Wharf was Cate Blanchett. She had demonstrated her environmental commitments through public utterances in the press and had been photographed marching in rallies promoting action on climate change. Blanchett and her husband, Andrew Upton, were determined to make a big statement about acting on climate change as part of their tenure at STC. Some of the participants I interviewed were aware of her environmental activism. Her father died suddenly from a heart attack when she was ten years old. A magazine article in which Blanchett was interviewed wrote that she was raised by her mother, and a grandmother who was steeped in depression-era frugality: "I was reared with a strong sense of waste not, want not" (Elliott, 2010). She had appeared in an episode of *Iconoclasts* with Tim Flannery and said "I read the *Weather Makers* and it changed my life" (Etc, Etc, 2016), referring to Flannery's best-selling book on climate change (Flannery, 2005).

Brookman was pivotal to the success of Greening the Wharf. The self-described ‘organised hippy’ took the opportunity to marry his passions for theatre and the environment when he was presented with the greening theatre idea. His encyclopaedic knowledge of the project despite my interviewing him some five years after he had left STC demonstrated his passion for the project and his pride in what he and Green Team I had been able to achieve.

Later, O’Byrne became pivotal in embedding and extending the sustainability agenda into the STC culture through his work with Green Team II and his regular reporting at the company meetings. The managerial approach shown by Blanchett and Upton, Brookman and then McIntyre and O’Byrne was also important for making space for all staff to contribute ideas and time to the project. That allowed them to capture the collective intelligence of a committed team and enriched the original Greening the Wharf project and sustainability more broadly.

### **6.3.5. Complex systems analysis of organisational learning for sustainability**

From the previous discussions it is evident that there were many sources of dynamic influence on the Greening the Wharf project and beyond. However, the project would not have succeeded were it not for the following conditions:

- Environment – timing and a supportive socio-political climate, particularly the NSW State Government, the Shi Family Foundation and UNSW seeking PV Array site.
- Organisation – culture and leadership were the most critical conditions. Collaborative and authentic leadership fostered a culture where staff were free to offer ideas and explore them without fear, where they felt valued for themselves giving them a human sustainability rating of HS6.
- Interpersonal – two iterations of the Green Team were both successful in exploring what was possible, though with differing foci. Evidence of teams working well together, safe to explore the space of possibilities. Staff consider themselves part of Team STC.
- Intrapersonal – key individuals were Blanchett and Upton and their environmental activism coming together with their artistic director roles; Brookman who saw the opportunity to marry his environmental commitments with his role in theatre as a dream come true and the members of Green Team I who all took on huge additional workloads to see Greening the Wharf become a reality. Later, McIntyre and O’Byrne

were important to completing the Greening the Wharf project, continuing, and expanding STC's sustainability commitments. In terms of motivating staff, the address by Tim Flannery cannot be underestimated.

- Sources of feedback. The announcement to 'green theatre', reinforced by the Flannery talk was a source of positive feedback, pushing STC's *modus operandi* far from equilibrium and forcing it to question its purpose. Having decided on the goal to 'green theatre', STC sought further feedback. The audit process provided the information that became a source of negative feedback. That is, STC now had a goal and it needed to understand the gap between where they were at environmentally and where they wanted to be. A whole of organisation response was required to identify how to fill the performance gap, from the *status quo* to where STC wanted to be, so that it could go about the business of putting on theatre in an environmentally friendly way. The gap between their existing practices and green practices that had be closed (Dalton & Cooksey, 2017). The planning process in 2008 went about closing those gaps.
- Three metaphors emerged from the analysis undertaken. At the organisational level the metaphor that best describes how STC sees itself was STC as interlocutor, an organisation that achieves its outcomes whether internally or externally, through dialogue or conversation. The second metaphor was the transformative metaphor of greening as a theatre production, particularly in Act I, which allowed the transformation to take place within the core activity of the organisation. The achievements of Act I that saw much of the infrastructure changes would have been very impressive in themselves. However, under the leadership of McIntyre and O'Byrne, the sustainability journey continued and broadened, so that STC was characterised by the metaphor of sustaining organisation.

The preceding summarised the enabling conditions that contributed to the success of the Greening the Wharf project and ongoing commitments to sustainability at STC. The key finding in the analysis in 6.2 was that STC were operating at a high level of human sustainability in 2008 when the project was announced to staff such that the greening idea fell on rich cultural soil. This was evident in the high level of staff attendance to the Tim Flannery speech and the participation by forty per cent of the permanent staff in the planning workshops. It was also evident the creation of the two green teams from volunteers. That high level of human sustainability was facilitated and supported by the leadership teams in place over the period under investigation.

There is an aspect of the project that is not explicitly addressed by the complex systems analysis in 6.3 and that is the role of time. The formal project of Greening the Wharf was in planning in 2007 and then underway from 2008-2011. Time was an enabling condition at the beginning of the project because it occurred during a particularly favourable window of time in the socio-political environment. However, time could also have been constraining condition given the duration of the project in terms of maintaining staff enthusiasm for it. In addition, the constraining condition introduced when two key staff left – the Head of Development and then Brookman just as the project was rolling out could have seen the broader commitment to culture change lost as the new General Manager, McIntyre settled in to his new role. In hiring O’Byrne, McIntyre overcame this constraint (thereby creating a critical enabling factor) when he found someone who could ensure the sustainability of the project into the future, at first managing out the roll out and stakeholder management and ensuring that ‘greening’ was embedded in staff behaviour. O’Byrne also extended the conception of sustainability to include an explicit social aspect. This was exemplified in the explicit commitment and call to action included in STC’s job descriptions. Sustainability requires an ongoing commitment to learning action both at the level of organisations and more broadly in society if we are to ensure that future generations can meet their needs.

## **6.4. Organisational learning features evident**

This section will explore how organisational learning took place within the dynamic interplay of influences outlined in 6.3. The organisational learning features that were evident to me were a somewhat interesting visioning process, single and double loop learning; a supportive leadership team that fostered a culture of creative and fearless exploration of possibilities through ‘learnership’; team and individual learning; and encoding the knowledge built into company documentation.

### **6.4.1. Vision(s) and perspectives**

I have mentioned the initial vision that STC wanted to become the ‘greenest theatre in the world’ a few times but it was only expressed in those words once in the data. That was in a follow-up email with Brookman after my interview with him in 2015. The idea of greening theatre articulated in November 2006, when Robyn Nevin announced Blanchett and Upton as the incumbent artistic directors had been around since that time and had received extensive media coverage throughout 2007. I had assumed that STC were already on board with the greening because of this. However, I found that when I asked staff when they first became aware of

greening as a concept, those on the inside of the company were influenced far more by what was happening within the company and seemed unaware of what was in the press. I tried to imagine what that first company meeting must have been like when two novice artistic directors announce that their *artistic* vision was to ‘green’ STC. That seemed very tangential to the core business of producing theatre and so, I was surprised that the idea was greeted with enthusiasm rather than resistance or cynicism (Dalton, 2017). Such an announcement in most organisations would be met with resistance, a litany of expressed or felt reasons why it would not work. For STC that could have been expressed in sentiments like theatre being too cash strapped to engage in such activity, that it was not the purpose of theatre, or that staff were already too busy to take on that kind additional workload.

The initial notion of ‘greening theatre’ was also not a thoroughly considered idea before Blanchett and Upton publicly announced it. Upton spoke about imagining the Wharf building as a giant battery that would provide the power to run the rather frivolous activity of producing theatre (his assessment of how many people view theatre) from the sun. When he and Blanchett announced their intentions in 2006, they also mentioned making the building self-sufficient with solar panels and rainwater harvesting but they were very nascent ideas (Bennie, 2006). It was not until Big Switch first conducted the full audit of the entire building in 2007 that something more concrete started to build. The audit data fed the project plan after Big Switch and STC used it to inform the discussion at the workshops they ran in 2008 after Tim Flannery had addressed and impassioned the staff. Arguably, this was the time when the vision of making STC ‘the greenest theatre in the world’ was developed. It may have been clear in those early workshops, but the phrase did not enter the company vernacular around Greening the Wharf. The term ‘greening’ was ubiquitous, but it left open the possibility of a broad range of interpretations. Unlike the vision articulated, say by Federal Express, which incorporates a distinct action (parcels delivered overnight), that leaves little or room for interpretation, STC’s vision was open to interpretation in terms of how the change makers, those staff not directly involved and those staff who joined later framed what greening at STC meant.

Once STC had moved beyond having a specific set of plans as occurred with the Big Switch projects and subsequent plan, I found that staff had slightly different perspectives on what sustainability was and what Greening the Wharf was and it did not seem to matter all that much in terms of the outcomes for the organisation. For example, Joe characterised greening as being about sets. Bob over at Sydney Theatre thought greening was about what is happening at the Wharf, but his staff thought greening is about all parts of STC. McIntyre thought greening was purely environmental, but O’Byrne thought of greening in terms of social as well as

environmental, pulling it towards a broader sustainability agenda. Greening is a metaphor for the staff to make meaning of in terms of their own particular framing. The staff framed the Greening the Wharf or greening in terms of their local contexts as well as some mentioning the big items such as the solar. In terms of behaviour it related to their own work practices. Joe from set construction discussed the timbers sourced and the work practices, Jack talked about the waste stream management, office workers were more likely to need mention double sided printing and recycling bins. So, even within STC framing around greening had been personalised and contextualised. Table 6.3 summarises the various ways that staff framed what Greening the Wharf/greening meant.

**Table 6-3 Framing of Greening the Wharf/ Greening by key staff**

Name/pseudonym	Role	Framing of sustainability	Framing of Greening the Wharf/greening
Bob	Building Services Manager, ST	Being efficient with resources	About the Wharf building exclusively
Brookman	General Manager, STC until mid-2010	Protecting the environment	About the Wharf building, whole of STC culture, public communication and education, theatre production.
Joe	Head of Set Construction	Sustaining forests	About materials used for sets
Kim	Venue and Events Coordinator- ST	Minimise waste to landfill, save water	About whole of STC- wanted to bring some of STC initiatives to the ST building
McIntyre	Executive Director from mid-2010	Don't waste energy	Environmental focus, whole of STC, advocacy in community
O'Byrne	Director, Community and Corporate Partnerships	Protecting the environment and social impact	Environmental focus broadening to being about sustainability, including social sustainability, community education, advocacy within industry.
Upton/Blanchett	Artistic Directors	Protecting the environment and advocating for it	Showcasing what could be done with the wharf building as opportunity to engage community in a conversation about climate change

A stark contrast in conceptions was evident in Brookman and O'Byrne's accounts of what constituted the Greening the Wharf project and their role within it. O'Byrne was one of my earliest interviews and his framing of his role was that he managed the project end to end. Brookman saw the project as being almost finished and he had handed a set of project files to McIntyre when he left. McIntyre hired O'Byrne and handed those files and the reins of the project to him. Yet, he

characterised the Greening the Wharf as being almost a green-field project onto which he could put his own interpretation when I interviewed him. He did not seem to see the infrastructure elements as being part of his role. Rather, Mike, the Front of House Manager as part of his role, was managing them. However, he does list the awards including the Green Globe award from the NSW Government on his LinkedIn profile. Brookman had applied for that award just before he left the STC and it was based on all of the work done in Act I by himself and Green Team I. It seemed inconsistent for O'Byrne to frame the project as being green-field when he seemed to be aware of the work that had gone before and was ongoing when he arrived. As the person running Greening the Wharf at the time STC received the award, he was certainly entitled to note it on his profile, but he would have known that he had not contributed to the process that led to it. However, one's perspective on something is temporally shaped. O'Byrne had arrived after all of that work had been done and he talked to what he owned of the process. His employment to see the project through was very likely a source of enriching the next stages. Where Brookman saw Greening the Wharf coming to its conclusion, through the roll out of the infrastructure, O'Byrne was to take the sustainability journey further through his roles as Sustainability Project Manager, then Director of Community and Director and Community Corporate Partnerships. His previous roles in marketing, communications and corporate social responsibility influenced the way he framed Greening the Wharf and sustainability at STC, more broadly. This was ultimately to the benefit of STC's broader sustainability journey.

Staff had different frames for the concept of sustainability as well as summarised in Table 6.3. Conceptions of these ideas shift and change over time in the minds of those who come to the project or the company from different perspectives, value systems, age groups, change role and context within the organisation. If making STC the greenest theatre in the world was the vision articulated early in the process, it quickly gained a personalised meaning for the individual involved. Each staff member framed greening through the lenses of their role, personal perspectives/ history and when they came to project / company. Older staff tended to talk about not wasting energy or materials, younger staff spoke about ethical purchasing, food security. The metaphors also reflected their role - Joe from Set Construction talked about sustainability as saving old growth forests. Trina from the Bar talked about sustainability as sustainable food production and consumption. The frames and metaphors had both a functional and temporal quality to them. When we were having conversations about sustainability or greening during the interviews, those words were activating quite different but thematically related frames for the participants.

The original vision of the ‘greenest theatre in the world,’ was interpreted and personalised by those involved in Act I in terms of their local context. Brookman was the only one who had the whole of company view on the project as he was managing it. As the term ‘greening’ became part of the company vernacular, staff across the organisation made meaning based on their own localised and personalised understandings. This allowed them act on it in ways that were relevant to them and the culture and leadership of STC enabled that by not prescribing what ‘greening’ should mean. The organisational culture was one where staff were trusted and encouraged to seek out information, to gather feedback from within and outside the organisation, and to generate actions based on that feedback. That way of framing ideas probably reflects what is happening much of the time when humans communicate. We might think we are talking about the same thing or idea, but we may have different cognitive representations of that thing or idea (Lakoff, 2010). We should be alert to this when we are communicating with others. It is important to allow time for those variations in representations to be surfaced through empathic dialogue, so that people really understand what the other person(s) mean when they use a particular word or phrase.

When Brookman left STC the Greening the Wharf project could have been completed and wrapped up by O’Byrne and McIntyre. The results outlined in Figure 5.1 might have been almost as impressive. The energy harvested from the PV array, the water harvesting, the efficiencies gained by refitting lights and bathrooms would have continued. These infrastructure elements would have become part of the furniture and faded from consciousness. To remain part of the company ethos, sustainability at STC needed to move on from the Greening the Wharf, as characterised by Act I. The term ‘greening’ was a catchall phrase for all aspects of pro-environmental behaviour and activities at STC and was the ongoing legacy of Act I and Green Team I. By reconstituting the Green Team, O’Byrne facilitated the continuation of learning across the organisation, using volunteers to maintain awareness of greening and creating a culture of continuous improvement around greening practices. Having the Green Team II report at the quarterly company meetings provided an opportunity for the whole company to engage with what was happening and for the staff to see that the Executive still valued pro-greening behaviours. Green Team II continued to contribute to the results by encouraging the minimising waste to landfill, switching off devices at night, not wasting water and minimising unnecessary printing. The continued advocacy of Greening the Wharf ensured that STC maintained a positive social impact on the broader community. The ongoing commitment to level six human sustainability are evident in these practices and underpin the ongoing commitment to level six ecological sustainability (Benn et al., 2014).

## **6.4.2. Single and double loop learning**

The single and double loop learning that took place at STC was in response to the feedback in the system (Argyris & Schon 1978, Cooksey, 2003). In the complex adaptive system of STC, positive feedback destabilised the system and pushed it far from equilibrium, thus providing an opportunity for double loop learning. The positive feedback was the announcement to ‘green theatre’. STC employed double loop learning to examine the assumptions underpinning the organisation, forcing it to question the reasons for its existence. STC’s double loop learning moment was to reconceive itself and the role of theatre as being to engage the public in a conversation about climate change by learning how to put on its resource intensive theatre productions in an environmentally sustainable way despite being housed in a heritage listed building. It did not decide that theatre was a redundant activity and that it should shut down in order to save the precious resources it was chewing up. Therefore, in terms of its reason for being, it decided that theatre itself was a valuable activity for society but that it could also be more environmentally sustainable. STC framed a role and purpose for a theatre company in a way that it would not have previously considered (Dalton & Cooksey, 2017). Having set the vision to become green, it had to work on how to maintain the status quo of producing theatre with a reduced environmental impact. I characterise that learning as single loop learning which occurs in response to negative or stabilising feedback that creates performance gaps that must be closed for the system to restabilise. The vision to become the greenest theatre in the world coupled with the data from the audit conducted by Big Switch created a performance gap for each part of the organisation by asking them to consider how they could engage in their normal activities in a more sustainable way. As mentioned in 6.4.1, interpretations of what ‘greening’ meant were localised to those specific work contexts and answers were sought to resolve the issues identified within them. Once staff had answers, they changed work practices to close that performance gap across all aspects of their work – from set construction, to lighting, costumes, energy and water use, waste management, ticketing and administration. The leadership team made that exploration possible through the leadership of the project and of STC more broadly.

## **6.4.3. Leadership fostering “learnership”**

The leadership team were not prescriptive about how the company should go about becoming the greenest theatre in the world. The leadership team canvassed the staff for ideas, then documented and prioritised them during and after the workshops, as part of the project planning. Staff were encouraged to pursue their own learning and even to lead the learning in their own areas. The staff pursued the learning as they saw fit and were trusted to do so. The leadership team enabled them

to pursue that learning creatively and without fear, to seek out relevant information and to collaborate within and beyond the organisational boundaries in the pursuit of that learning. Greening was localised for each of the areas, so it is not surprising that when staff spoke about greening, their descriptions often related to their local contexts within the company. The ongoing commitment to 'greening' kept encouraging staff to consider ways that STC could do what it did in a greener way ensured that localised interpretations and applications were ongoing.

The vertical and lateral distribution of responsibility and control over how best to reshape local practices leadership fostered "learnership" across the organisation, facilitated the emergence of leaders who pursued learning relevant to their localised contexts through self-organisation. In order for that to happen successfully, the staff had to have high levels of self-efficacy in pursuing their learning and a sense that they were trusted to be effective in the process. That extended to the team based learning.

#### **6.4.4. Team and individual learning**

Learning at team and individual levels was evident. As a collective, the company seemed to identify as Team STC and that meant that the whole company was open to learning about how to be green. In terms of real action, the most critical teams would be the two iterations of the Green Team. They demonstrated team and self-efficacy for learning. In the case of Green Team I, as a team, they held a common objective about greening STC, but individually they took on different aspects of the work that aligned with their local contexts and their expertise. In the case of Green Team II, they had a common objective more focussed on changing behaviour in the workplace towards more environmentally friendly practices. All were free to interpret that as they saw fit, to put forward suggestions and explore them without fear of being ignored or belittled. That too was evident in both iterations of the Green Team. In both iterations of the Green Team and more broadly across STC, there is a fearlessness in exploring what was possible and this suggests a lack of fear of failure. The staff were trusted to be able to learn effectively without being micromanaged and to recover if the learning did not result in a successful outcome. Upton captured this approach well in the following excerpt from his Artistic Director's report in the 2014 annual report.

*As I wrote in the program note for "The Long Way Home, "the rehearsal room is a space that allows for failure – everyone has to be able to try things out and if something doesn't work the first time, it might lead to something that does work the seventh." This necessary relationship to risk*

*taking and failure makes us open to others, to their ideas and the potential solutions they might bring with them. As a theatre company, it's one of our fundamental purposes to provide a space in which it's not only safe to take risks, but where it is necessary, if we are to push ourselves, each other and the form (Upton, 2014, p.9).*

*The long Way Home*” was the afore-mentioned co-production between STC and the Australian Defence Force (ADF) that was written and acted by returned ADF personnel and professional actors and explored the difficulties experienced by returning soldiers as they try to return to their old lives. I was able to attend the play during my research and it was a powerful experience. The soldier’s stories were very powerful because their content was based on their lived experience during conflict and since returning home. The need for that particular rehearsal room to be a safe place lends extra power to Upton’s words. In addition, while Upton was speaking about rehearsals rather than non-theatre activity his words really ring true of the approach that STC staff took in exploring Greening the Wharf.

In Green Team I both Joe, the Head of Set Construction, and the Head of Lighting stepped forward and took the lead in learning what was needed to green their particular areas. Both produced extensive reports from their investigations. Both led in changing practices in their respective areas to reduce the environmental footprint of their respective activities. In Green Team II, Cynthia had no particular environmental background yet volunteered to be part of Green Team II. She worked with colleagues to brainstorm ideas around improving staff behaviour. They came up with the ‘Big Switch Off’ plan, which rewarded staff who turned off both their computer and monitors by leaving a small chocolate on their desks. Green Team II led the initiative by coming into work early in order to carry out the checks. The creation of Green Team II was announced by O’Byrne at a company meeting, and both Upton and McIntyre had expressed great enthusiasm for it, according to Cynthia. This gave the staff the sense of support to explore the space of possibilities and act on their ideas. STC gave advice to new staff, freelance staff who worked on productions and those wanting to host events at STC on how to engage with the company in an environmentally sound way. The Production area instructed freelance staff to follow The Green Design Policy (Appendix 4). However, as mentioned in Chapter 5, at the time of my site visits, a freelance designer had chosen to use a less environmentally friendly material for a set and the production staff did not detect the issue in time to make a change for the production in question. These seemed to be rare occurrences, but they do bear out the importance of capturing and sharing the knowledge gained.

#### **6.4.5. Knowledge capture**

Greening knowledge has been captured and encoded in artefacts to ensure longevity, notably in company documentation. The Green design policy is used by permanent and freelance staff in designing productions. The Green Events Guide is an internal document used by events management staff in advising event holders about being green. Recruitment and induction documents include greening information. Although STC has many very long serving staff members there are changes, they use many freelance staff and other organisations hire the STC public spaces for events. The inclusion of greening in the job descriptions and staff induction material is key to setting expectations for new staff. Without these documents, the knowledge and reinforcement of the green message would be lost over time. The existence of the documents does not guarantee there will not be problems but their continued use helps to ensure that greening knowledge informs practices for all who engage with STC.

#### **6.4.6. Summary of evident organisational learning features**

This section has explored the organisational learning features that were most evident at STC through the lens of the Cooksey complexity model (2003). STC engaged in double loop learning in responding to the challenge to become green. It redefined its role in producing theatre was to do it in an environmentally sustainable way and engaging the community in a conversation about climate change. Having identified that purpose provided negative feedback showing there was a gap between the existing practices and green practices and this prompted single loop learning to bridge those gaps. The leadership fostered a ‘learnership’ approach to Greening the Wharf by trusting and encouraging staff to lead their learning, distributing responsibility and control over how to shape local practices. The staff showed both individual and team efficacy for learning that showed an openness to experimentation and learning from experience. Finally, they encoded the knowledge built to ensure ongoing commitments to the new practices by new and freelance staff and to others engaging with STC. The resultant frames and metaphors of sustainability and greening reflected the localised contexts of the staff because it was in those contexts they developed their understanding of what greening meant.

The meaning of greening was adapted to what was happening in those localised contexts. If the executive had fully prescribed what they meant by greening the project is unlikely to have been as successful as it was. In the first instance, they did not have the localised knowledge to appreciate how all of the disparate departments could achieve greening across the organisation. Secondly, they would not have had the level of buy-in from the staff that they did. By allowing

for those local interpretations, they showed staff that they were trusted and valued enough to resolve how to green their own local contexts and attained greening at a deeper and broader level across the organisation.

With such success, how did the personal learning of staff intersect with the organisational learning as evidenced by reported staff behaviour? Section 6.5 will examine how that unfolded.

## **6.5. Exploring the nexus between personal and organisational learning for sustainability.**

Organisations can facilitate learning among as many of their staff as possible. Getting people together to brainstorm ideas and share learnings and insights through team learning, thereby enhancing and enriching their own learning can augment the learning process. As indicated in the previous section, the frames and metaphors held by people around an idea or thing can vary significantly. The process of making meaning will involve taking on board new information and finding ways to make it fit with their existing frames. Once the person has learned, the most visible evidence that it has taken hold is through behaviour change. Behaviour change suggests the full integration of new knowledge in the mind of the learner. In the case of STC, the evidence of learning around greening would be visible through behaviour change at work. That learning might also extend into other relevant contexts such as the home space or other non-work contexts such as choice of transport. A couple of staff talked about walking or cycling to work.

When I interviewed Patrick McIntyre, he reminded me of an initial conversation we had when I first met him in Armidale. He mentioned that any initiative such as Greening the Wharf was not going to work unless it became 'business as usual'. In my language, this would mean that the organisational learning initiative had changed the culture and behaviour of the staff. During our initial discussion and again in our interview, I spoke of my interest in investigating the question of organisational learning and its impacts on staff. Specifically, if an organisation was successful in achieving organisational learning for sustainability, whether staff might take that behaviour home with them, since sustainability affects all contexts we occupy. McIntyre mentioned an initiative at Walmart as characterising what he thought was achievable with staff:

*"[The consultant] said, .... the way that Walmart can really make a big step towards reducing carbon or whatever is to use its employees as channels into the community. If all our employees switched their lights off at home, that could aggregate to a bigger difference in the community than just switching the lights off in the store. There was a whole model*

*there and I was very inspired by that when we first started doing the project. Now the thing at Walmart is that there's still - they have to start with the evangelists internally, who are going to be, say, 0.03 per cent of their workforce. But if that 0.03 per cent goes home and gets their three family members and their church group and their whatever to fire, then you get a bigger movement in the community. So in a company like us, we have - we employ more than 200 people a week on payroll, but only about 100 of them are permanent staffers. So if we've got a handful of people who are really passionate about Greening, as a percentage of workforce, that's pretty okay”.*

That was a very attractive idea, though I could never find any documentation that spoke about the Walmart initiative of making staff into channels into the community. It was evident from the answers to my questions on behaviour change as summarised in Tables 5.5, 5.6, and 5.7 that while the staff in the workplace had wholeheartedly embraced behaviour change, there was a disconnection between the workplace and the home for some. To clarify that, the staff involved in implementing the changes showed solid green commitments for the most part. Joe, from Set Construction did not have strong environmental commitments but he was very committed to the organisation. This suggests there was an influence from personal learning on organisational learning. Those who had learned about and valued the environment embraced the project putting in significant amounts of time and energy to it, particularly Green Team I. Where staff first learned about greening behaviour as part of Greening the Wharf or joining STC they did not start to engage in more green behaviours outside of work although the issue of environmental sustainability is just as relevant in all of the contexts they occupy. Those who were already green stayed that way and those who were more neutral tended to stay that way. Even Joe who had investigated alternative ply for sets, become very passionate about finding an alternative and changing work practices to accommodate the change in material, did not seem to consider how his new knowledge might apply at home. It seemed that organisational learning did not flow to personal learning even if the learning was relevant. There were only two notable examples where I could draw a distinct connection between Greening the Wharf and a personal behaviour change. Those were Patrick McIntyre and Cynthia, Corporate Partnerships Coordinator and Green Team member as discussed in Chapter 5.5 Cynthia, in particular seemed to have immersed herself in the idea of sustainability more broadly through her involvement with Green Team II and that seemed to have helped her to extend her learning to beyond the work context into her personal life.

Those with pro-green behaviours in place in their personal context easily ran with the opportunity to bring them to the workplace but workplace behaviours did not as easily translate back the other way. That early conversation with McIntyre about Walmart suggested to me that there was an assumed link between what might happen if even a small number of staff became passionate about greening and how that might extend beyond their work-life into the community. Further, the Greening the Wharf project was always trying to engage the community about how to respond to climate change, whether through public education via the Wentworth Talks, advocacy and education to other arts companies and art that raised public awareness about it, there was a tacit assumption that doing so would facilitate behaviour change. For example, in October 2011, O'Byrne organised an event for other arts organisations, called Code Green. The free workshop, paid for by STC's sponsors brought the founder and CEO of UK based organisation, Julie's Bicycle, an organisation that assists creative industries to reduce their environmental impact, to STC to speak to other arts organisations. The workshop ran over the morning and provided an opportunity for attendees to hear from Alison Tickell from Julie's Bicycle, STC, Sydney Opera House, Museum Victoria and Green Shoot Pacific about how they changed their practices. Julie's Bicycle also had a website that provided many resources for creative organisations to reduce impacts. One of the outcomes of the workshop was the creation of a group called Green Arts Project, which was to be an information sharing and support group for arts organisations on their own sustainability journey.

*So a group called Green Arts Project was set up. Now, that was set up with the help of the Office of Environment and Heritage and it consisted of Sydney Festival, Opera House, Belvoir, various other groups, arts companies, Opera Australia.*

*I was very insistent, just with me and Patrick, that I wasn't going to control it, manage it, drive it. I just was taking it very - just a back seat. We hosted meetings, we provided information, but it really needed to get driven by them. They wanted - when people would go, can you go and talk at this thing on behalf of us, I'm going no, it's not - we've had our time in the sun, this is actually about the next wave coming through, and it actually faded into nothing. That was very interesting (O'Byrne, 2014a, 114-115).*

I checked the website and Facebook page for Green Arts Project. It seemed to start enthusiastically in 2012 but faded to nothing as O'Byrne said. As anyone who has attended an information session

or training course, no matter how relevant, interesting or inspiring, it often fades as people return to their organisations or departments and get back into their normal routines. In the case of these organisations, there may have been some enthusiasm among individuals but without the top-down support to the grass roots passions, the aspiration can remain just that. That is not to say, that the organisations are doing nothing either. It is just the community group of green arts organisations seems to have fallen away. This was one of several pieces of advocacy and communication produced by STC and it is again evident that they thought that information would, or at least might, produce behaviour change in the community. STC seemed to implicitly think the same when it came to behaviour change for staff, but they never articulated an explicit goal of achieving personal behaviour change.

Brookman spoke about his project plan including culture change and communication as Greening the Wharf project goals. O'Byrne's sustainability plan had advocacy and behaviour change but the focus was on the organisation. Behaviour change was something assumed that would happen for those staff who passionately embraced the changes at work, as expressed by McIntyre in his Walmart comments. By extension, the communications and advocacy work operated under the same assumption. However, that was not the case. This suggests some implications for what we assume about learning and behaviour change in different contexts.

STC staff had the freedom to explore the space of possibilities individually or in teams around what greening meant for their local contexts. Those localised meanings strengthened and deepened the learning in those contexts and allowed greening to become part of business as usual. Perhaps this strength was also something of a weakness, in that, by not establishing a more detailed narrative about greening meant that it largely stayed confined to those localised contexts. Greening, as understood in the work context, did not connect to other frames such as the home frame. If STC had explicitly drawn connections to other contexts when discussing greening at company meetings, staff may have started to make them and act on them. It is clear that simply educating people in one domain may not mean that they automatically make connections to other domains in their lives, even when the material is relevant to them.

Given that personal behaviour change was not an explicit goal of Greening the Wharf project there were no specific plans or processes or discussions in that regard within the company at the level of company meetings. Any changes to staff behaviour would have to have been self-initiated – they would have had to consciously consider what had happened at work and consider how they could have made those changes at home and then done it. As captured in Tables 5.5, 5.6 and 5.7, the response to my question on behaviour change at home prompted a visible shift of thought, as

though staff were only just making a link between work and home in that moment for the first time, by considering my question. I wondered about the chronology of when we come to particular experiences and the formativeness of them for experiences to come.

Considering this in terms of section 6.4.1 on vision(s) and perceptions, there is some evidence that our early frames and metaphors (conceptual and frame mappings from one domain to another) have a strong influence on subsequent frames and metaphors. By the time we reach adulthood we are likely to have frames and metaphors for many of our experiences. This was evident in the way staff couched their approach to sustainability. Those with a connection to nature through their early life referred to that and staff who grew up on farms mentioned that as what sustainability meant to them. Two of them had grown up in Ireland and talked about being aware of nature through their farming childhoods, and of where food came from. The Australian who grew up on a farm talked about it making her aware of water scarcity. Again, we see the influence on our contexts in how we frame something – lack of water was not an issue in Ireland but was and remains a key challenge in Australia, especially for farmers. For Cassie and Brookman, their existing framing of the environment as precious and needing protection strongly influenced their adult behaviour though they did not agitate for changes. They embraced the opportunity to express their frames when it was offered. However, that was not the case for all staff with strong environmental connections as children.

Connor, one of the staff from Ireland, had a strong environmental education through high school and college. At college, his friends were active in the green movement in Ireland and said that he had garnered much knowledge in being around them. However, our interview was taking place ten years and two countries on from that place and time. When I asked about his behaviour at home and if he was engaging in green behaviours, his response was surprising.

*No. I really haven't taken a lot of the stuff I learned 10 years ago into my life at the moment, in terms of how to buy - being conscious of buying plastic, what materials my food comes in, even all the day to day cutting and stuff I'm not - I don't take into - some of it I'm sure I do subconsciously all the time but some of it I probably don't. That's just come from moving and I haven't transferred that to life here (Connor, 2014, 193).*

He was living in an apartment with little opportunity for growing vegetables or composting etc but his comment above really goes to the lack of drawing connections between contexts again. Even though, he had access to the knowledge and he had been “nurtured to have a love of the

environment”, the shift of contexts had seen him not take that knowledge and behaviour with him (Connor, 2014, 35). He had learned about environmental stewardship in childhood, through high school and college. One could conjecture that when he settles down permanently in life these early frames may find their expression in his choice of living situation but even with such an early focus on the environment, its expression may be prevented or delayed, by a change of context. Connor was consciously aware of not acting. It just seemed to have slipped down the priority list, and what was happening at work, though he was very enthusiastic about it and engaged in green practices at work, did not translate to his home life.

The issue of frame-to-frame connections seems to be that people can have a set of values and knowledge in one context but that does not automatically mean that they will make connections to all other relevant contexts. We frame our experiences temporally and contextually. Later frames seem to be unconsciously informed by earlier frames, to an extent in terms of values, beliefs and knowledge about the world, but may not be able to find expression in all contexts. For example, Brookman had been at STC for ten years before Greening the Wharf allowed him the opportunity to invoke his frames on the environment and link them to his frames on theatre production and management. That suggests that the context must support the expression of those frames. The weakest connection, though, is where this new knowledge and framing of pro-green behaviours occurs at work. It appears that it does not work outwards to other frames unless the work context makes an explicit connection for staff. This suggest an opportunity for organisations to make those links explicit for staff. STC could do this at company meetings, talking about what staff could do at home and perhaps rewarding that behaviour. Given the enthusiasm of the staff for the organisational behaviour changes, it would seem reasonable to assume they might have been open to such a conversation.

### **6.5.1. Insights from the nexus between personal and organisational learning for sustainability**

This section has explored the nexus between organisational learning and personal learning for sustainability evident at STC. It was evident most staff did not change their behaviour in their personal contexts based on what they experienced at work. The only notable exception was Cynthia who seemed to make explicit linkages to home, which is likely due to her involvement with facilitating behaviour change at work through the Green Team II. This suggests that there might be scope for organisations to facilitate those linkages by explicitly discussing what staff might be able to do at home.

## 6.6. Conclusion

STC have gone through a highly successful organisational learning process for environmental sustainability as evidenced by their rating as sustaining corporation under the Sustainability Phase Model. Through the process of undertaking the review of STC along its human and ecological sustainability, I found that STC's human sustainability rating would have been at HS5 or HS6 at the time that the Greening the Wharf project was being conceived was underpinned by a strong culture in which staff felt empowered to contribute ideas and lead in their own learning by the leadership team

Greening the Wharf would not have been as successful as it was, were it not for the influence of some key contextual enabling conditions and people. These included the timing of the project, the support of the State and Federal Governments as well as some important donations, notably the PV array from the Shi Family Foundation. Critical individuals in the process were Blanchett and Upton, Brookman and later O'Byrne in sparking the project, comprehensively planning the project and implementing and embedding it. STC achieved this through the strong Team STC identity fostered at the organisational level and enacted through two iterations of the green team. Green Team I brought the major infrastructure and production changes to fruition and the first layer of the public communications. Green Team II took on the culture change mantle and come up with creative ways to encourage behaviour change among the staff while STC continued the public conversation through its advocacy work. At every turn, the staff enriched and extended the greening agenda at STC in ways that could never have been fully anticipated when Upton was looking at the building as a big battery. Staff embraced the big aspiration of being the greenest theatre in the world throughout all levels of the organisation, but the aspiration was loose enough to enable staff to explore the space of possibilities within their own local context, to own it as it related to them and their work practices.

The ownership and behaviour changes in the workplace did not extend naturally to the home spaces or personal lives, though it seemed to be a tacit assumption among by the implementers. Staff did not naturally connect their work frames to their home frames or other relevant frames. However, there was some evidence that where a staff member made an explicit connection between the work and home contexts, behaviour at work could influence the home or personal behaviour. This suggests that organisations embracing sustainability could potentially influence personal behaviour by explicitly mapping knowledge and behaviour at work to the personal.

It is also worth considering the lack of automatic frame-to-frame mapping in the work context. Often, staff may embrace sustainable behaviours in their relevant departments but may not consider other domains. For example, staff may have looked at sustainable behaviours in their department or team but may have considered how to travel for work in an environmentally sustainable way. The organisation would need to draw an explicit connection for staff and provide knowledge about how to do this rather than assuming that staff will automatically consider all of their work contexts through the prism of sustainability.

# Chapter 7. Conclusions and implications

## 7.1. Introduction

This research was both exploratory and explanatory in nature. It sought to develop a deep understanding of an organisational change and learning for sustainability project. The lens of complexity theory (see Chapter 3) was used to engage in an in-depth examination of the case of Greening the Wharf at STC as an example of organisational change and learning for sustainability, paying particular attention to the way that staff expressed their experiences through frames and metaphors (see Chapter 2). The complexity lens enabled me to look at the full range of dynamic contextual influences and enabling conditions that were pivotal to the project and its impact. It enabled me to examine the project and STC from multiple perspectives, which greatly assisted my understanding of those contextual influences. Being attentive to the frames and metaphors used by staff helped me appreciate their sense making around their exposure to or involvement with the Greening the Wharf project. I employed the complexity multiple lenses of Cooksey's (2003) systems of dynamic influence in analysing the data from interviews, media, government websites and internal documents to assist me in identifying the enabling conditions for the project's success. I was alert to frames and metaphors when analysing interview transcripts in relation to staff conceptions around sustainability and Greening the Wharf and their reported behaviours in order to understand their perceptions and understanding of the project and its affects. Analysing the transcripts for frames and metaphors helped me to understand and provide an explanation of the variability in perceptions of participants (See Chapters 5 and 6).

This chapter will draw conclusions from the research into the Greening the Wharf project at STC, its influences and impacts. It will unfold as follows:

- 7.2 will address the four research questions that were under investigation with a subsection for each question.
- 7.3 will discuss the implications of those conclusions for management theory, methodology, management practice and managerial education and development.
- 7.4 will discuss the limitations of this research
- 7.5 explores possible future research directions from this research

## 7.2. Understanding Greening the Wharf at STC

The purpose of this section is to draw conclusions in answer to my four research questions but before doing so, I will summarise the journey to those questions. My literature review in Chapter 2 covering organisational sustainability, metaphors and frames, organisational culture and organisational change and learning for sustainability, showed that the literature largely focussed on the organisational level. Some theories attended to the multi-dimensional aspect of organisational learning across organisational, group and individual dimensions (Crossan et al., 1999, 2011). Connections between personal learning and organisational learning were largely unexplored except in the way a person learns might affect organisational learning. The challenge of sustainability is wicked and pervasive. Sources of influence and constraint on organisational activities as they relate to sustainability are not limited to the organisational context itself. Evidence of climate change and environmental degradation are a source of influence as are government policies that constrain or promote sustainable behaviour through policy uncertainty or policy instruments that reward organisations for sustainable actions. Additionally, the challenge of sustainability pervades all of the contexts we inhabit but organisational level interventions have not accounted for the interplay of those contexts and how they manifest in personal behaviour.

I chose complexity theory as a conceptual framework in which to explore Greening the Wharf at STC. In Chapter 3, I canvassed the features of complex systems identified by a variety of theorists. I also explored how complexity theory informed the concept of organisational learning. I drew on Cooksey's (2003) *Learnership in complex organisational textures* as the source for a conceptual model for exploring the organisational learning in a way that could attend to all of the sources of dynamic influence on Greening the Wharf and how learning might occur in response to feedback. The overarching question I wanted to answer was 'how did STC learn to become more sustainable and what were the behavioural impacts on staff'? To answer that question I broke it down into four more detailed questions, which were:

1. Did STC achieve organisational learning for sustainability?
2. How did the organisational learning for sustainability unfold at STC?
3. What organisational learning features were evident?
4. What was the nexus between organisational and personal learning for sustainability?

The complexity approach also informed the research process outlined in Chapter 4. I adopted a critical realist ontological and epistemological position. The critical realist stance suggests there

is a real world out there, the intransitive world that will be what it is regardless of what theories we may build about it (Mingers, 2014). However, we are limited in our capacities to build knowledge about that intransitive reality because of our own contextual and cognitive limitations at the time we build that knowledge. It is always fallible. In the case of social science, critical realists argue there are no intransitive objects (Mingers 2014). Social phenomena are inherently different to material phenomena. Social structures do not exist outside of an individual's conception of them and individual's agency requires some kind of interpretation. Social theories can become self-fulfilling and in ways that can be damaging to both the social and material worlds. My research investigated the social phenomenon of organisational learning for sustainability, so it was appropriate to take an interpretivist approach to it because I needed to adopt an empathetic stance in relation to the participants (Bryman & Bell, 2011). I needed to be able to step into their perspectives by attending to how they answered my questions. Their language was the key to accessing their unique perspectives as expressed in frames and metaphors they used. I chose a single in-depth case study to try to attain a deep and broad understanding of Greening the Wharf and its effect on STC. My conclusions about the four research questions follow.

### **7.2.1. Did STC achieve organisational learning for sustainability?**

As described in 6.2, STC did achieve organisational learning for sustainability. STC engaged in a transformational change process in 2007-2008. Planning began with Brookman and the Board in 2007. This included having the building audited for its power and water use, and its waste management practices. This was step 1 of the Benn et al. transformational change process discussed in 5.3.1 (Benn et al., 2014). The workshops held in 2008 after an inspiring address from Tim Flannery helped STC to set a vision to be the greenest theatre in the world, to identify the gaps between their existing reality and their vision. Recalling the quote from Benn et al. (2014) in 2.4, STC found a way to remould its cultural values to create a powerful change in their understanding of their purpose and impetus to act differently.

STC also used the workshops to assess the level of organisational readiness and build emotional contagion (steps 2-4) (Benn et al., 2014). Champions emerged through the process, forming Green Team I and setting the scene for change (step 5). They skipped stage 6 of securing basic compliance and went beyond it from the outset by going for a change program that went well beyond compliance expectations (steps 7-8). They implemented the change in Act I of the project by communicating regularly with staff at company meetings, building a network of change agents, celebrating wins internally and publicising them, consolidating the changes into concrete

processes (e.g. the Green design policy). They engaged other stakeholders such as other theatre companies and the public through initiatives like the Wentworth Talks. At this stage, I could not identify any specific reward systems at the individual level. However, STC was rewarded at the company level through the enormous amount of positive publicity received at the time. The final stage of the transformational model is 'maintain commitment, to keep improving'. That was evident in O'Byrne's sustainability roadmap 2012-2015 (STC, 2012), the creation of the Green Team II and instigation of the Green Gnome awards for positive greening suggestions from staff.

I used the Sustainability Phase Model to assess if STC had achieved organisational learning for sustainability by looking for evidence of features of a sustaining corporation from the checklist provided in Benn et al. (2014). This allowed me to look at their environmental and human sustainability. In doing so, I was able to garner a key insight about the success of the Greening the

Wharf project. As discussed in Chapter 2 and detailed in section 6.2, the Sustainability Phase Model establishes six levels for human and ecological sustainability ranging from rejection to sustaining. Organisations can be positioned at different points across the human and ecological dimensions. On my assessment, STC in 2014 were a sustaining organisation because they rated level 6 for both human and ecological sustainability dimensions. However, in 2008, when embarking on Greening the Wharf, their ecological level would have been at level 2 where it was not on the radar, but their human sustainability would have been at level 5 or 6. This level, where staff were valued for themselves as well as the skill set they brought to the job, underpinned the strong organisational culture that was evident during my research. That culture was a major contributor to the success of the project.

In terms of the third prong of the triple bottom, STC also attend to its ongoing financial viability. Their financial performance over the tenure of Blanchett and Upton also improved substantially as articulated in the 2013 annual report discussed in 6.2 (STC, 2013). STC could thus be characterised by the metaphor of sustaining organisation across all three measures.

### **7.2.2. How did the organisational learning for sustainability unfold at STC?**

The complex systems approach to understanding the organisational learning for sustainability at STC provided me with the means to unpack how the learning unfolded across the subsystems of dynamic influence over the time course of the Greening the Wharf project and beyond. Unpacking the time course of events and player influences helped me to identify critical enabling conditions

and develop an understanding the dynamics that played out between the various lenses and sources of influence that emerged as the project unfolded (Cooksey, 2001, 2003). I considered conditions such as the external environment, the organisation itself, and the intrapersonal and interpersonal domains and how they dynamically influenced, or were themselves, influenced by Greening the Wharf. What emerged from the analysis in Chapters 5 and 6 was a more complex and dynamic process than might have been evident if I had used one or a combination of the more popular organisational learning theories to examine the project. Those dynamic influences and enabling conditions were captured in a mind map located in Appendix 5. To summarise, Blanchett and Upton's strong environmental commitments and vision to green STC were the first source of dynamic influence for Greening the Wharf. Their vision was a source of positive, destabilising, feedback to the system and pushed it out of equilibrium and a critical enabling condition in that it was a choice point between continuing to operate in the usual resource intensive ways of the past and finding a way to reduce the impact on the environment while still producing theatre. Tim Flannery reinforced that positive feedback loop when he spoke to the company about the perils of climate change and the importance of taking action to mitigate it. He stimulated another key enabling condition by backing up the vision with science and passion.

The next enabling condition was the role played by the State Labor Government and its Minister for the Arts and Environment whose department funded the audit of the building and planning workshops and connected STC with UNSW and the Shi Family Foundation. The change of Federal Government in 2007 created a further enabling condition with the Rudd Labor Government making a strong commitment to action on climate change and establishing the Green Precincts Fund to establish showcase sites for what was possible in responding to it. These were the critical enabling conditions from the environmental context.

Within the organisation itself, STC had a strong and collaborative organisational culture in which staff showed a strong commitment to the organisation which could be expressed in the phrase, Team STC. The two critical organisational enabling conditions were the leadership and organisational culture. The leadership at STC may have changed over the course of the Greening the Wharf project but that did not change the metaphor I would use to describe it. STC's leaders took a honeybee approach to their roles (Avery & Bergsteiner, 2010). They were open, authentic, collaborative and concerned with the welfare of internal and external stakeholders. STC engaged in conversation with its audiences, its industry and the broader community in a spirit of building mutual understanding. The same kind of conversation characterised the modes of communication operating internally. The staff showed the same authenticity and collaborative spirit. There was a culture of playfulness, openness to ideas with a willingness and courage to follow those ideas

through to their conclusion. Communication across the organisation was also important and facilitated by the leadership team who emphasised the importance of conversation. The emergent over-arching metaphor was of STC as interlocutor.

The leadership team created the conditions for 'learnership' through their approach (Cooksey, 2003). Responsibility for leading and learning was diffused to the broader organisational membership who then became embedded in the learning behaviour within their local contexts. They acted as leaders or learners as required by the context. They allowed staff to lead in their own learning rather than prescribing how they should green their particular areas. This approach came naturally because it related to their core business of producing theatre. Each production required a new production team comprising permanent and freelance staff. STC produce around sixteen shows per annum with a six-week production schedule.

STC saw a role for theatre in engaging the community in conversation about important societal issues such as climate change through producing plays in an environmentally sustainable way. Once they had established the vision to be the greenest theatre in the world, they were able to work on how to go about the process of producing theatre in a way that was green. STC staff embraced the vision to green theatre and once the project plan was complete, as Brookman told me, they treated it as just another theatre production, which he characterised as being quite an industrial exercise in project management. That suggested the transformational metaphor of greening as theatre production. It provided a key insight as to how they approached the early stages of the project described in Act I of *Greening the Wharf*, folding a tangential project into into the normal mode of working on theatre productions. At the cognitive level, adopting the idea of greening as another theatre production allowed staff to work with their existing frames on their work but expand those frames to include greening. . It did not require that they abandon how they already worked and it allowed the integration of greening so that it became part of business as usual. Other studies have pointed to a more negative outcome in terms of the phrase 'business as usual', finding that it often means dropping the sustainable behaviours and slipping back into the old business as usual (e.g. Nyberg & Wright, 2017). However, that was not the case with STC.

The work of producing a play involves two key teams, the cast who rehearse the play with the director and writer, and the production team who are comprised of all of the artisans involved in bringing the play to the stage – sets, props, lighting, sound, and costumes. STC produces a play over a six-week period. Although I did not get to observe the production process, I reviewed the study by Ford (2008) of a US theatre company in order to gain an insight from his experience. In

the case of Green Team I and Act I, Brookman took on the role of ‘production manager’, maintaining that communication across the team. Theatre productions require production teams to that are composed of people who may or may not work together regularly. They must work quickly to establish a functional way of working together in order to bring a production to fruition within a tight time span. The regularity of the process suggests those who work in production teams were adept at communicating their perspectives in a collaborative yet fearless way in order to produce the best outcome possible. Three of the five key members of Green Team I were involved in theatre production – Brookman, The Head of Lighting, The Head of Set Construction. The Workshops Manager was also a key contributor, particularly on the waste stream management. After Act I, when sets were deconstructed, the Workshops Manager and his team worked with production staff to minimise waste to landfill by recycling, repurposing or storing parts of sets.

In Act II, the approach of Green Team II, under the leadership of O’Byrne, focused more on team learning drawing on volunteers to help maintain the momentum of encouraging behaviour change (Senge, 1990, Edmondson, 2012). The team they were free to explore the space of possibilities and they came up with a range of initiatives, leading their own learning and becoming leaders around greening activities within the organisation, demonstrating ‘learnership’ (Cooksey, 2003).

Within the contextual domain of personal influences, there were critical individuals whose passion for the environment drove the project. I have already mentioned Blanchett and Upton. In Act I, Rob Brookman was the critical enabling individual for the project because of his long-standing commitment to the environment. Greening was a dream project that brought together his dual passions for the environment and the theatre along with the committed Green Team I. The loss of Brookman in 2010 had the potential to be a constraining condition on the long term success of the project. In hiring O’Byrne, McIntyre created a further enabling condition that ensured the successful completion of the project itself but also a broadening of sustainability to include an explicit social dimension and a continued commitment to behaviour change through the work of Green Team II. Although STC were already a level 6 on the human dimension of the Sustainability Phase Model (Benn et al., 2014), they did not characterise their sustainability commitments that way. They continued to present it in environmental terms only as indicated in their job descriptions.

The organisational learning at STC emerged from the interplay of influences and enabling conditions, the experiential learning of staff through their interactions with each other at both the team and individual level as they explored the possibilities of making theatre in a green way.

Later, they examined how other organisational practices could be greened. Critical enabling conditions came in the form of individuals, external organisations, time and decisions taken in response to events that would have been extremely difficult to anticipate prospectively.

### **7.2.3. What organisational learning features were evident at STC?**

Greening the Wharf was characterised by several organisational learning features. These include vision setting; leadership that supported ‘learnship’; double and single loop learning in response to feedback; frames/mental models; team learning, and encoding learning in cultural artefacts.

#### **7.2.3.1. Vision setting**

As discussed in 2.6, a vision provides a picture of a compelling future that the organisation or team are compelled to build together. Visions preconceived by the leadership can be communicated by telling, selling, or consulting to staff (Senge et al., 2009). The final option, co-creation, involves bringing all of the staff along on the process of vision building and provides the best option of having them share their frames on the future of the organisation and then integrating the vision to that frame (Senge et al., 2009). This was not what Blanchett and Upton actually did. The mode of building shared vision they seemed to employ was ‘telling’ - they simply stated their intention to green STC in late 2006 when they were introduced as the incumbent co-artistic directors. The only consultation that had happened prior to the announcement was with the STC Board and Rob Brookman who were all very supportive.

As discussed previously, the reaction of the staff was the opposite of what many organisations would experience. The staff embraced the idea with enthusiasm rather than defensiveness or cynicism. This was a source of confusion to me and the following proffers some possible explanations. As mentioned previously, the staff largely did not mention any knowledge of the intention to green STC until the formal announcement at the first company meeting, they held in 2008. The idea was not part of the core business and theatre is usually cash-strapped, so anything that might direct funds away from the business that staff were passionate about could have been a source of resistance. However, the *zeitgeist* of the time around climate change may have made the staff more positively predisposed to the idea. The leadership followed the announcement with the address from Tim Flannery and the Big Switch workshop. Flannery made the science concrete and the Big Switch audit made the gap between existing organisational practice and green practice evident, so that the workshops could conceive how to bridge the gap.

Further to that, STC's organisational culture was open to ideas and used to finding creative solutions. As a not-for-profit arts organisation, STC's values are broader than self-interest at the organisational level. Staff self-select to work in theatre because they love it more than they love a large salary. This may have made them more likely to embrace pro-green ideas than people in organisations that were more individualistic and profit driven. The company knew Blanchett and Upton as they had both worked there on various productions and they had the respect of the company.

I only found one instance of the phrase "to make STC the greenest theatre in the world" in my data. It was in a follow-up email with Rob Brookman to clarify some points from our interview. While it seems to capture a vision that may have been more broadly held in the early days of the project, it had faded into the background and been replaced by more localised interpretations of what greening might mean. This was both a strength of the approach taken to the project and a possible weakness. By allowing staff to explore what greening meant in their local context, the leadership were able to harness the collective intelligence and coal-face knowledge of the staff and have them consider how to perform their roles in a green way. However, in doing so, they did not have more generalised conversations about other contexts such as other parts of the organisation or the home space, though the latter was not an explicit goal of Greening the Wharf. As discussed in 6.5 the advocacy and public education programs that STC did engage in were assumed to facilitate behaviour change through knowledge transfer but in the psychology literature, we know that giving people information does not necessarily mean they will change their behaviour (Koger & Winter, 2010).

#### **7.2.3.2. Leadership that supports 'learnership'**

STC's leadership team, as discussed in the previous section, exemplified honeybee characteristics. They showed that they valued internal and external human stakeholders and the physical environment. The leadership devolved decision-making to local contexts and staff were mostly self-managing. High levels of trust were evident. The approach to staff management gave them a high human sustainability rating on the sustainability phase model (Benn et al., 2014). That contributed to the positive organisational culture into which the seed of greening theatre was planted. The leadership took a deeply collaborative approach to Greening the Wharf, and were open to ideas from across the organisation, which enriched the project. Leadership was not merely a precondition to the organisational learning but an essential dynamic component of the learning itself. STC's leadership was an energising force behind the learning and facilitated the development of 'learnership' in each of the staff who became involved in Greening the Wharf

(Cooksey, 2003). Staff led in their own learning within their own contexts, applying the goal of greening to their intimate knowledge of their local work processes. ‘Learnership’ was evident at both the team and individual levels. In Green Team I, more individual was evident as it comprised department heads. Green Team II showed a team form of ‘learnership’, brainstorming amongst themselves to come up with initiatives to encourage behaviour change. This facilitated the embedding of the learning into organisational practices.

#### **7.2.3.3. Single and double loop learning in response to feedback**

Double and single loop learning were also evident in response to feedback. The articulation of the greening vision was a source of positive, destabilising feedback into the STC system that forced it to question its role through a double loop learning process. Once they had recast their vision of themselves as a green theatre, this provided negative feedback into the system, creating a performance gap between business as it was conducted and being a green theatre. This required a single loop learning response and a systems approach as staff grappled with what acting on that vision would mean for STC as a whole at the level of infrastructure, and then at the local level where each area had to grapple with how to carry out their own work practices but in a green way. The continued refining of greening behaviours through the work of Green Team II was a continuation of the single loop process by seeking performance gaps and working to close them in order to maintain the new equilibrium of STC as a green theatre. This required staff to extend their frames on the work that they did in order to accommodate the green vision.

#### **7.2.3.4. Frames**

STC staff demonstrated an openness to exploring the space of possibilities around greening within their local work contexts. They expanded their work frames to accommodate being green and changed their behaviour at work as consequence. However, they did not draw an explicit connection between their work behaviours and their home behaviours despite the relevance of some of the organisational learning for sustainability to their home context.

#### **7.2.3.5. Team learning**

The evidence of the way both iterations of the Green Team in Acts I and II of Greening the Wharf came together suggests a high degree of psychological safety in exploring ideas (Garvin et al., 2008; Lipshitz et al., 2007), even if they did not all work. They showed clear signs of ‘teaming’, a process that is upheld by three pillars developed and modelled by the leadership – staff needed to become curious, passionate, and empathic (Edmondson, 2012, 2013). That is, the staff needed

to be curious to find out how to do things better, passionate about the project so that they can find the energy to go beyond normal expectations and empathetic to ensure the maintenance of team spirit despite the pressure. Green Team I in particular took on a task that grew into something way beyond their wildest imaginings at the beginning but they all saw it through. That same spirit of allowing staff to be curious, passionate and empathetic was also evident in Green Team II and affected the broader organisation.

#### **7.2.3.6. Encoding learning in cultural artefacts**

If the Heads of Lighting and Set Construction had only taken their learnings and changed their work practices but not encoded them in the Green Design Policy (Appendix 4), the application of those learnings would have been patchy and reliant on their personal presence to reinforce the new practices. The Head of Lighting left STC in 2013 and could have taken the knowledge he garnered with him had STC not codified the knowledge he gained into that policy. Further, the fact that their plays are put on by a production team of permanent and freelance staff leaves the company very vulnerable to staff misinterpreting or forgetting about the green ethos at STC. Codifying the knowledge into the Green Design Policy (Appendix 4) provides the means for that organisational learning to be enshrined in organisational practice. Similarly, the Green Events Guide (STC, 2011c) provides the means for staff who work with external organisations hosting events at STC, to ensure that they adhere to the green ethos as well. This also, by extension, allows STC to continue its advocacy of pro-green practices to non-permanent STC staff and the public. The encoding of green as a value and work practice in job descriptions and induction documents that refer new staff to report ideas to the Green Team carries the message to prospective and new employees. Without this encoding, the organisational learning could not have become part of business as usual at STC.

#### **7.2.3.7. Evidence of transformational change**

Although this research was examining Greening the Wharf from the perspective of organisational learning, the process as it unfolded in Act I was also suggestive of what would be characterised as a transformational change process as described in Benn et al, (2014). The steps of transformational change include developing an understanding of where an organisation is at before commencing a change process. This was evident in the audit process undertaken in 2007. The second step is to develop a vision by questioning the purpose of the organisation and imagining a new future. This was evident in the work done in the planning workshops in 2008 and subsequent vision of making STC the greenest theatre in the world. They then identified the

gaps between the new vision and the existing state of the organisation as part of those planning workshops and assessed the level of organisational commitment by asking for volunteers. Those volunteers who made up Green Team I were the change champions that emerged who then assembled the resources needed to enact the change. The project achieved basic compliance and went beyond it. Green Team II ensured that the commitment to change was ongoing.

#### **7.2.4. What was the nexus between organisational learning and personal learning for sustainability at STC?**

As indicated in section 6.5, the nexus between organisational learning and personal learning for sustainability was weak in terms of learning moving from the organisation to the personal. Those staff with strong personal learning for sustainability from childhood were very happy to express that in contributing to Greening the Wharf. This was the case, most crucially, in Brookman's contribution. From 2007 to mid-2010, he owned the project and worked tirelessly to see it come to fruition. Cassie, the Finance Director, also had strong environmental commitments and made significant contributions on how to improve practices in the administrative space as well as dealing with the financial aspects of the project. She suggested setting printers to default to double-sided printing and the signage encouraging staff to reconsider printing. She also encouraged staff to turn off computers and lights. While one could argue that this should be the stock in trade of a Finance Director, it was not until Greening the Wharf that she engaged with promoting change around these practices despite having been with the company since 2004.

Though significant behaviour change was evident among the staff in the workplace, they did not make the connection to other relevant contexts, with the exception of Cynthia whose work with Green Team II on encouraging behaviour change seemed to facilitate that connection. Overall, the link between organisational learning and personal learning was not reciprocal in this case: personal learning seemed to inform organisational learning, but the reverse did not tend to occur, at least in the STC case. For example, Brookman's personal frames on the environment, did affect his behaviour at work once he had the chance to express them by running Greening the Wharf. Blanchett and Upton's personal frames on the environment informed their decision to undertake the greening project. Organisational learning frames, by contrast, tended to remain tied to the organisational context. There may be an opportunity for workplaces to draw those explicit connections, but it would probably need to happen at the level of specific actions rather than general information. The advocacy work done with other theatre organisations suggests that inspiring stories and sharing information is not enough to hook meaningfully into other people's frames. It might also be that organisational learning frames are constrained to one's organisational

circumstances whereas personal learning may not be so contextually constrained carrying with it all the individual learning accrued over a person's lifetime and across multiple contexts such as family, education, community organisations and the like.

There may be an opportunity for an organisation to make explicit connections between relevant domains around the issue of sustainability. This could be done reflectively by individuals considering the broader implications of what was happening at work with other aspects of their lives or it could perhaps be done by the organisation drawing the attention of staff to the relevance of green work practices to other contexts. For example, at a company meeting O'Byrne could have suggested that now that the Wharf was greened, staff could consider greening their homes. This study suggests that we should not assume that knowledge gained in one domain (frame) will automatically connect to other relevant domains. It may also offer an alternate explanation for the findings in study, "*A holiday is a holiday: practicing sustainability, home and away*", which found that while individuals might engage in green behaviours at home, they don't transfer those behaviours to contexts such as going on holiday (Barr, Shaw, Coles, & Prillwitz, 2009). The personal learning frames related to sustainable behaviours at home did not naturally extend to other contexts such as being on holiday rather than people seeing holidaying as an opportunity to take a break from being sustainable, which was the implication of the paper's findings.

## **7.3. Implications**

### **7.3.1. Implications for theory**

The complexity science informed approach requires researchers, managers and educators of managers to reflect on the dynamism of the relationships and feedback within the non-linear systems they occupy and teach about. In doing so, they are likely to develop an appreciation for the limited utility of applying linear solutions to problems that belie the intricacies of the relationships between and within subsystems and the attendant consequences of intervening in those relationships. This research approach also had to take account of the time course of the event under investigation to identify critical enabling conditions and develop an appreciation of the dynamics at play through a variety of contextual lenses. Critical enabling conditions are those conditions that have the highest potential to influence or alter the time course of events and their associated dynamics. The data in this research showed that critical enabling conditions can come in the form individuals, external organisations, and decision choices in response to feedback or changes in the flow of resources into a system. Theory may not be able to pinpoint those conditions prospectively or where, how and associated with whom such conditions might emerge,

but it should state that we should make attempts to identify them because they act as causal factors in the time stream of events. Those conditions can emerge dynamically from influences from the external environment, the organisation, the personal and the interpersonal.

The external environment includes the ecological systems in which organisations sit. Excluding the impact of organisational activity on the natural environment has been a major contributor to the environmental problems the world is currently facing. Applying complexity theory to organisational activities also indicates that managers have far less capacity to predict the outcomes of their decisions than they might have thought.

Within the complexity approach, attending closely to the language of the participants enabled me to appreciate the different ways that participants framed their experiences and perspectives on sustainability, STC and Greening the Wharf. It allowed me to delve deeply into the complex subsystems of Cooksey's (2003) model and helped me to identify key metaphors to describe STC, Greening the Wharf and its effect on the organisation. The three key metaphors that emerged were STC as interlocutor, Greening the Wharf as theatre production and STC as sustaining organisation. At the level of the individuals it allowed me to see how individual staff had made their own localised metaphors around greening. This demonstrates that metaphors can be useful vehicles for not only understanding how a particular event might be managed through organisational metaphors but also how meanings for that event might be created at more localised group and individual levels.

In answering the first research question about the attainment of organisational learning, the Sustainability Phase Model was a useful tool in assessing the level of sustainability attained by STC, though I was somewhat frustrated by the lack of a definition of what constituted human and ecological sustainability. I did find a good definition of human sustainability in another paper coauthored by Benn (see Angus-Leppan, Benn, & Young, 2010). However, it would have been very useful to be drawing on an overarching definition of both ecological and human sustainability from Benn et al., (2014). I appreciated that the descriptions across the six levels acted as definitions at each level, I still thought that the model would have benefitted from an overall definition of human and ecological sustainability that framed what was included. The Sustainability Phase Model offered a tool that was easy to apply to the organisation.

The insight I was able to garner in using the tool about STC's levels of human and ecological sustainability over time suggests that it is a static tool, affording a snapshot in time. Another dimension to its value could be in tracking organisational learning on a timeline as my research

suggests that the starting point may have a great impact on the downstream outcomes. As indicated in section 6.2, if STC had not been at human sustainability level 5 or 6 at the start of Greening the Wharf, it is unlikely to have been as successful in moving from ecological sustainability level 2 to 6. Had they been at level 2 for human sustainability at the outset of the project, the cultural conditions would not have been ripe for staff to embrace and act on the greening vision at STC. The probability that staff would engage in defensive routines and attempt to maintain the *status quo* would have been much higher had that been the case. It is less likely to have embedded so strongly and become part of business as usual at STC.

The complexity approach allowed me to look at STC and Greening the Wharf from multiple perspectives and helped me to see those conditions that were most critical to the success of the project. A conceptual lens that focussed only on the leadership, which would be tempting given the profile of the Artistic Directors, would have missed many of the other key enabling conditions such as the NSW Government's climate change commitments and its having a minister with the combined responsibility for the arts and environment. It would have belied the contribution of Rob Brookman who ran the project through Act I and the subsequent contributions of McIntyre and O'Byrne. It might have led me to ignore the huge role played by STC's culture in its openness to the idea of greening. I might also have ignored the capacity for individual and team learning that is also part of its *modus operandi* as it rolls out sixteen theatre productions a year.

The complexity perspective also allowed an insight into how we might connect our experiences across contexts, or not, as the case may be. STC managed to transform the bold destabilising vision of becoming a green theatre back into the usual practice of producing theatre. Staff were able to take on something very different by incorporating it into existing work-related frames. By taking a honeybee approach to leading staff STC gave them the freedom to interpret what greening meant within their own local work-related frames (Avery & Bergsteiner, 2010). This created the conditions for greening to become something that was concrete for the staff rather than being something imposed. The learning was experiential and showed characteristics of 'learnership'. The concept of 'learnership' articulated by Cooksey (2003), and discussed in 3.2.1, focused attention at the level of the individual learner where it was seen as a melding of leadership and learning where responsibility for learning and leading is diffused from a few to the broad mass of staff and encourages each of them to become embedded in their own learning. Any staff member can step up and lead as needed or follow as needed, being leader or learner as the situation demanded. The learning was sensitive to the complexities of the particular learning environment. This was certainly evident at STC, where various staff stepped up to lead in their own learning for their particular contexts. This enriched the learning because staff were taking their existing

knowledge of their area of expertise such as lighting or set construction and engaging in a single loop learning process to close the gap between existing unsustainable practices and newer sustainable practices. Learnership was also evident in Green Team II where staff from any part of the organisation could take on a role to encourage behaviour change and act as a liaison point for staff suggestions on improving sustainability practices.

A further point about this is that the learnership that was evident at STC is not just at the level of the individual. It was evident at the level of the groups. For example, the head of Workshops worked with the Heads of Set construction and Scenic Art, and their teams, to find ways to reuse and recycle as much of the sets as possible, working with the waste management company in a cyclic approach of continuous learning in order to keep reducing the amount of waste they sent to landfill. Thus, we can extend the concept of 'learnership' from the individual to team learning.

'Learnership' at the level of a team has implications for Edmondson's concept of teaming (2012). She describes the process of teaming as occurring through an engaged team of individuals coming together to work on a project. The individuals need to bring cognitive skills, passion, curiosity and empathy to the task and be very aware of the role and perspective of each other, a process enabled through distributed leadership. What Edmondson describes is 'learnership' at the level of a team.

The transformational metaphor of Greening the Wharf as theatre production also has implications for theory because it suggests a way to reduce the chances of organisational resistance to new initiatives provided the human sustainability levels are sufficiently high that staff are willing to engage with them. As mentioned in the previous paragraph, working with the existing frames for staff rather than imposing something new could be a useful strategy for organisational learning and change initiatives.

Taking a complexity approach to understanding organisational learning for sustainability and the depth of changes it both requires as well as yields, challenges scholars to appreciate the complexities of introducing such a change to an organisation and the importance of attending to the various sources of dynamic influence that might affect that initiative. This would include attending to the external environment for key enablers and constraints such as government funding. At the level of the organisation, identifying the readiness of the organisational culture for such a change. My research suggests that culture underpinned by a high level of human sustainability is a critical enabling condition for such a change. Attending to that might have to be the first priority over an environmental program if it is to embed itself in organisational culture.

This would require a capacity to appreciate the way staff build their understanding of the world, themselves, others and their work through frames and metaphors constructed through experiences in the world and not assume that staff will see things in the same way.

Building a shared vision will require an opportunity for staff to make meaning around an idea that works with their existing frames and in spaces that make it safe for staff to express any reticence and address it. Open and regular conversation may be key. Managers would also require an understanding of group interactions and dynamics so that they can establish the conditions for team learning as discussed in the previous section. A manager may also need to appreciate that it is impossible for them to understand the nuances of the roles played by individual staff and to work collaboratively with them to draw out what is significant about the organisational initiative for their area or role. There is a critical role for empathy throughout these processes.

If we take seriously the contributions of complexity science and the importance of appreciating the way we carry individual frames on the world we will see the merit of managers engaging in an empathetic approach with staff in a similar way to an interpretivist. In taking an empathetic stance, in truly listening without judgment a leader, manager or team member will seek to engage in developing a shared understanding through the surfacing of frames in terms of some activity, to build a bridge into their frames of reference, to enable a shared view to emerge. The skills that an empathetic manager requires are about eliciting the frames of those they manage, to garner an understanding of how they see a situation and to offer other ways of framing whatever is under examination.

This research has shown the metaphors that theorists use in conceiving organisations will have implications for all aspects of how we conceive of organisational life. Consider the comparative characteristics of organisations with leadership conceived of as honeybees versus locusts and the attendant way that metaphor affects all levels as captured in Table 2.1 (Avery & Bergsteiner, 2010). STC certainly displayed honeybee leadership characteristics. The metaphor of organisation as interlocutor does not flow freely off the tongue but it captures something that is critical to a sustaining organisation as described by Benn et al., (2014). An organisation that is in empathetic conversation with its community, its peers, its ecological environment is much more likely to want to build a positive relationship, make a positive contribution than one that sees itself as apart from and separated from those contextual influences. Perhaps it returns us to McGrath's new era of management, the era of empathy and its underpinning metaphor of organisation as empath. That may be a more fitting metaphor to describe that kind of organisation. It certainly fits STC's way of engaging both internally and externally.

### **7.3.2. Implications for methodology**

From a methodological perspective, the complexity approach allows an analysis that is both broad and deep. Taking a complex systems approach to examining an organisational activity ensures that all the potential sources of dynamic influence can be exposed along with positive and negative feedback loops between those sources. In order to maximise the theoretical value of this type of research it is important to establish a research process that provides the best chance of detecting or identifying critical enabling conditions over time (whether retrospectively or prospectively), which means that the process would have to follow the time course itself. A longitudinal approach is therefore mandated if undertaking this type of research.

The complexity approach also assumes that individuals within organisations are complex and likely to have an idiosyncratic perspective informed by the multiple influences on them from their genetic makeup, cultural identity, family background, skills and values. The interpretivist approach facilitated the eliciting of participant's frames and metaphors by encouraging them to tell their story. Having participants express their perspective in their natural voice, choosing their own words, is more revealing than simply having them complete a survey where they are forced to convey their perspective in someone else's language.

The grounded theory approach ensured that the data were the source of any theorising rather than overlaying the analysis with the researcher's frames drawn from reviewing the relevant literature. It encourages the researcher to be aware of their own frames in order to minimise any biases that might come with them. The in depth case study research process was a rich source of data. The richer the data source, the richer the story. I explored the environmental influences through triangulating interviews against government websites, media reports and company reports. Harnessing multiple data sources proved to be very valuable, particularly in reflecting on a sustainability or other change efforts retrospectively. The complexity approach also has implications for management practice.

### **7.3.3. Implications for management practice**

One of the critical lessons from my research into Greening the Wharf at STC is that you need to get the human sustainability right to create the enabling conditions in which a new idea or initiative is likely to find support even if it is not immediately relatable to what people do every day. If staff feel valued and encouraged to be themselves, they are more likely to be open to considering new ideas. Cate Blanchett has described her profession as a passionate one that allows actors and audiences to sit with a set of concerns related to the characters in a production

as they relate to each other. In both her acting and her role as CEO of Sydney Theatre Company she emphasised the importance of conversation and being humble to the task at hand (Darling, 2007; Summers, 2014). This resonates with McGrath's era of empathy and recent advances in neuroscience have facilitated research that suggests support for management approaches that take an empathetic stance towards staff (e.g. Boyatzis, 2011; Boyatzis & Jack, 2018).

One of STC's core values is playfulness and the creative industries like theatre are inherently creative places but many other organisations are not. While business and management literature might pay lip service to creativity, the structures and processes of most work promotes the opposite response in staff. When we try to force creativity on people without having created a physical and emotional space where people feel safe the endeavour is unlikely to be successful. Our very organisational structures can be too rigid and bureaucratic to facilitate creativity within and between departments. This recall's Bolman and Deal's (2008) work on reframing organisations and the invitation to take the artists perspective if one wants to see new possibilities. "The leader as artist relies on images as well as memos, poetry as well as policy, reflection as well as command, and reframing as well as refitting" (Bolman & Deal, 2008, p. 21).

People with a history of being in such rigid structures may require time, encouragement and consistent evidence that their contribution is valued before they develop the sense of psychological safety to engage in more creative approaches to problem solving. Otherwise they will engage in defensive routines, where they show surface level support for ideas but actively work to maintain the *status quo*, to protect their own perspective and not look incompetent (Argyris & Schon, 2004). Using some of Argyris and Schon's techniques for reflection may help get past those defences and enable the surfacing of people's frames on an issue so that deeper reflections and exploration can occur (2004). Other techniques including Edward de Bono's Six Hats might also help to break habituated ways of framing (de Bono, 1990). The importance of doing this in a psychologically safe environment cannot be underestimated.

If a manager wants to prompt action in multiple contexts, appreciate that people may hold different frames for different parts of their lives and even their work. It is possible that staff will not make frame-to-frame connections for different aspects within the workplace, let alone beyond it. For example, it is conceivable that Joe from Set Construction might be passionate about using sustainable ply for his sets but would not think to get a reusable cup for his take-away coffee just because that is not part of his greening frame. Those connections need to be explicitly made by threading an idea through the multiple contexts relevant to the idea.

Taking a complex approach to management practice may free managers from the illusion that their role is to plan, lead, organise and control what happens in their organisation, and become more open to working collaboratively with staff to deal with organisational issues. As Mintzberg said, management is an art, a craft and a practice (Mintzberg, 2004). Organisations would do well to appreciate the benefit of encouraging 'learnership' among staff. They appreciate the complexities of their own local contexts within the organisation and should be encouraged to lead their own learning or seek to learn from others as needed when working towards an organisational objective.

#### **7.3.4. Implications for management development and education**

This research suggests that developing our management students and existing managers capacities for appreciating the complexity of our organisations and ourselves will help them to be less linear in their approaches to problem solving and more empathetic in their engagement with colleagues, superiors and subordinates.

Teaching management theories to students in traditional classroom environments will not produce students who have the ability to manage because they have not experienced the practice of managing in any meaningful way. The classroom environment would be better if it provided the opportunity for experiencing what it is like to have to manage. The emphasis may need to shift towards having students work collaboratively on issues so that they can experience the difficulty of communicating among a group of people with different perspectives (frames) on issues and who may also view the world differently. Bringing together students of different genders, cultures and demographics would provide an opportunity to surface their differing frames on issues and help them navigate towards a common understanding in developing answers to questions. The classroom space provides a place that has the potential to be more psychologically safe than discovering these issues in the real world after graduation, as long as it is sensitively managed.

One challenging aspect for me as an academic in a regional university is that most of our students are studying online and do not come together in classroom settings. The advantage for many of those students, conversely, is that they are already in workplaces and can see the concepts they are being exposed to being played out and realise what works and what does not. They will have experienced what it is like to work in teams and to try to communicate with colleagues to achieve outcomes. However, they will not get the benefit of the experiential learning in the classroom environment. There are opportunities to work collaboratively in the online space with fellow

students and adding a reflective practice may assist the students to consider the frames that they and fellow students brought to issues and how they were resolved.

Part of the process of educating future managers is encouraging them to appreciate their own thinking processes. This includes consideration of how their thinking contributes to the way they engage with others and how that might contribute to successful or unsuccessful outcomes. To assist with this, I would also introduce students to reflective practices including the left hand column technique (Senge, 1990) and other practices to encourage them to expose their own frames and metaphors so that they understand what is underpinning their attitudes and approaches. Techniques for reframing are also useful to assist managers extend and expand the way they think (Bolman and Deal, 2008). They can take managers from having a limited view of their organisation and trying to choose one best rational structural solution designed to retain certainty over ambiguity to look at problems differently. They can expand their conceptual toolbox and take a holistic approach that looks at a variety of ways of framing a situation, developing creativity, risk taking and playfulness in response to difficulties and ambiguities. They can try to find the right question to ask before looking for the right answer and being passionate and principled while flexibly responding to issues that arise (Bolman & Deal, 2008).

As discussed in Chapter 1, the World Economic Forum suggested that we are now in the fourth industrial revolution, a time of disruptive change and an exponential increase in the impact of technologies such as artificial intelligence on our lives (World Economic Forum, 2016). The top ten skills they identified as being imperative to 2020, were complex problem solving, critical thinking and creativity, people management, coordinating with others, emotional intelligence, judgement and decision making, service orientation, negotiation and cognitive flexibility (World Economic Forum, 2016). In the 2015 skills they identified, creativity was tenth. Now it is third on the list and those skills that make us uniquely human are critical to our future employability. So, perhaps we should get Patrick McIntyre to dust off that presentation he gave to our undergraduate students in 2013 on *Soft is the new hard*, exploring the benefits of the skills developed in a liberal arts education for business and management.

## **7.4. Research Limitations**

My research project was limited in that it was a single in-depth case study and its findings may be difficult to transport to other contexts, because I could not compare and contrast across cases. STC was a unique research context compared to other types of organisation, being a not-for-profit arts company. As noted in my analysis, the fact that working in theatre is generally not very well paid

also suggests that people elect to work in theatre because they are passionate about it and are prepared to earn less in financial terms due to the intrinsic rewards of getting to express that passion.

One of the limitations around my first research question is that I had to surmise the level of human sustainability and ecological sustainability through what participants reported in 2014. There was no way to go back in time and experience what the organisational culture was really like or what kind of leader Rob Brookman was. I interviewed Brookman after identifying gaps in the perceptions of staff I had interviewed in 2014. After I interviewed Brookman in February 2015, I did not seek to explore his managerial style with the staff at STC who had worked with him. It was through the insight about the level of human sustainability at the beginning of greening and comments of colleagues during interviews that I garnered a sense of Brookman's leadership style. I only became aware of this limitation through later analysis, long after my ethics approval for the research had expired. I have had to rely primarily on interviews to garner a sense of the culture and Brookman's leadership style during his tenure.

There is another area too where I lacked access to primary sources. My application of Cooksey's complex systems of dynamic influences was somewhat limited with respect to STC's external context. My assessment of what was happening in the external context had to rely on secondary sources. I did not have the opportunity to go back in time to experience the context from STC's perspective in the period of 2007-2010 and had to rely on press clippings, internal documents, company reports and government websites to build a picture that triangulated the information I was gleaning about the time from my interviews. It would have been fruitful to have been able to interview some of those external stakeholders to get their perspective on their role in/influence on the Greening the Wharf program.

In terms of the participants I interviewed, I had a purposive sample of five staff who had lived through Greening the Wharf and five who had joined since the project formally ended. A human resources intern selected the interviewees from the staff list. Having ended up with three staff from Ticketing in the process did not feel that I had a sample that was representative across the organisation. A more purposive sample might have been more representative. For example, I could have asked for no more than one representative from any given department in the organisation. However, I was able to target five people of interest through the recommendation of staff like McIntyre. Joe from Set Construction, Jack the Workshops manager were two such examples. I opted to seek an interview with the archivist because of her long service and access

to corporate memory. I identified the five implementers as key individuals involved with the project before I visited STC.

I did not get to interview one of the key individuals, Cate Blanchett, and had to rely on her public utterances in media, evidence of her environmental activism in the media, and the reportage from her husband and co-artistic director, Andrew Upton and other colleagues. However, I found no inconsistencies in her public utterances and reports by those who knew her in this regard. Blanchett had appeared in press articles marching in public rallies to raise awareness of climate change and she had also appeared in a television commercial proclaiming her belief in climate change. Blanchett and Upton refitted their home in Sydney with solar panels and water harvesting and a grey water re-use system. She was walking the talk, in other words.

My opportunities for participant observation were very limited. I had limited time on site and this meant that my analysis did not commence until after my site visits and therefore, I could not start coding and explore those codes in subsequent visits. My visits were predominantly about interviewing staff and using the gaps in between to observe the way STC ran and to access the archives for documentation. The opportunity to attend a company run of a show that was in the process of production offered a tantalising glimpse of the process of theatre production which was something I had no experience of until I started researching STC. Being able to more fully immerse in observing a theatre production could offer some very interesting insights into team learning as it happens in that unique context. Greening the Wharf Act I had been very successfully run as though it was another theatre production by Brookman and his Green Team I. This suggested to me that there could be some interesting lessons to learn from observing the process in action.

Over the course of my time at STC, I became quite interested in the role of the rehearsal and the production process. The theatre production process fascinated me from the first day of my first site visit when I attended the company run of a production. I pursued my curiosity by watching *In the Company of Actors* (Darling, 2007), a documentary about the production of *Heda Gabler* that STC toured to New York in 2006. The documentary covered the rehearsal process, primarily, but also interviewed the set designer and score composer. I later found Ford's (2008) research paper on the production process at a US theatre company that explicitly discussed the production process as an example of action learning and detailed his observations of that process. These data were a tantalising glimpse of how a theatre production comes together but that was not the focus of my research at the time of my site visits. However, on reflection they represent such central activities to the work of a theatre company that they would have been a valuable source of data.

## 7.5. Future Research Directions

This PhD was exploratory in nature, but the findings and limitations offer some opportunities for further research within and beyond the context of theatre. The research was a single in-depth case study that assessed a historical project and its implications for the way the organisation conducted itself at the time of the research. Thus, I relied heavily on reportage in the form of interviews and historical documentation to gain an understanding of how that project had unfolded. It would be very interesting to explore a project such as Greening the Wharf from its inception to completion to gain a more in-depth understanding of how it unfolds in real time. Being able to conduct the research as the project unfolded would improve the sufficiency of the data in that I would be able to access more of the people involved including those in the external context who might have key insights (Cooksey & McDonald, 2011). It would also afford the opportunity to conduct follow-up research at a future date to assess how well the organisational change and learning had embedded itself in the organisational culture.

The original intent of this research was to engage in two case studies in the wine industry in order to be in a position to engage in a cross-case analysis. Being able to pursue a dual case study would improve transportability by being able to compare the two cases in question within the context of a single industry. Exploring the adoption of sustainability in for-profit organisations would also provide the opportunity to explore the tension between the costs of adapting infrastructure and practices and the profit-motive. However, there is still scope within the context of theatre to learn valuable lessons in terms of organisational learning.

The metaphor of Act I of Greening the Wharf as theatre production and Ford's (2008) exploration of the theatre production process suggest to me that theatre production requires a teaming approach as described in 7.2.3. Studying teams that have the ability to work with free-lance members in bringing productions together would further enhance our understanding of how well functioning teams with disparate and changing memberships can communicate effectively in order to produce a quality outcome in a finite time period. This would involve two aspects. The first would be observing the production team and its processes. The second would be in studying the rehearsal process in terms of team learning to garner an understanding of how rehearsal as a form of team learning differs from the broader production team process. However, as Edmondson's own research has explored teaming in contexts such as surgical units, the organisation type selected need not be restricted to theatre (2012). Such research could also seek further evidence of 'learnership' in forms of team learning (Cooksey, 2003).

The transformational metaphor of Greening the Wharf as theatre production also offers some interesting possibilities for future research. The idea of transforming a major change initiative into a form of working within the existing *modus operandi* of an organisation might provide the means to ease the transition by allowing staff to absorb the change into their existing frames, thus easing the shock of the change. It would be interesting to see if other organisation types are able to achieve what STC managed to by taking that approach.

Finally, this research was problem-driven rather than theory-driven in that it sought to understand how an organisation went about solving the problem or challenge of engaging in its activities in an environmentally sustainable way. The approach taken has resulted in an exploration within a single context that is both broad and deep and enabled me to build a rich story of the process. I may not be able to generalise the findings to other contexts because of that but through conceptual extension there are possible lessons to be learned and future research to explore. The research suggests there is merit in using a complexity perspective to garner a rich understanding of all of the dynamic influences at play around organisational change and learning for sustainability. The evidence of 'learnership' in the organisational learning process was underpinned by a particularly collaborative management approach that suggests that an empathetic approach to managing for sustainability may well be an approach that could underpin organisational change and learning for sustainability in other organisations. Being able to research other organisations going through their change and learning efforts towards sustainability will provide further evidence that may build on these findings.

## References

- Angus-Leppan, T., Benn, S., & Young, L. (2010). A sensemaking approach to trade-offs and synergies between human and ecological elements of corporate sustainability. *Business Strategy and the Environment*, 19, 230-244.
- Antonacopoulou, E. (2010). Making the business school more 'critical': Reflexive critique based on phronesis as a foundation for impact. *British Journal of Management*, 21, S6-S25.
- Antonacopoulou, E., & Chiva, R. (2007). The social complexity of organizational learning: The dynamics of learning and organizing. *Management Learning*, 38(3), 277-295.
- APS. (2012). *Tackling wicked problems*. Retrieved from (<http://www.apsc.gov.au/publicationsand-media/archived-publications/publications-archive/tackling-wicked-problems>).
- Australian Government, (n.d.). *Australia 2020*. Retrieved from <https://web.archive.org/web/20080907195738/http://australia2020.gov.au>.
- Aras, G., & Crowther, D. (2009). *The durable corporation*. Farnham, England: Gower.
- Argyris, C. (1998). Teaching smart people how to learn. *Harvard Business Review on Knowledge Management*, 81-108.
- Argyris, C. (1999). *On organisational learning*. Oxford: Blackwell Publishers Inc.
- Argyris, C., & Schon, D. (1974). *Theory in practice: Increasing professional effectiveness*. San Francisco: Jossey-Bass.
- Argyris, C., & Schon, D. (1978). *Organisational learning: A theory of action perspective*. Reading, Massachusetts: Addison-Wesley.
- Argyris, C., & Schon, D. (2004). *Reasons and rationalisations. The limits to organisational knowledge*. Oxford: Oxford University Press.
- Avery, G., & Bergsteiner, H. (2010). *Honeybees and locusts*. Crows Nest, Australia: Allen & Unwin.
- Bakan, J. (2004). *The corporation: The pathological pursuit of profit and power*. Toronto: Viking.
- Banerjee, S. B. (2011). Embedding sustainability across the organisation: a critical perspective. *Academy of Management Learning and Education*, 10(4), 719-731.
- Banksia Foundation. (2011). Leading in sustainability: setting the standard for small organisations. Retrieved from <http://banksiafdn.com/leading-in-sustainability-settingthe-standard-for-small-organisations>.
- Bargal, D. (2014). Lewin, Kurt. In D. Coghlan & M. Brydon-Miller (Eds.), *The SAGE Encyclopedia of Action Research*, London: SAGE Publications Ltd.
- Barr, S., Shaw, G., Coles, T., & Prillwitz, J. (2009). 'A holiday is a holiday': Practicing sustainability, home and away. *Journal of Transport Geography*, 18(2010), 474-481.

- Becker, W. J., Cropanzano, R., & Sanfey, A. G. (2011). Organizational neuroscience: taking organizational theory inside the neural black box. *Journal of Management*, 37(4).
- Benn, S., Dunphy, D., & Griffiths, A. (2014). *Organisational change for corporate sustainability* (3rd ed.). London: Routledge.
- Benn, S., Edwards, M., & Angus-Leppan, T. (2013). Organizational learning and the sustainability community of practice: The role of boundary objects. *Organization & Environment*, 26(2), 184-202.
- Bennie, A. (2006, November 11). New role is no artistic dalliance. *The Sydney Morning Herald*, p. 2.
- Bennis, W. G., & O'Toole, J. (2005). How business schools lost their way. *Harvard Business Review*, 83, 96-105.
- Bhaskar, R. (1989). *Reclaiming reality: A critical introduction to contemporary philosophy*. London: Verso.
- Boden, M. A. (1994). *Piaget* (2nd ed.). London: Fontana, an imprint of HarperCollins.
- Bolman, L. G., & Deal, T., E. (2008). *Reframing organizations - artistry, choice and leadership*. San Francisco: Jossey-Bass.
- Boyatzis, R. E. (2011). Neuroscience and leadership: The promise of insights. *Ivy Business Journal (Online)*, Jan/Feb.
- Boyatzis, R. E., & Jack, A. I. (2018). The neuroscience of coaching. *Consulting Psychology Journal: Practice and Research*, 70(1), 11-27.
- Brown, S. (2015). Sustainability and environment: How the ecumenical movement helped mobilize ecology protest in East Germany. Retrieved from <https://www.oikoumene.org/en/press-centre/news/sustainability-and-environment-howthe-ecumenical-movement-helped-mobilize-ecology-protest-in-east-germany>.
- Bulle, R. J., Carmichael, J., & Jenkins, J. C. (2012). Shifting public opinion on climate change: An empirical assessment of factors influencing concern over climate change in the U.S., 2002–2010. *Climate Change*, 114(2), 169-188.
- Brundtland, G. H. (1987). *Our common future - report of the World Commission on Environment and Development*. Oxford: Oxford University Press.
- Bryman, A., & Bell, E. (2011). *Business research methods* (3rd ed.). Oxford: Oxford University Press.
- Bureau of Meteorology, A. (2008). Annual Australian climate statement 2007. Retrieved from [www.bom.gov.au/announcements/media\\_releases/climate/change/20080103.shtml](http://www.bom.gov.au/announcements/media_releases/climate/change/20080103.shtml).
- Buzan, T. (1993). *The mindmap book*. London: BBC Books.
- Cambourne, K. (2010, July 24). Theatre project shines brightly. *The Sydney Morning Herald*, p.40.
- Carson, R. (1994). *Silent spring*. Boston: Houghton Mifflin.

- Charmaz, K. (2006). *Constructing grounded theory. A practical guide through qualitative analysis*. London: Sage.
- Chia, R., & Hold, R. (2008). The nature of knowledge in business schools. *Academy of Management Learning and Education*, 7(4), 471-486.
- Cooksey, R. (2001). What is complexity science? A contextually grounded tapestry of systemic dynamism, paradigm diversity, theoretical eclecticism, and organisational learning. *Emergence*, 3(1), 77–103.
- Cooksey, R. (2003). "Learnership" in complex organisational textures. *Leadership & Organization Development Journal*, 24(4), 204-214.
- Cooksey, R. (2008). *Paradigm-independent meta-criteria for social and behavioural research*. Paper presented at the Bridging the gap between ideas and doing research: proceedings of the 2nd Annual Postgraduate Research Conference, Faculty of Education, Health and Professional Studies, University of New England, Armidale, Australia.
- Cooksey, R., & McDonald, G. (2011). *Surviving and thriving in postgraduate research* (1st ed.). Prahran: Tilde University Press.
- Cornelissen, J. (2006). Metaphor and the dynamics of knowledge in organisation theory: A case study of the organisational identity metaphor. *Journal of Management Studies*, 43(4).
- Cornelissen, J., Kafouros, M., & Lock, A., R. . (2005). Metaphorical images of organization: How organisational researchers develop and select organisational metaphors. *Human Relations*, 58, 1545-1578. doi:10.1177/0018726705061317
- Crossan, M. M., Lane, H. W., & White, R. E. (1999). An organizational learning framework: From intuition to institution. *Academy of Management Review*, 24(3), 522.
- Crossan, M. M., Maurer, C. C., & White, R. E. (2011). Reflections on the 2009 AMR decade award: Do we have a theory of organizational learning? *Academy of Management Review*, 36(3), 446-460.
- Crotty, M. (1998). *The foundations of social research: Meaning and perspective in the research process*. Sydney: Allen & Unwin Pty Ltd.
- Dabscheck, L. (2008, August 8), Double act, *The Sydney Morning Herald*, p.40.
- Dalton, V. (2017). *How important is shared vision to achieve a learning organisation?* Paper presented at the UNE Postgraduate Conference - Intersections of knowledge, University of New England, Armidale, Australia.
- Dalton, V., & Cooksey, R. (2017). *Organisational learning for sustainability- Greening the Wharf at Sydney Theatre Company*. Paper presented at the Australia New Zealand Academy of Management Conference, Melbourne, Australia.
- Dalton, V., & Cooksey, R. (2018). Becoming a Sustaining Organisation: Greening the Wharf at Sydney Theatre Company and its impacts. In R. Bathurst & G. Eweje (Eds.), *Clean, Green and Responsible? Soundings from Down Under*. Sydney: Australia, New Zealand Academy of Management.

- Dalton, V., Fisher, J., Sheridan, A., & Verbeek, M. (2011). *Grappling with sustainability: Reflections on embedding sustainability in the business curriculum*. Paper presented at the Western Economic Association International (WEAI) Conference, Queensland University of Technology, Australia.
- Damasio, A. (1994). *Descartes's error*. New York: Random House.
- Damasio, A. (2010). *Self comes to mind : constructing the conscious brain*. New York: Pantheon Books.
- Darity, W. A., Jr. (Ed.) (2008). *Schemas* (2nd ed. Vol. 2). Detroit: Macmillan Reference USA.
- Darling, I. (2007). *In the company of actors*. Sydney: Shark Island Productions.
- de Bono, E. (1990). *Lateral thinking*. London: Penguin.
- Department of Agriculture and Water Resources (n.d.). *Green Precincts Fund*. Retrieved from <http://www.agriculture.gov.au/water/urban/completed-programmes/green-precincts>.
- Destination NSW. (n.d.) *Sydney Theatre Company*: Retrieved from <https://www.sydney.com/destinations/sydney/sydney-city/walsh-bay/attractions/sydneytheatre-company>.
- Drucker, P. (1957). *Landmarks of tomorrow*. New York: Harper & Row.
- Easterby-Smith, M. (1997). Disciplines of organisational learning: Contributions and critiques. *Human Relations*, 50(9), 1085-1113.
- Easterby-Smith, M., Antonacopoulou, E., Simm, D., & Lyles, M. (2004). Constructing contributions to organisational learning. *Management Learning*, 35(4), 371-380.
- Easterby-Smith, M., Burgoyne, J., & Araujo, L. (1999). *Organisational learning and the learning organisation : Developments in theory and practice*. London: Sage.
- Edmondson, A. C. (2012). *Teaming: How organisations learn, innovate, and compete in the knowledge economy*. San Francisco, California: Josey-Bass.
- Edmondson, A. C. (2013, December 17). The three pillars of a teaming culture. *Harvard Business Review*.
- Ehrlich, P. R. (1968). *The population bomb*. New York: Ballantyne Books.
- Elkington, J. (1998). *Cannibals with forks*. Gabiola Island: Conscientious Commerce/New Society.
- Elliott, D. (2010, September). The wizardress of Oz. *Conde Nest Traveller*.
- Friedman, M. (1970). The social responsibility of business is to increase profits. *The New York Times Magazine*. Retrieved from [https://link.springer.com/chapter/10.1007/978-3-54070818-6\\_14](https://link.springer.com/chapter/10.1007/978-3-54070818-6_14).
- Espinosa, A., & Porter, T. (2011). Sustainability, complexity and learning: insights from complex systems approaches. *The Learning Organization*, 18(1), 54-72.

- Etc, Etc. (2016) *Cate Blanchett - Iconoclast TV Episode*: Retrieved from <https://www.youtube.com/watch?v=WnGTkYJvw8w&t=316s>.
- Feldman, J. A. (2006). *From molecule to metaphor*. Kindle Edition: Retrieved from <http://www.amazon.com.au>
- Fenwick, T. (2007). Developing organisational practices of ecological sustainability: A learning perspective. *Leadership & Organization Development Journal*, 28(7), 632-645.
- Fillmore, C. J., & Baker, C. (2009). A Frames approach to semantic analysis. In B. Heine & H. Narrog (Eds.), *The Oxford handbook of linguistic analysis*. Oxford: Oxford University Press.
- Flannery, T. F. (2005). *The weather makers: The history and future impact of climate change*. Melbourne: Text Publishing
- Ford, R. (2008). From situated practice to informed theory- learning cycles and enabling infrastructures. *The Learning Organization*, 15(2).
- Gallese, V., & Lakoff, G. (2005). The brain's concepts: The role of the sensory-motor system in conceptual knowledge. *Cognitive Neuropsychology*, 22(3/4), 455-479.
- Gantt, H. L. (1919). *Organizing for work*. New York: Harcourt, Brace, and Howe.
- Garvin, D. A., Edmondson, A. C., & Gino, F. (2008). Is yours a learning organisation? *Harvard Business Review*.
- Ghoshal, S. (2005). Bad management theories are destroying good management practices. *Academy of Management Learning and Education*, 4(1), 75-91.
- Gibbs, R. W. J. (2006). *Embodiment and cognitive science*. New York: Cambridge University Press.
- Glaser, B. G. (1992). *Basics of grounded theory analysis*. Mill Valley, CA: Sociology Press.
- Glaser, B. G., & Strauss, A. L. (1967). *The discovery of grounded theory. Strategies for qualitative research*. London: Weidenfeld and Nicolson.
- Goffman, E. (1975). *Frame analysis*. Norwich, Great Britain: Peregrine Books.
- Goleman, D. (2004). *Emotional intelligence: Why it can matter more than IQ*. London: Bloomsbury.
- Goleman, D. (2006). *Social intelligence: The new science of human relationships*. London Hutchinson.
- Goleman, D., & Boyatzis, R. E. (2008, September). Social intelligence and the biology of leadership. *Harvard Business Review*.
- Goleman, D., & Senge, P. (2014). *The triple focus- a new approach to education*. Florence, MA: More Than Sound.
- GAP. (2012). *Green Arts Project*. Retrieved from <http://www.greenartsproject.org/>.

- GRI. (2018). About the Global Reporting Initiative. Retrieved from <https://www.globalreporting.org/information/about-gri/Pages/default.aspx>.
- Groysberg, B., Lee, J., Price, J., & Cheng, J. Y.-J. (2018, January-February). The leaders' guide to corporate culture. *Harvard Business Review*.
- Guggenheim, D. (Writer). (2006). An inconvenient truth. In *An Inconvenient Film Series*.
- Gugerell, K., & Zuidema, C. (2016). Gaming for the energy transition. Experimenting and learning in codesigning a serious game prototype. *Journal of Cleaner Production*. <http://doi.org/10.1016/j.jclepro.2017.04.142>
- Harkavey, I., & Puckett, J. (2014). Dewey, John. In D. Coghlan & M. Brydon-Miller (Eds.), *The SAGE Encyclopedia of Action Research*. London: SAGE Publications Ltd.
- Haugh, H. M., & Talwar, A. (2010). How do corporations embed sustainability across the organization? *Academy of Management Learning and Education*, 9(3), 394-396.
- Herzberg, F., Mausner, B., & Synderman, B. B. (1959). *The motivation to work* (2nd ed.). New York: Wiley.
- Howell, W. S. (1982). *The empathic communicator*. University of Minnesota: Wadsworth Publishing Company.
- IPCC. (2013). Fifth assessment report (AR5). *The Intergovernmental Panel on Climate Change*. Retrieved from <https://www.ipcc.ch/report/ar5/>.
- IUCN. (1980). *World conservation strategy. Living resource conservation for sustainable development*. Retrieved from <https://portals.iucn.org/library/sites/library/files/documents/WCS-004.pdf>.
- Jermier, J. M., & Forbes, L. C. (2016). Metaphors, organisations and water: Generating new images for environmental sustainability. *Human Relations*, 69(4), 1001–1027. doi:DOI: 10.1177/0018726715616469
- Johnson-Laird, P. N. (1983). *Mental models: towards a cognitive science of language, inference and consciousness*. Cambridge: Cambridge University Press.
- Kaplan, J. T., & Iacoboni, M. (2006). Getting a grip on other minds: Mirror neurons, intention understanding, and cognitive empathy. *Social Neuroscience*, 1(3-4), 175-183.
- Kim, D. H. (1993). The link between individual and organizational learning. *Sloan Management Review*, 35(1).
- Koger, S. M., & Winter, D. S. M. (2010). *The psychology of environmental problems*. New York: Psychology Press.
- Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development*. Englewood Cliffs, N.J: Prentice-Hall.
- Kouzes, J. M., & Posner, B. (2009). To lead, create a shared vision. *Harvard Business Review*.
- Lakoff, G. (2010). Why it matters how we frame the environment. *Environmental Communication*, 4(1), 70-81.

- Lakoff, G. (2012). Explaining embodied cognition results. *Topics in Cognitive Science*, 4, 773-785.
- Landau, M. J., Meier, B. P., & Keefer, L. A. (2010). A metaphor-enriched social cognition. *Psychological Bulletin*, 136(6), 1045-1067.
- Laasch, O. & Conaway, R. (2015). *Principles of responsible management: Glocal sustainability, responsibility, ethics*. Stamford, CT: Cengage.
- Latussek, D., & Vlaar, P. W. (2015). Exploring managerial talk through metaphor: An opportunity to bridge rigour and relevance. *Management Learning*, 46(2), 211-232.
- Lipshitz, R., Friedman, V. J., & Popper, M. (2007). *Demystifying organisational learning*. Thousand Oaks, CA: Sage.
- Lissack, M. R. (1997). Of chaos and complexity: Managerial insights from a new science. *Management Decision*, 35(3), 205-218.
- Lovelock, J. (1979). *Gaia: A new look at life on earth* (3rd ed.). Oxford: Oxford University Press.
- Lovelock, J. (2007). *The revenge of Gaia: Earth's climate crisis and the fate of humanity*. London: Penguin.
- Lovelock, J. (2009). *The vanishing face of gaia: A final warning*. Sydney: Penguin.
- Lozano, R. (2008). Envisioning Sustainability three-dimensionally. *Journal of Cleaner Production*, 16(17), 1838–1846. <http://doi.org/10.1016/j.jclepro.2008.02.008>
- Lozano, R. (2014). Creativity and Organizational Learning as Means to Foster Sustainability. *Sustainable Development*, 22(3), <http://doi.org/10.1002/sd.540>
- Lozano, R. (2018). Proposing a Definition and a Framework of Organisational Sustainability: A Review of Efforts and a Survey of Approaches to Change. *Sustainability*, 10(4), 1157. <http://doi.org/10.3390/su10041157>
- Maddox, G., (2007, November 3), Queen Cate rules: speak of nothing but my film. (*The Age*, p.9).
- Marquardt, M. J. (2011). *Building the learning organisation: Achieving strategic advantage through a commitment to learning* (3rd ed.). Boston, Massachusetts: Nicholas Brealey Publishing.
- McClelland, D. (1988). *Human Motivation*. Glenview, Ill: Scott, Foresman
- McGrath, R. (2014). Management's three eras: A brief history. Harvard Business Review.
- Meadows, D., Randers, J., & Meadows, D. (1974). The limits to growth: A report for The Club Of Rome's project on the predicament of mankind. London: Pan Books.
- Metcalf, L., & Benn, S. (2012). The corporation is ailing social technology: Creating a 'fit for purpose' design for sustainability. *Journal of Business Ethics*, 111(195-210). [doi:10.1007/s10551-012-1201-1](https://doi.org/10.1007/s10551-012-1201-1)
- Miles, M. B., Huberman, A. M., & Saldana, J. (2014). *Qualitative data analysis: a methods sourcebook* (3rd ed.). California: Thousand Oaks.

- Mill, J. S., & Ashley, W. J. (1973). *Principles of political economy: with some of their applications to social philosophy*. New York: A. M. Kelly.
- Mingers, J. (2014). *Systems thinking, critical realism and philosophy*. London: Routledge.
- Mintzberg, H. (2004). *Managers, not MBAs: A hard look at the soft practice of managing and management development*. San Francisco: Berrett-Koehler.
- Mitleton-Kelly, E. (Ed.) (2003). *Complex systems and evolutionary perspectives on organisations. The application of complexity theory to organisations*. London: Elsevier Science.
- Mitleton-Kelly, E. (2006). A complexity approach to co-creating an innovative environment. *World Futures: Journal of General Evolution*, 62(3), 223-239.
- Mitleton-Kelly, E. (2011). A complexity theory approach to sustainability. A longitudinal study in two London NHS hospitals. *The Learning Organization*, 18(1), 45-53.
- Mitleton-Kelly, E., & Ramalingam, B. (2011). Organisational learning and complexity science: Exploring the joint potential. In S. Maguire, P. Allen, & B. McKelvey (Eds.), *The SAGE Handbook of Complexity and Management*. London: Sage.
- Molnar, E., & Mulvihill, P. R. (2003). Sustainability-focused organisational learning: Recent experiences and new challenges. *Journal of Environmental Planning and Management*, 46(2), 167-176.
- Natras, B., & Altomare, M. (2016). Dancing with the tiger: Learning sustainability step by natural step. Kindle. Retrieved from <http://www.amazon.com.au>.
- Nyberg, D., & Wright, C. (2017). An inconvenient truth: How organisations translate climate change into business as usual. *Academy of Management*, 60(5), 1633-1661.
- O'Byrne, P. 2017, *User Profile*, LinkedIn. Retrived from <https://www.linkedin.com/in/paulmobyne/>.
- Palmberg, K. (2009). Complex adaptive systems as metaphors for organizational management. *The Learning Organization*, 16(6), 483-498. doi:10.1108/09696470910993954
- Pfeffer, J. (2010). Building sustainable organizations: The human factor. *Academy of Management Perspectives*, 24(1), 34-45.
- Polanyi, M. (1966). *The tacit dimension*. New York: Doubleday.
- Putnik, G. D. (2009). Complexity framework for sustainability: An analysis of five papers. *The Learning Organization*, 16(3), 261-270.
- Revans, R. W. (1998). *ABC of action learning*: London: Routledge.
- Saldana, J. (2009). *The coding manual for qualitative researchers*. London: SAGE.
- Schein, E. (1984). Coming to an awareness of organisational culture. In G. Salaman, S. Cameron, H. Hamblin, & P. Iles (Eds.), *Human Resource Strategies*. Newbury Park, CA: Sage.

- Schein, E. (2003). *DEC is dead, long live DEC: Lessons on innovation, technology and the business gene*. San Francisco: Berrett-Koehler.
- Senge, P. (1990). *The fifth discipline. The art and practice of the learning organisation*. London: Random House.
- Senge, P., Kleiner, A., Roberts, C., Ross, R., Roth, G., & Smith, B. (1999). *The dance of change. The challenges of sustaining momentum in learning organisations*. London: Nicholas Brealey Publishing Ltd.
- Senge, P., Kleiner, A., Roberts, C., Ross, R., & Smith, B. (2009). *The fifth discipline fieldbook. Strategies and tools for building a learning organisation*. London: Nicholas Brealey Publishing Ltd.
- Senge, P., Laur, J., Schiley, S., & Smith, B. (2008). *The necessary revolution: How individuals and organisations are working together to create a sustainable world*. London: Nicholas Brealey.
- Shrivastava, P. (2008). Sustainable organisational technology. *International Journal of Sustainable Strategic Management*, 1(1), 98-111.
- Siebenhüner, B. & von Ossietzky, C (2017) The role of social learning on the road to sustainability in Governance and sustainability. New challenges for states, companies and civil society, pp.86-99.
- Smith, P. A. C. (2012). The importance of organizational learning for organizational sustainability. *The Learning Organization*, 19(1), 4–10. <http://doi.org/10.1108/09696471211199285>
- Stacey, R. (2003). Learning as an activity of interdependent people. *The Learning Organization*, 10(6), 325-331.
- Stacey, R. (2007). The challenge of human interdependence: Consequences for thinking about the day to day practice of management in organizations. *European Business Review*, 19(4), 292-302.
- Stacey, R. (2010). *Complexity and organisational reality*. Oxford: Routledge.
- Stacey, R. (2012). *Tools and techniques of leadership and management: Meeting the challenge of complexity* (Kindle Edition ed.). Oxon: Routledge.
- Stacey, R., Griffin, D., & Shaw, P. (2000). *Complexity and management: Fad or radical challenge to systems thinking?* London: Routledge.
- Stage Whispers. (n.d.). *Sydney Theatre Company goes solar*. Retrieved from <http://www.stagewhispers.com.au/news/sydney-theatre-company-goes-solar>.
- STC. (n.d.). *History – Sydney Theatre Company*. Retrieved from <https://www.sydneytheatre.com.au/about/history>.
- STC. (n.d.). *Wharf renewal*. Retrieved from <https://www.sydneytheatre.com.au/wharf-renewal>.
- STC. (2010). *Annual Report*. Retrieved from <https://www.sydneytheatre.com.au/about>.

- STC. (2011a). *STC Greening the Wharf advocacy plan*. Unpublished document.
- STC. (2011b). *Sydney Theatre Company project planning case study*. Retrieved from [www.greeningthewharf.com](http://www.greeningthewharf.com).
- STC. (2011c). *STC Green Events Guide*. Unpublished document.
- STC. (2012). *STC Sustainability Road map 2012-2015*. Unpublished document.
- STC. (2013). *Annual Report*. Retrieved from <https://www.sydneytheatre.com.au/about>.
- STC. (2014). *Annual Report*. Retrieved from <https://www.sydneytheatre.com.au/about>.
- STC. (2015a). *Annual Report*. Retrieved from <https://www.sydneytheatre.com.au/about>.
- STC. (2015b). *STC Commitments*. Retrieved from <https://www.sydneytheatre.com.au/about/stccommitments>.
- STC. (2017). *Job Pack- Application and database manager*. Retrieved from <https://www.sydneytheatre.com.au/about/careers>. Unpublished document.
- Strauss, A. L., & Corbin, J. (1998). *Basics of qualitative research: Grounded theory procedures and techniques*. Thousand Oaks, CA: Sage.
- Summers, A. (2014). Cate Blanchett in Conversation with Anne Summers. *Anne Summers Conversations*. Retrieved from <https://www.youtube.com/watch?v=xQymc7iB0oQ>
- Taylor, F. W. (1967). *The principles of scientific management*. New York: W. W. Norton.
- Theatre Now. (n.d.). *Upcoming events- Wharf 2*. Retrieved from <http://theatrenow.com.au/venue/sydney-theatre-company-wharf-theatre-2/>.
- Thomas, K., & Allen, S. (2006). The learning organisation: a meta-analysis of themes in literature. *The Learning Organization*, 13(2), 123-139.
- Tosey, P., Visser, M., & Saunders, M., (2012) The origins and conceptualisations of ‘triple-loop’ learning: a critical review. *Management learning*. 43(3) 291-307.
- UNFCCC. (1992). *United Nations Framework Convention on Climate Change*. Retrieved from [http://unfccc.int/files/essential\\_background/background\\_publications\\_htmlpdf/application/pdf/conveng.pdf](http://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/conveng.pdf).
- UNGC. (2015). UN Sustainable Development Goals. Retrieved from <https://www.unglobalcompact.org/sdgs/about>.
- UNPRME. (2017). The Six Principles. Retrieved from <http://www.unprme.org/about-prme/thesix-principles.php>.
- Waddock, S., & Lozano, J. M. (2013). Developing more holistic management education: Lessons learned from two programs. *Academy of Management Learning and Education*, 12(2), 265-284.
- Waddock, S., & McIntosh, M. (2009). Beyond corporate responsibility: Implications for management development. *Business and Society Review*, 114(3), 295-325.

- Weber, M. (1947). *The theory of social and economic organisation* (T. Parsons, Trans.). New York: Oxford University Press.
- Weick, K. E. (1995). *Sensemaking in organisations*. Thousand Oaks, CA: Sage.
- World Economic Forum. (2016). *The future of jobs. Employment, skills and workforce strategy for the fourth industrial revolution*. Retrieved from <http://reports.weforum.org/future-of-jobs-2016/>.
- Yin, R. K. (2012). *Applications of case study research* (Third ed.). London: Sage.
- Yin, R. K. (2014). *Case Study Research: Design and Methods* (Fourth ed. Vol. 5). Thousand Oaks, CA: Sage.

## **Appendices**

## Appendix 1 Informed Consent Letter for Participants

I wish to invite you to participate in my research project, described below.

My name is Valerie Dalton and I am conducting this research as part of my PhD in the UNE Business School at the University of New England. My supervisors are Professor Ray Cooksey, and Dr James Hunter of the University of New England.

<b>Research Project</b>	<i>EXPLORING THE CONNECTIONS BETWEEN ORGANISATIONAL AND PERSONAL LEARNING FOR SUSTAINABILITY.</i>
<b>Aim of the research</b>	When an organisation goes through a sustainability change process there are key members who have the vision and drive it, those who implement the changes and members who may not have direct involvement but whose work practices may be affected. This research is aiming to gain an understanding of the interplay of personal and organisational influences in the adoption of sustainable business practices and how it impacts on personal and organisational behaviour.
<b>Interview</b>	I would like to conduct an interview with you. The interview will take approximately one hour. With your permission, I will make an audio recording of the interview to ensure that I accurately recall the information you provide. Following the interview, a transcript will be provided to you if you wish to see one. If I need to clarify some parts of our discussion later I may wish to have a brief follow-up discussion by phone or Skype.
<b>Confidentiality</b>	Any information or personal details gathered in the course of the study will remain confidential. No individual will be identified by name in any publication of the results. All names will be replaced by pseudonyms; this will ensure that you are not identifiable.
<b>Participation is Voluntary</b>	Please understand that your involvement in this study is voluntary and I respect your right to withdraw from the study at any time. You may discontinue the interview at any time without consequence and you do not need to provide any explanation if you decide not to participate or withdraw at any time.
<b>Questions</b>	The interview questions will not be of a sensitive nature: rather they are general, aiming to enable you to enhance my knowledge of the challenges and opportunities for better rural resource governance.
<b>Use of information</b>	I will use information from the interview as part of my doctoral thesis, which I expect to complete in June 2016. Information from the interview may also be used in journal articles and conference presentations before and after this date. At all time, I will safeguard your identity by presenting the information in way that

will not allow you to be identified. For the purposes of presenting evidence in my research, I may need to quote directly from our interview but you will only be identified by pseudonym. I seek your permission to do so as needed for my research.

**Upsetting issues**

It is unlikely that this research will raise any personal or upsetting issues but if it does you may wish to contact your local Community Health Centre (add the phone number here).

**Storage of information**

I will keep hardcopy recordings and notes of the interview in a locked cabinet at the researcher's office at the University of New England's School of Business. Any electronic data will be kept on a password protected computer in the same School. Only the research team will have access to the data.

**Disposal of information**

All the data collected in this research will be kept for a minimum of five years after successful submission of my thesis, after which it will be disposed of by deleting relevant computer files, and destroying or shredding hardcopy materials.

**Approval**

This project has been approved by the Human Research Ethics Committee of the University of New England (Approval No HE13-041 Valid to 8/4/2014).

**Contact details**

Feel free to contact me with any questions about this research. I can be contacted by email at [valerie.dalton@une.edu.au](mailto:valerie.dalton@une.edu.au) or phone on 0410-054-962.

Professor Ray Cooksey can be contacted by email at [rcooksey@une.edu.au](mailto:rcooksey@une.edu.au) or by phone on 02 6773-2563. Dr James Hunter can be contacted at [jhunter3@une.edu.au](mailto:jhunter3@une.edu.au) or 0407 936 536.

**Complaints**

Should you have any complaints concerning the manner in which this research is conducted, please contact the Research Ethics Officer at:

Research Services

University of New England

Armidale, NSW 2351

Tel: (02) 6773 3449 Fax: (02) 6773 3543

Email: [ethics@une.edu.au](mailto:ethics@une.edu.au)



Valerie Dalton

Please circle your response to each of the following questions, then sign and date the consent form below.

I, ....., have read the information contained in the Information Sheet for Participants and any questions I have asked have been answered to my satisfaction. Yes/No

I agree that research data gathered for the study may be published and understand that if I am directly quoted, my responses will be identified using a pseudonym and not my actual name. Yes/No

I agree to participate in this activity, realising that I may withdraw at any time. Yes/No

.....

Participant

.....

Date

.....

Researcher

.....

Date

## Appendix 2 Copy of coding tree from MAXQDA 11.1.2

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The screenshot displays the MAXQDA 11.1.2 interface with a coding tree. The tree is organized into several main categories, each with sub-categories and their respective counts. The total count for the entire tree is 914.

Category	Count
<b>Code System</b>	<b>914</b>
Environment	0
Contextual supports or constraints	13
Greenino -Theatres	11
Organisation	0
Leadership of GTW	23
BU appointment details and criticism	16
BU Values	7
BU-Management approach	6
Financial aspects of STC and GTW	38
ABC business plan	1
Government Support	4
\$5.2 million project over here that's the size of Sydnev Dance	4
STC culture	45
Groups	0
Green Teams	22
Individuals	1
Behaviour	0
Behaviour Before	72
Behaviour After	159
Change Implementer	8
Change Recipient	11
Greater than five years service	10
Less than five years service	10
Focal-activity-GTW	23
Project establishment	22
Timelines	75
Staff Framing GTW	11
The Bar	6
Three Project Pillars	2
Discrepancies in perception	16
Sustainability frames	21
Social Sustainability frames	15
Greenino as brand	9
Awards	3
green anome	4
Outcomes	127
Communications	51
GTW-Press	46
External	5
Advocacy	3
Reports-GTW	4
code green.	4
Internal	6
Sets	0

**Appendix 3**  
**Copies of case studies from the former**  
**[www.greeningthewharf.com](http://www.greeningthewharf.com) website**



# Energy

## Summary:

In the space of three years, Sydney Theatre Company (STC) transformed the home of its world-renowned theatre productions at The Wharf into a state-of-the-art solar powered site. With the help of key partners, the installation of the massive rooftop solar array surmounted several structural, aesthetic and heritage challenges to provide clean energy to this century-old heritage building. STC's solar array, together with a significant investment in energy efficiency measures, has reduced STC's grid-power consumption by 624,000 kilowatt hours.

## Greening The Wharf

Theatre has always been a place for exploring the great issues of the day. In this tradition, STC has created an ambitious and multifaceted environmental sustainability project called Greening The Wharf under the leadership of Co-Artistic Directors Cate Blanchett and Andrew Upton.

STC installed three gas-boosted rooftop solar hot water units at The Wharf between July 2010 and June 2011. These units are independent of the PV panel project and will contribute to overall energy usage reductions. The scale and comprehensive approach to sustainability makes Greening The Wharf a first for any major theatre company globally. The program encompasses infrastructure projects, Company-wide behavioural change, environmentally responsible theatre production, community engagement and education. Aided by generous support from an array of partners, STC has invested in solar energy, rainwater harvesting, energy efficiency measures and best practice waste management.

Greening The Wharf continues to transform the beautiful, heritage-listed Wharf building on iconic Sydney Harbour into an inspirational and international example of environmental leadership in the 21st century.



1,906 panel photovoltaic array on roof, 2010.

Case study series made possible by



## The energy challenge

*“Twenty years ago, while performing solar research at the University of New South Wales, few people believed that solar technology could ever power a building such as The Wharf. This project demonstrates that anyone today can look up and harness nature’s original source of energy and life.”*

*Dr Zhengrong Shi, Founder, Chairman and CEO, Suntech*

The most immediate goal of Greening The Wharf was to drastically reduce the Company’s reliance on coal-fired power sources, which produce around 38% of Australia’s total greenhouse gas (GHG) emissions. To this end, STC began investigating ways to implement a photovoltaic (PV) solar energy system on the roof of The Wharf. In tandem – and in line with best practice – STC also committed to reducing its overall energy use through a range of Company-wide energy efficiency measures. After a comprehensive Wharf-wide environmental review in 2007, building manager Arts NSW added its support to the energy challenge.

The PV solar rooftop array presented some considerable challenges from day one. As the first implementation of its kind on a significant heritage building, careful planning and community consultation was necessary to keep the local community enthusiastic, while preserving the building’s structural and aesthetic integrity. Technical challenges due to The Wharf’s age and structure also needed to be surmounted. Later, when installation began, it was necessary to time the work so as not to disrupt The Wharf’s busy schedule of rehearsals and performances.

Aware of the challenges but nonetheless inspired by the potential to install a world-leading and massive clean energy source on the roof, STC assembled a cross-functional team of internal management and external experts led by energy consultants Big Switch Projects to embark on the project. The University of New South Wales (UNSW) brought a wealth of photovoltaic engineering expertise to the table while The Shi Family Foundation provided a visionary donation of \$2 million to help kick-start the project’s funding.

## Energy efficiency measures

Theatre uses a lot of power! In 2010, STC asked energy consultants Big Switch Projects to identify specific energy efficiency measures for lighting, heating, ventilation and air conditioning (HVAC) in office spaces, workshops and rehearsal rooms to be implemented during the Greening The Wharf and beyond through STC’s annual capital expenditure program. The goal was – and continues to be – to cut energy consumption by up to 24% through these measures and by changing the behaviour of employees.

Smart-metering specialists Landis+Gyr supplied new sub-metering equipment to help STC monitor energy use and identify unusual variances, while a centralised building management system was installed to monitor and automate shutdowns for HVAC systems. Box Office lighting is now controlled by timed lighting and daylight/movement sensors with additional natural light shining in through retro-fitted heritage windows. These efficiency measures will be replicated through the building as areas are upgraded, providing further energy savings.

STC’s conventional theatrical lighting was replaced by new sustainable lighting technologies. This more than doubled the energy efficiency of the incandescent theatre lights in the Wharf 2 theatre, meaning lighting can be kept as bright as it was previously, while using less than half the power.



PV installation workers on the roof of The Wharf, 2010.

## The energy solution

*“This program makes Sydney Theatre Company a national leader in renewable energy and energy efficiency. Around 70% of the Sydney Theatre Company’s current energy use will be provided by solar panels and energy efficiency reductions, which is a huge achievement.”*

*George Maltabarow, Managing Director, Ausgrid*

On November 26, 2010, Australia’s second-largest rooftop solar array was ‘switched on’ on the roof of The Wharf building, located on sparkling Sydney Harbour. This was the first commercial-scale installation of ‘Pluto’ PV cells, developed by Suntech in partnership with UNSW School of Photovoltaic and Renewable Energy Engineering.

Each solar panel is rated at 200W, giving the system a capacity of 380kW. The expected lifespan of the solar array is a minimum of 25 years however the panels may continue to generate electricity for several decades longer. In their 25-year lifespan, the 1,906 Suntech pluto solar panels are estimated to generate around 13,450 MWh of power (the equivalent of removing around 50 cars from the road each year), or an average of 427,000kWh annually (enough to power around 48 average NSW homes all year).

### Technical details

#### Modelling

In preparation for the installation, NSW Public Works undertook extensive 3D performance modeling to:

- track the sun’s movement over 365 days factoring in the pitch of the roof
- help designers select roof areas with the least shading to maximise solar output
- minimise potential solar flare onto neighbouring buildings.

#### Solar array

There are 1,906 panels with a system capacity of 380kW. Each panel is 1.58m x 0.8m and a combined 1.265 m<sup>2</sup>. Mono-Crystalline panels were chosen to:

- harness maximum power from the sun (Mono-crystalline panels use single-crystal silicon and their efficiency makes them suitable for STC’s non-North facing orientation)
- reduce the impact of glare on neighbours (Mono-crystalline panels appear black or dark grey – as opposed to blue – and have low reflectivity).

#### Mounting

Several models of panel placement were tabled. The final placement was sympathetic to heritage aesthetics whilst balancing the need for maximum solar output. The panels were placed as close as possible to the roof. This streamlined design was to:

- minimise aesthetic disruption in the heritage area
- reduce damage from airborne vermin and strong winds.

## Capacity-building

Greening The Wharf has helped build expertise and capacity within key organisations that will help them greatly in future projects. As one of Australia’s largest rooftop installations, STC needed to extensively consult with Ausgrid to ensure network connection regulations were met. As part of the solar installation, Ausgrid installed improved relay protection mechanisms, working with STC’s solar design consultants, NSW Public Works.

During the five-month installation period, one small spot fire caused by open circuit strings occurred. Usually a rare occurrence, this one was most likely due to the sheer scale and lengthy installation period of the STC project. The small fire was quickly brought under control and provides a valuable risk management lesson for the Australian PV Association (APVA) around installation of commercial scale power plants. Separately, the APVA has produced a document for firefighters to identify what hazards exist with grid-connected systems once installed, what is safe and how to minimise risks. The APVA document, available on its website, dispels some inaccuracies and misconceptions around a conducting water stream on PV arrays and structures.

### Installation

Installation took five months and employed 26 people. As an exposed site on Sydney Harbour, STC was bound to encounter weather delays so installation time and budget were adjusted to reflect that risk which was provident as there were 34 rainy days. By the numbers, the installation team:

- installed 1,906 solar panels covering a total area of 2410 m<sup>2</sup> (five basketball courts)
- constructed 140 meters of walkways
- laid down 6.5km of DC cabling and 2km of AC cabling
- built five inverter stations housing 30 inverters
- relocated 300 electrical cables in the roof; screwed 22,000 screws in roof.

### Other elements

Arts NSW progressively upgraded fluorescent tube lights, replaced STC metal halide lighting to more energy-efficient light fittings, and replaced the air-conditioning system using air cooled (not water cooled) chillers. Three gas-boosted rooftop solar hot water units were installed by STC in the Southern (June 2010), Middle (November 2010) and Northern (July 2011) sections of The Wharf, independent of the PV panel project.

## Heritage issues

Since 1984, STC's base has been The Wharf building on Pier 4/5 at Walsh Bay. The Wharf stretches 200 metres out into glistening Sydney Harbour and, just 250 metres from the Sydney Harbour Bridge, is one of the world's most inspirational settings. The Wharf is part of the NSW heritage-listed Walsh Bay precinct and is one kilometre from The Rocks area of Sydney, which attracts huge numbers of sightseers every day to enjoy its 'old Sydney' feel and heritage sites.

The Walsh Bay Precinct is a revitalised inner city development where high-quality residential, commercial and retail spaces thrive in the restored surroundings of this historic maritime precinct. The redevelopment of Pier 4/5 has received numerous accolades for its adaptive re-use (the process of adapting old structures for purposes other than those initially intended).

The architect Vivian Fraser in association with NSW Government Architect was awarded the 1985 Royal Australian Institute of Architects NSW Chapter Sulman Award, the President's Award for Recycled buildings, and then the 25 Year Award For Enduring Architecture.

The significance of the site, along with the scale of the PV installation, created a number of technical and procedural challenges. As a consequence, the STC pursued a careful, consultative approach from early stages of development. The Company consulted extensively with the owner of the building (NSW Government), the development consent authority (City of Sydney Council) and the local community (through workshops and presentations to the Walsh Bay Precinct Management Committee).

### Glare

Despite their anti-reflective layers, PV panels can still reflect light when the sun is at a low angle. The impact of glare and reflection into nearby apartments and the neighbouring waterway was tabled as a potential issue.

A 3D software package was used to model reflection and predict the impact. The reflection analysis discovered that glare from Sydney Harbour was greater than the STC PV array and results were presented to the local community to provide maximum transparency during the development approval process. Residents were given the chance to vote for or against the proposal and despite some potential for glare from the array, the local community voted overwhelmingly in support of the project.

### Visual impact

The Pluto panels sit sleekly on the four faces of STC's double gable roofs and shore shed roofs, whilst the inverters are located out of sight within the valley to minimise the visual impact to this heritage building.

### Building age

Despite the building's heavy timber construction, some of the 100-year old trusses and purlins needed repair and strengthening to ensure the PV array could remain undisturbed for more than 25 years. As work progressed, live cables were discovered underneath the roof sheeting, installed decades before. Given plans required the panel racking system to be screwed directly through this sheeting, there was the potential risk to make the roof electrically 'live'. Therefore all roof sheeting needed to be lifted and inspected, and the cabling removed.

### Grid protection

The successful navigation of grid protection with Ausgrid and feed-in tariff with EnergyAustralia, was considered unique work as neither organisation had previously dealt with a photovoltaic installation of this size, so close to the Sydney CBD.

### Project success

The project went relatively smoothly, largely due to keeping all stakeholders informed. The approval of the solar array by the NSW Heritage Council – the first approval of its kind for the Council – sets an important precedent for future renewable energy systems at significant heritage sites. By surmounting the considerable heritage challenges, the success of the array proves a project such as this is possible for any building with a large roof area – heritage or otherwise.



Graeme McMullan and Vivienne Fan in the PV site office, 2010.

## The energy results

*“Early results from the STC photovoltaic array indicate the system is on track to meet, if not exceed, energy production predicted in initial modeling.”*

*Graeme McMullan, Project Director, GWM Engineering.*

At the time of writing a full year of data was not yet gathered. However, through a combination of energy efficiency measures and solar power, STC is on track to:

- reduce annual grid-energy consumption by over 60% on pre-Greening levels (from 859,000kWh to around 350,000kWh)
- reduce energy usage thereby mitigating rising energy prices, aiding the longer-term financial viability of the Company
- generate large-scale Generation Certificates that could rise in value considerably in coming years
- reduce annual carbon emissions by around 550 tonnes.

The touch-screen display in the STC foyer – known as Green Screens – incorporate video, photos, educational information and live feeds to the PV system.

Broadly, STC has:

- Drawn attention to Australian sustainable energy initiatives. The burgeoning clean energy industry has keenly reported on the progress of this landmark project.
- Showcased leading Australian technology, raising the profile of UNSW and Suntech, and renewable energy and climate change more generally.
- Made a big visual impact on the many people who visit Sydney Harbour each year. The array can be seen from the Harbour, CBD buildings, the Harbour Bridge, the North Shore and from the air.
- Demonstrated how solar arrays can be successfully integrated into heritage buildings (see Heritage section).
- Demonstrated it's possible to work around 'business-as-usual' on a major infrastructural project – an important consideration for an active arts organisation. STC rehearsals and performances continued throughout installation, requiring careful staging and often needing work to be shifted on an hourly basis. No significant disruptions were experienced by theatre-goers during this time.

### Solar panel performance

In addition to the overall design to minimise power loss, the better-than-expected result from the solar panels is due to:

- Suntech's highly efficient Pluto technology panels that feature solar cells with efficiencies of over 19 per cent. The system incorporates 30 Sunny Mini Central 11000TL inverters mounted within the valley of the roof across five Sunny Tower ST6s (both from SMA Solar Technology AG), achieving efficiencies of 98 per cent.
- Dispersed radiation from reflected light within the roof valley, from the roof sheeting and from Sydney Harbour, together with diffuse radiation from the salt atmosphere. This radiation is being collected and converted to energy more effectively than other modules.

## Budget

There are many simple and cost effective ways for you to run a greener business and save on your energy bills. STC's Energy Advisors, Ausgrid suggest a range of actions:



- **It starts from the top:**
  - Educate yourself – how much energy do you use?
  - Strategy and goals - what do you want to achieve?
  - Measure for success - track your performance.
- **Get your employees on board:**
  - Inform your staff and encourage them to suggest ways to save.
- **Turn it off or use the energy save mode - it's the easiest way to save:**
  - Install timers and use thermostats to switch off systems when facilities are not occupied.
- **Maintain your equipment to ensure reliability and efficiency.**
  - Clean your lights to ensure optimum performance levels – dust can reduce up to 50% of the light output.
  - Change air conditioning system filters on a regular basis, clean condenser coils and evaporators and fix duct leaks.
- **Work efficiently. Use the most efficient appliance when working:**
  - Use the smallest appliance for the job, rather than keeping one large appliance on all day.
  - Replace incandescent lights with compact fluorescent light (CFL) globes to save up to 80%. They last eight to ten times longer and will also reduce your maintenance costs.
  - Use task lighting where possible rather than lighting a wider area.
  - Reduce your refrigeration energy - set thermostats at 3 to 4°C for refrigerators and -15 to -18°C for freezers. Defrost regularly.
  - Pre-heat ovens only when required and minimise opening oven doors. Each opening can cause a heat loss of around 4°C.
  - Use inkjet printers as they consume less than half the energy of laser printers and use double sided printing to reduce your paper use.

Learn more:

[ausgrid.com.au/Common/Ways-to-save.aspx](http://ausgrid.com.au/Common/Ways-to-save.aspx)

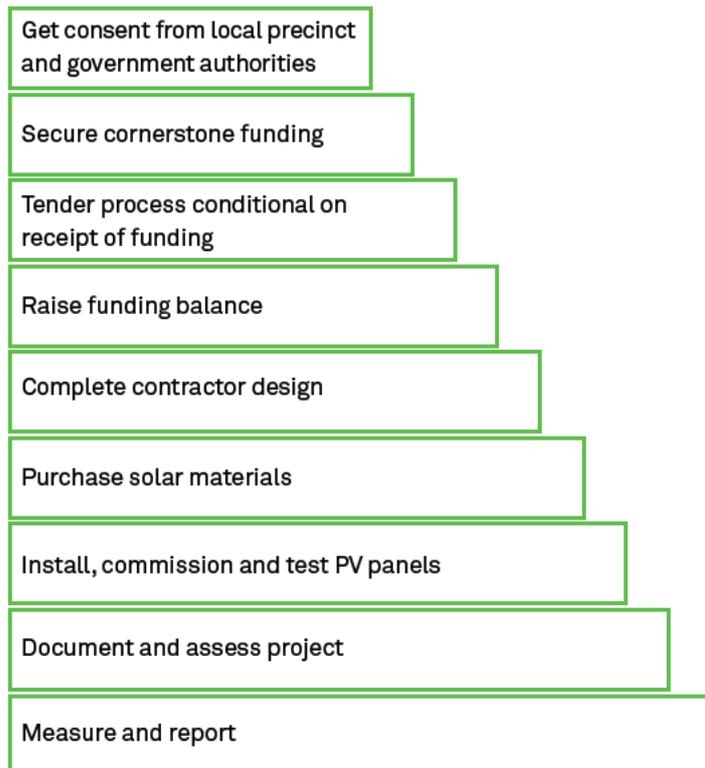
## The energy future

The solar panels will produce clean power for STC for a generation. Final figures will be available in mid 2012; however a research opportunity beckons on the issue of cross-reflectivity.

The Company's manufacturing and rehearsal rooms are due for an energy efficiency 'sweep' in 2012. Meanwhile, Arts NSW plans to replace original lighting fixtures with more efficient models and fund window tinting of North-facing windows to deflect UV and make interiors cooler during Summer. As STC continues to make efficiency gains, the solar energy will be even better utilised, thereby lifting the percentage of energy use contributed by its solar panels even further.

In the meantime, STC will continue to continue its advocacy efforts on the issue of clean power.

## Steps



GREENING THE WHARF IS MADE POSSIBLE THROUGH THE SUPPORT OF

### SOLAR ARRAY AND ENERGY CONSERVATION

**PROJECT MANAGEMENT**  
Government Architect's  
Office & Public Works

**CONSTRUCTION**  
DCM Solar & GWM  
Engineering

**SUB-METERING**  
Landis & Gyr

**SOLAR PANELS**

**HERITAGE ARCHITECTS**  
Tropman & Tropman  
Architects

## Budget cont.

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- **Lighten up your lighting:**
  - Install separate switches so you can turn on just the lights you require.
  - Consider installing reflectors to increase light levels. Or 'de-lamp' by using one lamp instead of two if the space is overlit.
  - How efficient are your lamps? Consider fluorescent lighting for most spaces or try LED lights where fluorescent is not viable.
- **Motor your way to savings:**
  - Install variable speed drives on fan motors and adjust the speed in line with your requirements. Reducing motor speed by as little as 15% can cut your power by over 30%
  - Match the motor capacity to the process.
- **Use advanced equipment controls to get your bills under control:**
  - Consider installing an energy management system for larger air conditioning systems. This can reduce your air conditioning costs by more than a quarter.
  - Use dimmers, sensors, timers or advanced lighting controls to turn off lights when not required.
- **Buy for energy efficiency:**
  - Replace old equipment with newer, more energy efficient models. Invest in equipment that can perform a variety of tasks (such as fax and print) and connect all computers to that one machine.
- **Improve your power factor:**
  - If you are on a kVA demand tariff, you can save on your bills by installing a power factor correction unit.
- **Cool your refrigeration bills:**
  - Swap cool room or display lighting with low temperature LED or fluorescent lighting.
  - Consider recovering waste heat from condensers for process heating or other uses.

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- Install a photovoltaic array to generate your own renewable electricity
- Consider gas-fired co/tri generation where re-use of waste heat is an option.

# GREENING THE WHARF IS MADE POSSIBLE THROUGH THE SUPPORT OF

SHI'S FAMILY FOUNDATION  
IN PARTNERSHIP WITH  
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CAMERON AND ILSE O REILLY  
PETER HALLAND LAURA SMITH  
DAVI A LAIRE PARADICE



Energy Advisor to  
Greening The Wharf

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# Project Planning

## Summary:

Following the 2008 commitment of STC Co-Artistic Directors, Andrew Upton and Cate Blanchett, to pursue company-wide environmental sustainability, Sydney Theatre Company (STC) began the necessary research, analysis and careful planning required to scope the ambitious Greening The Wharf project and attract support. Together with its partners and supporters, STC went on to transform the historic wharf building and NSW Government facility into an inspiring demonstration of 21st century sustainability practice.

## Greening The Wharf

Theatre has always been a place for exploring the great issues of the day. In this tradition, STC has created an ambitious and multifaceted environmental sustainability project called Greening The Wharf under the leadership of Co-Artistic Directors Cate Blanchett and Andrew Upton.

The scale and comprehensive approach to sustainability makes Greening The Wharf a first for any major theatre company globally. The program encompasses infrastructure projects, Company-wide behavioural change, environmentally responsible theatre production, community engagement and education. Aided by generous support from an array of partners, STC has invested in solar energy, rainwater harvesting, energy efficiency measures and best practice waste management.

Greening The Wharf continues to transform the beautiful, heritage-listed Wharf building on iconic Sydney Harbour into an inspirational and international example of environmental leadership in the 21st century.

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Martin Green, David Gonski, Richard Corkish, Peter Garrett AM MP, Cate Blanchett and Andrew Upton at Federal Government Media Call, 2008.

## The genesis

For more than 30 years Sydney Theatre Company (STC) has been one of Australia's leading arts organisations. The internationally respected Company has successfully adapted to societal changes over the years, responding adeptly to shifts in Australia's cultural consumption and increased competition for the 'leisure dollar'. As a non-profit arts organisation, financial and social sustainability have always been part of the Company's ethos.

Furthermore, in each of its incarnations 1) a maritime wharf, 2) home of the Sydney Theatre Company, and 3) a template for a sustainable future – The Wharf has helped stimulate the development of the surrounding precinct, serving the immediate need of its time as well as leading the way through cutting edge design and practice.

Soon after their appointment in 2008, STC Co-Artistic Directors, Andrew Upton and Cate Blanchett, identified environmental sustainability as the missing piece in STC's sustainability strategy. After two years of environmental audits, research and lifecycle analysis, STC committed to the most comprehensive environmental program of any performing arts company in the world called Greening The Wharf (GTW). Throughout its sustainability journey STC partnered with individuals and organisations to draw on their sustainability expertise and guidance.

## Aims

The ambitious Greening The Wharf project aimed to:

- significantly reduce on site energy and water use
- reduce carbon emissions
- develop a leading sustainable theatre venue
- stimulate conversations about sustainability
- demonstrate and communicate practical steps to sustainability to encourage action from other organisations and individuals
- demonstrate the combination of sustainability and heritage buildings can work
- showcase best-practice innovation and technology
- demonstrate active arts leadership on Climate Change.

*"There is an arts precinct beginning to emerge on the foreshore of Sydney Harbour and The Wharf is perfectly placed within it to help make it the first green arts precinct in the world. Climate Change is the most pressing challenge facing the human race today. One of the roles of art is to imagine the future. To do this effectively it must be both visionary and practical. We believe Greening The Wharf not only delivers enormous practical outcomes for Sydney Theatre Company but offers a vision of how we might all creatively embrace the challenge and opportunities that Climate Change presents."*

*Andrew Upton and Cate Blanchett, 2009*

# Strategy

Sustainability principles of people, planet and profit are now integrated into business planning and decision-making at all levels within STC, albeit through a unique creative lens. Dubbed STC-ABC, the Company's refreshed 2010 Strategic Plan separates its activities into three streams: art, business and community (ABC). This provides context for all of the organisation's work in areas including artistic excellence, developing future artists, contributing to better educational outcomes for young Australians, reducing its environmental footprint or increasing patronage at productions.

## Areas of focus

After measuring its base-line environmental performance, STC focused its efforts around the following five areas:

### Energy:

Extensive company-wide energy efficiency measures  
Australia's second-largest rooftop solar array

### Waste:

Best practice waste handling and recycling system  
'Reduce, Re-use, Recycle' ethos integrated into theatre design

### Water:

Wide-ranging water usage reduction  
Rainwater harvesting system

### Theatre production:

Green Design Policy angled towards sustainable productions  
Programming dealing with impact of Climate Change

### Advocacy:

Extensive industry and community advocacy and education  
Stimulus and leadership of a sustainable, creative precinct

## Supporters

Greening The Wharf attracted funding from a unique private and public partnership involving corporate support, private philanthropy and all levels of government. Greening Sponsors are acknowledged throughout [greeningthewharf.com](http://greeningthewharf.com) along with some case studies. Greening The Wharf provided valuable promotion for partners including University of New South Wales (UNSW), Suntech, Ausgrid, Sinclair Knight Merz, KPMG, Big Switch Projects, Caroma, Landis+Gyr, Tropman & Tropman Architects, Big Switch Projects, Veolia, and The Packaging Stewardship Forum of the Australian Food and Grocery Council.

STC received considerable government support because of the public nature of The Wharf and the opportunity to transform this iconic, heritage-listed Sydney Harbour finger wharf – a NSW Government facility managed by Arts New South Wales (NSW) – into a publicly-accessible showcase of green technology in action. The project also contributed to the carbon reduction commitments of the NSW Government and Australian Government. Their support supplemented STC resources which encompassed marketing, media, sponsorship, philanthropy, event management and production staff, as well as additional contractors and consultants.

In the initial scoping phase, the State Government of NSW funded an initial energy and water review by sustainability experts Big Switch Projects, and provided in-kind support via project management services through the Government Architect's Office. STC raised significant in-kind corporate support from engineering, science and project delivery firm Sinclair Knight Merz, global leader in energy management and advanced metering technology Landis+Gyr, design architects Tropman & Tropman and professional services firm KPMG, which consulted and prepared the business case for this project.

Once the scope was agreed, the project attracted funding from private philanthropists, companies and all levels of government. In addition to the Australian Government's Green Precincts Fund support (\$1.2m), and the donation from the Shi Family Charitable Foundation (\$2m), three private gifts from individuals (Cameron and Ilse O'Reilly, Peter Hall and Laura Smith and David and Claire Paradise), brought in a further \$500,000 towards the total projected costs.

Welcome funds also came from a significant share of \$1.17 million from the NSW Government's Public Facilities Program (a combined application with Arts NSW who administer the grant on behalf of all tenants of Pier 4/5). In addition, Ausgrid became the lead corporate partner and STC's Energy Advisor for Greening The Wharf in a three-year corporate partnership.

While the majority of the project funds were raised, STC continued to seek additional corporate, philanthropic and in-kind partners.

### Dr Zhengrong Shi and UNSW

As a crucial component of Greening The Wharf, an extraordinary philanthropic donation of \$2m was made by the family foundation of Dr Zhengrong Shi and Mrs Vivienne Shi to help fund an ambitious and visible rooftop solar array. This unique



The UNSW School of Photovoltaic and Renewable Energy Engineering, which includes the Australian Research Council Photovoltaics Centre of Excellence, is internationally recognised for its research in solar cell technology. UNSW holds world records for first-generation silicon solar cell performance and has a substantial portfolio of patented technologies, commercialisation agreements and international awards.

partnership was brought about by the UNSW's School of Photovoltaics and Renewable Energy Engineering, providing a high-profile showcase for their world-leading photovoltaic (PV) technology on this major heritage-listed building.

Dr Shi is the founder, Chairman and CEO of Suntech, one of the world's largest manufacturers of PV cells. Dr Shi wished to raise awareness that the rapid development in PV technology is reducing the gap between the cost of producing energy from traditional sources and producing it from PV technology. His commitment represents an indication of his gratitude to the country that trained him.

"It is a pleasure to support one of the cultural centrepieces of Sydney to reduce its carbon footprint through these sustainability initiatives. I hope that this project increases the awareness of Climate Change and demonstrates the huge role that solar can play in mitigating carbon emissions in Australia today", Dr Shi said.



Major funders at the switching on of STC's photovoltaic array, 2010.

## Budget breakdown

For a company of its size, STC has displayed extraordinary commitment to its environmental program. Due to contract terms amongst the array of stakeholders and suppliers, the full details of the \$5.2 million Greening The Wharf expenditure are commercial-in-confidence however the major investments are represented in Figure 1 below. Concurrently, in 2010 STC invested more than \$500,000 across other community programs including education and regional touring.

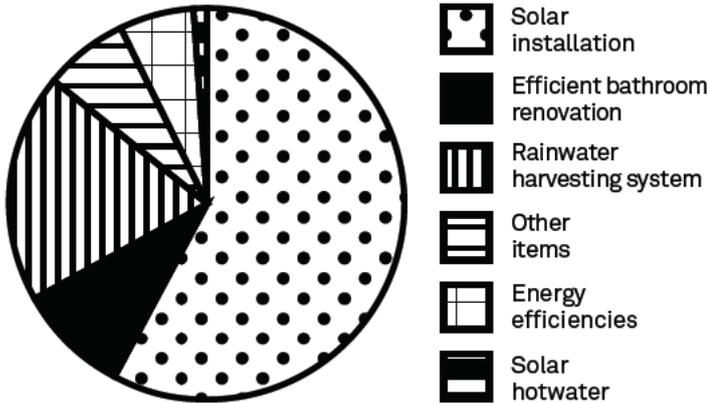


Figure 1: Greening The Wharf expenditure

## Timeline

- 2007 Initial concept proposed. Comprehensive Wharf-wide environmental audit completed.
- 2008 Base-line performance measured. Initial quick fix measures of water leaks and energy inefficiencies.
- 2009 Scope of project broadened. Funding from government and broader corporate sources secured.
- 2010 Streamed waste practices implemented. PV project completed. Wentworth Talks commenced.
- 2011 Green Design Policy implemented. Rainwater harvesting system completed. Advocacy plan broadened to include performing arts industry.

## Split incentive

Split incentives can be a barrier to implementing sustainable initiatives, because the higher capital costs of the project are 'split' or borne by the landlord yet the operating savings benefit the tenant. As the landlord of The Wharf premises, Arts NSW would not realise the majority of the financial savings from the delivery of Greening The Wharf, but it acknowledged its leadership position within the NSW arts community, and the ability of the industry to influence others to address Climate Change. The commitment and financial contribution of Arts NSW made the project possible for the non-profit arts organisations at The Wharf.

## Case studies

This is one in a series of case studies published on this website. These case studies and associated videos outline the key focus areas of Greening The Wharf.

**ENERGY** covers the landmark PV solar array and efficiencies.

**WATER** covers the extensive water efficiencies and below-pier rainwater harvesting system.

**WASTE** covers the best-practice waste reduction and recycling facilities at The Wharf.

**THEATRE PRODUCTION** covers the ongoing green transformation of STC's production processes.

**ADVOCACY** covers the continuous promotion of sustainability to the Australian and global arts community, education sector, business and general public.



Cate Blanchett addressing Media Call for announcement of NSW Government commitment, 2009.

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PROJECT CONSULTANTS  
Big Switch Projects

KPMG

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# Theatre production

## Summary:

Theatre is resource-hungry but it's possible to reduce the environmental impact through installing energy efficient lighting, the ethical procurement of timber, using less aluminium, and committing to a practical focus on re-using props, set elements and costumes across productions. Underpinned by Australian theatre's first Green Design Policy, since 2008 Sydney Theatre Company (STC) has reduced its timber purchases by more than 50% and cut half of its theatre lighting power demands in some areas.

## Greening The Wharf

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STC has invested in sustainable lighting technologies.

## The theatre challenge

*"It is estimated that 70% of a product's environmental impact is determined at the design stage. Designers and product developers can influence and reduce these impacts often through straightforward methods."*

Anita Roper, Chief Executive Officer, Sustainability Victoria

STC creates around 20 productions annually with a main stage season of 12 plays performed at The Wharf and Sydney Theatre (both at Walsh Bay) and at the Drama Theatre at the Sydney Opera House where STC is a resident theatre company.

In 2008, STC decided to reduce the environmental impact of its theatre productions. But theatre is different to the manufacturing industry, for example, which can replicate sustainable approaches across projects. Each theatre production is unique in every aspect from its size and materials to the people involved, making it hard to standardise an approach.

Theatre creation for a leading company like STC requires an element of 'magicianship'. To captivate audiences, it's necessary to fabricate a world-within-a-world to transport people to another place, time or atmosphere. Artistic integrity can't be compromised for a more sustainable production and the importance of keeping this balance needed to be factored in.

Dedication was required from both STC employees and external creatives – a challenge since external parties had varying degrees of commitment to green theatre philosophy (also an issue with suppliers). Encouraged, however, by the successes of its 'hero' infrastructural projects (See 'WATER', 'WASTE' and 'ENERGY') and the examples of other arts organisations also tackling their environmental impact, STC began its journey towards greener theatre production.

## The theatre solution

### Sets

The construction and design of theatre sets can use copious amounts of resources and materials. In late 2009, STC's Head of Set Construction, James McKay, travelled overseas to research international best practice in set construction. Supported by a Skills and Arts Development grant from the Australia Council, James visited several theatres and opera houses in the United States and Europe. His research contributed to the Company's Green Design Policy, launched in 2010 and underpinning all future STC productions.

### Lighting

*"We more than doubled the energy efficiency of our incandescent theatre lights, which means we can keep the lighting as bright as it was previously, but use less than half the power to do so."*

Graham Henstock, Head of Lighting, Sydney Theatre Company

# Green Design Policy

*"STC's Green Design Policy is a first for Australian performing arts and we're very proud to be working with our peer companies towards more sustainable theatre productions in the future."*

Annie Eves-Boland, Head of Production, Sydney Theatre Company

Late in 2010, a Green Design Policy was developed for all STC productions for the 2011 season onwards. An Australian first for the performing arts industry, the policy was developed by Mel Colvin, a veteran of the Theatre Production industry, in consultation with the STC production department, based on initiatives in the building and construction industries, other global performing arts organisations and government agencies.

The policy encourages designers to consider sustainability from the earliest stage of the design process and, where possible, to implement sustainable materials and processes in the construction phase. All creative contracts for 2011 productions included the policy as a standard condition.

The objective of the Green Design Policy is to reduce the impact of theatre on the environment and on human health by better purchasing decisions, using more efficient resources, sending waste to landfill and using less energy and water, and reducing the use of products containing toxic chemicals.

### Design & process

Where possible, STC:

- uses modular systems and components to help break down sets
- decides if components will be re-used, stored or recycled after the show
- disassembles sets into waste streams: timber, metal, aluminum, glass and plastics
- stores materials for future use or potential loan to other performing arts companies.

### Metal

Where possible, STC:

- favours steel over aluminum due to aluminium's less sustainable production cycle. (Aluminium is still used for some productions where strong, lightweight structures are essential.)
- re-uses, re-forms or recycles metals before the

After baseline measurement showed The Wharf's theatre lighting systems were consuming a lot of power, STC undertook detailed research into the emerging field of energy-efficient theatrical lighting technology. Aside from the Company's switch to solar power, it also took the following action:

*Upgraded all incandescent fixtures in The Wharf 2 Theatre.*

While LED and fluorescent lights are popular for domestic and commercial use, incandescent fixtures (light bulbs containing electrically-heated filaments) often remain the better choice for theatre due to their superior controls. However, optical technology development has led to incandescent theatrical lighting becoming significantly more energy-efficient.

*Invested in the latest range of lower-energy fluorescent and LED fixtures.*

STC installed fully tunable high-output LED lights that support appropriate colour temperatures and colour mixing for theatre, with a maximum output similar to that of a 70W metal halide. The lights enable lighting designers to experiment with greener alternatives to traditional incandescent fixtures. These lights came with entirely recyclable shells and are designed with material identification of components for disassembling at the end of their life.

*Set gross wattage caps for lighting designers.*

Lighting designers are required to limit the overall capacity of their designs to 190,000 watts in Wharf 1 and 120,000 watts in Wharf 2.

### **Props and furniture**

Where possible, STC:

- re-uses available props or sources second-hand goods as an initial consideration
- avoids reproducing furniture made from old growth rainforest timbers
- sturdily constructs such furniture (if it's required) to ensure a long life
- considers sustainable alternatives for prop finishes and aesthetic treatments, such as shellac and a beeswax blend of cabana wax.

### **Costumes**

Where possible, STC:

- experiments with alternative, local and sustainable fabrics like hemp and organic cotton
- sources vintage and second-hand clothing as an initial consideration
- re-uses costumes in rehearsals or future productions, and cleans, re-styles and re-uses wigs
- de-constructs old costumes and re-invents them as new garments for future productions.

# Green Design Policy

## *Timber*

Where possible, STC:

- tries to source timber with knowledge of its place of origin and avoids using old growth timber, particularly Lauan plywood sourced from old-growth rainforests in areas such as Borneo and the Amazon (often illegally logged and destroying natural habitats)
- replaces Lauan plywood with a range of products but mainly birch plywood from Northern Europe's Boreal forests, increasingly with Forest Stewardship Council (FSC) certification
- adapts and re-uses second hand timber for new sets (see Zebra! case study)
- stockpiles difficult-to-source or endangered vintage timbers, sanding them back to lengthen their usability and life
- works with suppliers to salvage timber from demolition sites
- tries to source timber with knowledge of its place of origin, and sources pine products from Australian and New Zealand plantations with reliable work practices
- uses engineered timber such as finger-jointed pine (a by-product of plywood manufacture) made of several layers of dimensioned timber glued together, instead of milled stick timber
- aims to build scenery with the capacity for re-use, and
- prioritises use of sustainable products such as Australian Weathertex®, made from compressed hardwood fibres which have no chemical additives
- avoids use of Medium Density Fibreboard (MDF) due to the formaldehyde glues used.

## *Paint*

Where possible, STC:

- uses low volatile organic compound (VOC) paints and finishes for scenic art construction to reduce harmful chemicals in the environment
- paints by roller instead of spray to minimise release of harmful particles.

## *Equipment*

Old equipment continues to be replaced by more resource-efficient or sustainably produced models where that information is provided by suppliers.

## The theatre results

Through a broad combination of measures, STC has:

- reduced the amount of timber purchased by 58% on pre-GTW levels – from 3007 m<sup>2</sup> in 2007 to 1271 m<sup>2</sup> in 2011. This reduction is even more pronounced when factoring in the number of productions the STC workshop produces each year – 231 m<sup>2</sup> of timber used per production in 2007 to 91 m<sup>2</sup> in 2011
- helped minimise illegal logging of endangered habitats and forests by avoiding old growth timber including Lauan ply wood
- tripled the energy efficiency of Wharf 2 incandescent fixtures meaning less power for the same level of light
- reduced the energy used by Wharf 1 and Wharf 2 by 40% through the wattage cap for lighting designers
- enabled lighting designers to experiment with greener lighting fixtures. Since most designers contract across several companies, they could influence other theatres to adopt similar practices with the potential to change the aesthetics of future theatre practice
- inspired other theatre companies to follow suit to help theatre, as a whole, become a more sustainable cultural practice.

## Everyone's responsible

Greening STC's productions required enthusiasm, vision and leadership from a broad scope of roles. At STC, the Artistic Directors help set the vision for the Company. The General Manager takes a leadership role to encourage and support employees. The Human Resources Manager ensures all managers and employees are aware of policies by including them in job descriptions and company inductions. The Director of Finance & Administration integrates sustainability objectives into relevant purchasing decisions. The Head of Production helps support implementation through to Production Managers, Production Department Managers, and various Heads of Production Departments. The Green Team is the mouth, eyes and ears of the Company to encourage, observe and share behavioural change at all levels. The team comprises employees from throughout the Company, meets regularly to plan initiatives and staff communications.

## Budget

\$

- Swap incandescent house-light globes with LED or halogen bulbs.
- File lighting gels at the end of productions for future use.
- Clean the lenses of your lights regularly and polish reflectors.
- Contact other companies and make use of their old materials.
- Measure and report on key metrics important to your company.
- Develop and implement a Green Design Policy.
- Look for opportunities to reuse old timber flattage where possible.
- Set a lighting wattage cap for future productions.

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- Upgrade older incandescent lighting fixtures for newer models.
- Use FSC and PEFC certified wood, post-consumer waste timber and source locally grown woods where possible.
- Replace Lauan plywood with birch plywood with FSC certification.
- Work with suppliers to receive chain of custody certification.

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- Embrace LED technologies.
- Explore alternative energy sources for your lighting systems.



Rare timbers are returned to their original finish and stored for future use.

## The theatre future

Theatre production will never be completely 'green' since resources are intrinsic to the art. STC will, however, continue to work conscientiously to lessen its environmental impact and hopes to evolve its theatre practice alongside new technologies as they develop, continuing the centuries-long marriage between science and the arts.

The Green Design Policy will be updated for 2012 productions, based on the lessons of 2011. These will be supported by STC's brand new 2012 Green Purchasing Guidelines to make sustainable and ethical purchasing central to how STC operates. These guidelines set minimum acceptable criteria and encourage use of alternate 'green' materials from existing or new suppliers.

STC's future plans include:

- helping to establish an Australian green performing arts group modelled on the UK's Greener Productions Initiative, together with Julie's Bicycle UK, supported by NSW Office of Environment & Heritage
- providing systems to help set designers consider end-of-use recycling and re-use for their materials
- leading by example by using FSC and Programme for the Endorsement of Forest Certification (PEFC) certified wood and sourcing locally grown woods, or engineered timbers where possible
- working with non-profit community recycling organisation, Reverse Garbage, to re-use production waste from paints, timber, fabric off-cuts and costumes.

## Productions

Many STC productions demonstrate the practical application of the Company's Green Design Policy. Overviews from 2011 productions Baal, The White Guard and Zebra! are published in the Productions section of the website: [greeningthewharf.com](http://greeningthewharf.com)

Learn more:  
[reversegarbage.org.au](http://reversegarbage.org.au)  
[seleconlight.com](http://seleconlight.com)

## Wood

The Australian theatre community uses a precious and dwindling resource as the primary construction material for cladding scenery. Luan plywood is a very attractive hardwood manufactured from old growth rainforest timbers. It is used for set construction because of its unique properties however there are serious concerns about illegal logging of the forests in which Luan grows, which often host endangered wildlife.

STC believes that behavioural change in theatre companies can promote environmentally conscious behaviour across all fields of the arts and, by using certified eco-friendly materials (timber, steel and paints) and investing in alternative timber sources to Luan plywood, it is leading by example.

## Steps

Identify areas of immediate action:  
lighting, set design, costumes, props

Research best practice locally and globally within performing arts and other industries

Establish relevant environmental performance indicators, for example, volume of materials or normalised measurement (measurement against number of visitors or number of productions per year)

Establish baseline measurements:  
identify key materials used, quantify yearly consumption, and identify gaps in records of excess/unused materials

Set targets of percentage improvements each year

Track and re-use theatre set materials where possible

Identify available funds and include in capital expenditure budgets

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# Waste

## Summary:

Following a detailed waste management review in 2008, Sydney Theatre Company (STC) implemented re-cycling systems in public and production areas. It began sending organic waste to a farm or to bioreactors, while a comprehensive Green Design Policy increased the re-use of materials used in productions. Meanwhile more efficient administration equipment reduced paper use and patrons were encouraged to switch from mailed communications to online. These initiatives resulted in a 30% reduction in overall waste and are now inspiring similar changes at arts companies across The Wharf.

## Greening The Wharf

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STC is a signatory to the national FluroCycle program.

## The waste challenge

*“Sets, costumes and marketing for a theatre production uses materials including wood, steel, plastic, aluminium, fabric and paper. Once the curtain comes down, STC tries to re-use or reform a large amount of these materials for future production. By reducing our waste and therefore our environmental impact, we are demonstrating that alternatives are available for all organisations.”*

*Martyn Nightingale, House Manager, Sydney Theatre Company*

When it comes to reducing waste, you need to know exactly what you're dealing with. STC wanted to reduce the volume of waste it was sending to landfill, however it identified 18 different waste streams that were generated in four disparate areas, each requiring a different approach.

First, the Company needed to reduce the impact of patrons attending performances (garbage, drinking cups, etc) and provide clearly signposted Public Place Recycling (PPR) options. Second, it needed to establish a policy for both sourcing and disposing of materials used for productions (sets, costumes, props, etc). This was complicated by the nature of the performing arts where no two productions are the same. Each is directed by a different creative team, uses different materials and has varied uses after the production is over.

Third, STC needed to 'green up' its administrative and marketing operations. And fourth, it needed to find a suitable recipient for the organic waste generated by The Wharf Restaurant.

## The waste solution

In May 2008 APC Environmental Management reviewed STC's waste management practices at The Wharf. This review identified waste types, quantities and disposal practices. While STC employees already had a strong commitment to re-using and recycling materials from front- and back-of-house areas, APC Environmental Management identified opportunities for improvement. The review created a base-line for waste data which determined the required waste collection infrastructure and highlighted the need to separate waste into different streams for recycling.

In public areas these streams were mixed paper, mixed containers and general waste. In back-of-house areas the streams included mixed paper, treated timber, untreated timber, plastic, lamp-fittings, batteries, organic waste and general waste.

### Public

With the results of the review in hand, STC contacted its waste service contractor Veolia to broaden the range and type of recycling systems available.

The Packaging Stewardship Forum (PSF) of the Australian Food and Grocery Council assisted in managing the front-of-house

## Bioreactors

Appropriate waste from STC is sent to Veolia's bioreactor site in South-East Sydney. Veolia operates two bioreactors - a leading form of alternative waste technology. Bioreactors accelerate the decomposition process and maximise the capture of biogas for conversion into green electricity (energy recovery). The rapid decomposition of waste and the biogas captured greatly reduces the escape of greenhouse gases into the atmosphere.

Veolia's materials recovery facility (MRF - pronounced "murf") is a specialized plant that receives, separates and prepares recyclable materials for marketing to end-user manufacturers.

areas and supported the range of waste solutions put forward by Veolia. The PSF invested in PPR at The Wharf and provided new recycling bins and instructional signage. A supporting education campaign was launched to explain how visitors, STC employees, patrons, cleaners and waste contractors could co-operate to make the recycling strategy a success.

Plastic cups were chosen by The Wharf Restaurant and Sydney Dance Café over glasses (which use a lot of water for cleaning) or waxed paper cups (which are not recyclable). Thanks to the PSF partnership, patrons can now recycle plastic water cups in mixed container bins in the foyers after use.

The boardwalk area between the two finger wharves is a popular spot for school groups and visitors to enjoy lunch but it can also be a place where litter collects which sometimes ends up in the Harbour. For many years, placing bins in this area has been a contentious issue of jurisdiction and ownership. However, inspired by Australian Theatre for Young People and Greening The Wharf, the Walsh Bay Precinct Management Association plans to place a bin on the boardwalk in early 2012.

### Production

The production and rehearsal departments at STC embarked on some meaningful shifts in how they operated. This was underpinned by a new Green Design Policy aimed, first, at reducing waste generation and second, at reducing unavoidable waste going to landfill. The policy was written around the concepts of reduce, re-use, recycle. (See 'THEATRE PRODUCTION' case study). It was acknowledged that while breaking down sets into component parts for recycling does take more time, the process greatly reduces waste going to landfill. This step has since been incorporated into production processes and budgeting.

Following the lead of the Gondwana and Sydney Philharmonia Choirs, who keenly recycle their scores sheets, STC scripts

were printed double-sided, and paper recycling bins were put in rehearsal rooms to dispose of old scripts. Across The Wharf, choristers, actors, dancers and STC employees were given reusable water bottles to top up from filtered water systems to reduce disposable plastic bottles.

Accessible Arts, also based at The Wharf, chooses not to store old, unwanted items. If things aren't being used, they are given away.

#### Administration

The STC Box Office began encouraging patrons to opt into online communications, in order to reduce printed promotional material. STC works with printers who use ethical printing practices, and ticket paper is sourced exclusively from forests observing sustainable growth guidelines, while ticket backgrounds are printed using a digital, chemical-free process.

STC Marketing has progressively reduced its printed collateral. The majority of STC's direct marketing communication is now via email, rather than paper mail, and the Company has reduced print quantities of promotional materials despite increasing audience numbers. All old material is either archived or recycled and out-of-date advertising posters are re-used as folders and notebooks for office use. In-house administration printing is kept to a minimum and STC's printers use soy-based inks along with recycled paper stocks.

STC has started replacing its own inefficient and duplicated office equipment. A new energy-efficient administration photocopier is used to reduce paper use by receiving faxes electronically and scanning hard-copy documents for company wide distribution via email.

#### Organic waste

The 150-seat Wharf Restaurant began directing a small amount of its daily organic waste to the chef's farm for composting. Other organic waste is taken to Veolia's Earthpower facility to be processed by anaerobic digestion to produce green energy and nutrient-rich fertiliser.



Correct waste separation of waste is encouraged.

## Play your part

Interested in reducing the environmental impact of waste from your own home? The Australian Conservation Foundation says composting is a great start. When food scraps and garden waste are combined with general household rubbish at landfill sites, methane gas is produced and released into the atmosphere. Methane is 23 times more potent than carbon dioxide as a greenhouse gas.

On average, 50% of rubbish sent to landfill is food and garden waste. If this material were composted or mulched, there would be a significant reduction in greenhouse emissions from landfill. When one tonne of organic waste is diverted from landfill, nearly a third of a tonne of greenhouse gas emissions is saved.

The easiest way to deal with food waste is to set up a worm farm or a compost heap at your home. You don't need a big garden to do this. Apartment dwellers can set up small worm farms on a balcony or invest in Bokashi Bins then dump the waste at a local community garden. For more tips visit [www.acfonline.org.au/greenhome](http://www.acfonline.org.au/greenhome)

## The waste results

Over two years, STC and other Wharf organisations have implemented best practice methods to significantly reduce the waste they send to landfill. STC's waste targets were to:

- reduce polyethylene terephthalate (PET) bottles and aluminium cans in waste bins by 50%
- achieve less than 10% contamination in recyclable materials
- reduce levels of general waste sent directly to landfill
- change employee and visitor behaviour and teach them to dispose of recyclables correctly
- increase energy recovery and materials recovery for all waste from The Wharf
- determine and implement materials' management around the reduce, re-use, recycle philosophy
- increase awareness of Veolia's Earthpower facility.

Measurements of the various waste streams were collected monthly by PSF and Veolia. The recording system measures tonnes of waste to landfill and provide solid baselines to help STC measure further waste reductions.

The first baseline figures available are for the half-year period from July to December, 2009 and show:

- STC and The Wharf Restaurant generated approximately 152 tonnes of waste. Extrapolated, this represents 304 tonnes for

the full-year period.

- Twenty-three per cent, or 35 tonnes over six months of this waste (or 70 tonnes for the year), was earmarked for materials' recovery (recycling). 234 tonnes went to landfill.

Efforts continued in 2010. For that full-year period:

- STC stopped sending any waste to landfill.
- STC and The Wharf Restaurant generated approximately 220 tonnes of waste, representing a 28% reduction on previous year levels. This demonstrates that consumption reduced significantly due to on-site re-use of production wood and other elements.
- Ninety-five per cent, or 209 tonnes, was sent to bioreactors for energy recovery and the remainder was recycled.

It should be noted that during 2010, Veolia changed the classification of painted timber, meaning it couldn't be directly recycled for pulp/paper use, and was instead sent for energy recovery.

For the period January-October 2011:

- STC continued to not send any waste to landfill.
- STC and The Wharf Restaurant generated approximately 215 tonnes of waste, representing a further reduction on the previous year's levels (calculated by extrapolating monthly figures).
- Ninety-one per cent, or 195 tonnes, was sent to bioreactors for energy recovery and the remainder was recycled which almost doubled recycled materials from previous years.
- Converted eight tonnes (the weight of an adult male elephant) of organic waste from The Wharf Restaurant into organic fertiliser/compost.
- Recycled more than one tonne of beverage containers.



Organic bins for Restaurant waste are also provided.

## Budget

If your organisation creates lots of waste you can reduce and re-use to become more efficient and save money. The NSW Office of Environment and Heritage advises a range of steps depending on your budget:

\$

- Conduct a waste audit with your Green Team.
- Measure your baseline and set stretch targets.
- Reduce, re-use, recycle, recover.
- Start a waste committee.
- Raise awareness about waste minimisation.
- Find recycling partners to share costs.
- Join the national FluroCycle program.

\$\$

- Recover valuable and usable components before they go to the waste stream.
- Engage a streamered industrial waste service.
- Stop buying unnecessary goods and services
- Store and re-use goods

\$\$\$

- Buy a storage system or engage an external contractor to manage old stock

Learn more:

[recyclingnearyou.com.au](http://recyclingnearyou.com.au)

[veolia.com.au](http://veolia.com.au)

[environment.nsw.gov.au/sustainbus/index.htm](http://environment.nsw.gov.au/sustainbus/index.htm)

[www.acfonline.org.au/greenhome](http://www.acfonline.org.au/greenhome)

## Future waste reduction

*“Theatre can be a resource-hungry art and we are thrilled Sydney Theatre Company not only no longer sends waste to landfill, but has significantly reduced our overall waste levels. We are very grateful for the support of all our partners and supporters as we continue our ongoing efforts.”*

Patrick McIntyre, General Manager, Sydney Theatre Company

Waste is the next big horizon for STC and other Wharf companies. The Company’s Green Design Policy journey continues, with opportunities to further overhaul production processes. The re-use of production materials is only possible, however, if a theatre company’s storage system is well documented and managed. STC’s current storage facility is at capacity, and while many current productions are dismantled and re-used, many are sent for energy recovery and recycling. While STC’s storage remains full, the Company is working with community recycling experts Reverse Garbage to re-use materials.

Other Wharf companies including Sydney Dance Company and Bangarra Dance Theatre have embraced re-use production philosophy. They integrate previously used materials early in the design process, re-using most elements from their set construction so there are future opportunities to share knowledge between production teams. Another future opportunity is to use a single waste service provider for waste management across The Wharf.

Coupled with ongoing industry and visitor advocacy, waste reduction will remain an area of focus for STC and all arts tenancies at The Wharf.

## Education

The success of any waste management project relies on the active co-operation of everyone involved. Clear bin signage, an internal and public communication plan and supporting education are crucial elements. For example, cleaners handling recyclables incorrectly may result in those materials being unnecessarily sent to landfill.

In the early stages of STC’s project, some employees admitted they didn’t find signage easy to interpret so the design was corrected. STC was assisted in its education efforts by PSF, and has since added instructions to its waste signage.

## Capacity building

The PSF represents the interests of Australia’s major beverage manufacturers and their packaging suppliers. It works with organisations across Australia to reduce littering and increase recycling.

PSF provided financial support, mentoring and strategy advice to STC. It helped with bin infrastructure and education for the long-term success of the waste strategy. The project formed part a key part of the PSF’s national rollout of ‘away from home’ recycling for all major stadia and entertainment venues across Australia.

## Steps

Measure baseline recycling rates and current waste management practices.

Identify opportunities for improvement.

Analyse the feasibility and cost-benefit ratio of recommended waste management initiatives with senior management and operational and maintenance personnel.

Implement prioritised projects.

Establish an employee and community awareness program to promote reuse of materials, recycling and waste minimisation.

Continually monitor the waste-performance indicators used.

Periodically review latest techniques to increase recycling and maximise material re-use.

GREENING THE WHARF IS MADE POSSIBLE THROUGH THE SUPPORT OF

### RECYCLING AND WASTE

WASTE SERVICES  
Veolia

WASTE INFRASTRUCTURE  
The Packaging Stewardship Forum of the  
Australian  
Food and Grocery Council

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SHI'S FAMILY FOUNDATION  
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This project is supported by  
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DAVI A LAIRE PARADICE



Energy Advisor to  
Greening The Wharf

This project is supported by funding  
from the Australian Government  
under the Green Precincts Program



# Water

## Summary:

With the help of key partners, Sydney Theatre Company (STC) rectified leaking plumbing, replaced its toilets with the most water-efficient devices available, installed water usage monitoring, and surmounted several engineering challenges to install a rainwater harvesting system under the pier. The system supplies 100% of the non-potable water to all Pier 4/5 amenities, and together with other initiatives, is expected to save around 11.3 million litres of water each year.

## Greening The Wharf

Theatre has always been a place for exploring the great issues of the day. In this tradition, STC has created an ambitious and multifaceted environmental sustainability project called Greening The Wharf under the leadership of Co-Artistic Directors Cate Blanchett and Andrew Upton.

The scale and comprehensive approach to sustainability makes Greening The Wharf a first for any major theatre company globally. The program encompasses infrastructure projects, Company-wide behavioural change, environmentally responsible theatre production, community engagement and education. Aided by generous support from an array of partners, STC has invested in solar energy, rainwater harvesting, energy efficiency measures and best practice waste management.

Greening The Wharf continues to transform the beautiful, heritage-listed Wharf building on iconic Sydney Harbour into an inspirational and international example of environmental leadership in the 21st century.

Case study series  
made possible by



SKM Schematic of rainwater system, 2010.

## The water challenge

*“The Wharf continues to develop as an example of how buildings, even heritage-listed ones, can be made more sustainable. We hope that the introduction of this innovative rainwater harvesting system will be a wonderful legacy for future users of the space, as well as another catalyst for the development of a unique green arts precinct.”*

*Andrew Upton and Cate Blanchett, Co-Artistic Directors, Sydney Theatre Company*

The second-biggest infrastructural challenge for Greening The Wharf, after clean energy, was water conservation. The rainwater falling on its enormous roof was flowing into the harbour or storm-water drains – a wasted opportunity to reduce STC’s demand on mains water supply. Australia’s dry climate, the rising cost of mains water, more frequent periods of drought and the impact of heavily-populated and growing cities like Sydney on reservoir levels were further motivation to act.

The water usage at The Wharf is considerable. In addition to the visits by up to 300,000 people annually to see STC performances, Sydney Dance Company hosts 65 classes a week, with around 70,000 participants through its doors every year. Together with hundreds of employees working on the pier each day, the bathrooms across The Wharf are used extensively.

As The Wharf is a NSW Government facility, Arts NSW began by auditing the building’s original water infrastructure. Investigation by boat revealed leaking pipes beneath The Wharf, and a review of facilities identified the need to upgrade the original 1983 bathrooms – which were still using antiquated nine-litre single flush cisterns – and to fix leaking pipes across the building.

Meanwhile, research began into a rainwater harvesting system to collect, store and distribute water throughout the 200 meter long pier. The rainwater system needed to store a significant volume of water and be able to revert to town water if there were no rainfall or a power outage. It also needed to factor in The Wharf’s unique structural, aesthetic and heritage considerations.

Mindful of the engineering complexities ahead, STC assembled a cross-functional team to lead the way. Lead by Big Switch Projects, the Australian team included engineering firm Sinclair Knight Merz (SKM), building service engineering consultancy Steensen Varming and bathroom manufacturer Caroma.

## Australian technology

Leading Australian companies have supported this water initiative such as Australian projects firm Sinclair Knight Merz (SKM). SKM solved the issue of finding enough room to store a large volume of water for a building positioned over water.

Caroma is Australia’s only manufacturer of sanitary ware, with state-of-the-art facilities in NSW and South Australia. STC was attracted to Caroma’s commitment to sustainability and its strong local manufacturing presence.

*“We are delighted to be part of this important initiative which will see a significant reduction in water use by Sydney Theatre Company and the public in the coming years through the use of water efficient toilets and urinals.”*

*Deborah Evans, Marketing Manager, Caroma.*

Water consultants Steensen Varming provided the specialist detail to develop the baseline measurements and helped to identify leakages at STC and other Wharf tenants.



Artistic Directors from The Wharf at Rainwater Harvesting Media Call, 2011.

## The water solution

With the help of key partners, STC inspected all supply plumbing on Pier 4/5 and rectified all leaks, overhauled its toilets to feature the most water-efficient devices available on the Australian market, installed water usage monitoring and surmounted several engineering challenges to install a rainwater harvesting system under the pier.

The rainwater harvesting system provides non-potable water to all Pier 4/5 amenities, supplying 100% of the building's demand. Originally, the system was originally intended for STC-use only. However, after discussions with Arts NSW and tenants at The Wharf, its scope was broadened to supply all Wharf tenancies and its storage structure and capacity increased accordingly.

STC then turned its attention to where the majority of water was being used: the public bathrooms. In 2009, Caroma helped STC replace its toilets and urinals with highly water-efficient alternatives. To achieve even further water savings, STC replaced its air-conditioning system, an air-cooled 'evaporative cooling' system, with water-cooling towers featuring a 'closed loop' air-cooled system.

By August 2011, the rainwater harvesting, storage and reticulation system was complete, and officially launched with a media call on September 2. Designed by Australian engineering firm Sinclair Knight Merz (SKM), the innovative rainwater harvesting system is the first of its size and scale in Australia and one of only a few in the world.

The system harvests 80% of rainwater from The Wharf's vast roof and stores it in a huge pipe running nearly 445 metres beneath the pier. It has a storage capacity of 100,000 litres and its intent is to supply 100% of The Wharf's demands for non-potable water (non-potable water must not touch human hands).

The rainwater harvesting system was funded by the NSW Climate Change Fund through the Office of Environment and Heritage. Arts NSW administered the grant on behalf of all tenants of Pier 4/5, enabling the innovative rainwater harvesting project as well as other water and energy efficiency projects.

The project was also supported through the Green Precincts Fund, an Australian Government initiative to prepare Australia for a future with less water, and to encourage local communities to better manage their water and energy use for current and future generations.



Completed rainwater pipe under Pier 4/5, 2011.

# Water harvesting calculation

One millimeter of rain on one square metre of roof equals one litre. To calculate the approximate amount of rainwater you are likely to harvest, STC used the following formula:

Average annual rainfall (millimetre) x coefficient (0.8) of runoff x roof area (metres<sup>2</sup>) = Water volume (Litres)

A coefficient of runoff of 0.8 is used to obtain a conservative estimate.

Total annual 1215 mm/hr x 0.8 x 5745 m<sup>2</sup> = 5,584,140 litres/annum

## Technical details

### Leaking pipes

- Water meters were upgraded to track usage volumes, patterns of use, identify any unusual flows, supply real-time data and confirm the efficacy of any repair works.
- This measure revealed leaking pipes concealed beneath The Wharf which were promptly discovered and repaired.

### Bathroom refurbishment

All of the Caroma bathroom fittings have the highest Water Efficiency Labeling and Standards (WELS) rating possible, as follows:

- Caroma Cube six star WELS urinal suites. Australia's first six-star WELS-rated urinals, these replaced an 11 litre per flush timer system with a sensor-managed system that uses just 0.8 litres per flush/ unit.
- Caroma Smartflush 4.5 WELS rated toilet cisterns. The 4.5/ three litre dual flush system reduced volumes by more than half compared to the old nine litre per flush cisterns.

The NSW Government through Arts NSW then replicated this initiative at the Sydney Philharmonia Choirs, Sydney Dance Company and Bangarra Dance Theatre premises.

### Rainwater harvesting system

SKM engineers designed an innovative rainwater harvesting system to address STC's four main challenges.

1. *The tank needed to accommodate a significant volume of water without impacting the activities of the Arts companies housed at Pier 4/5.* The Wharf is set on timber, steel and cement piles, and as a flexible structure it is subject to movements in the sea-bed floor, wind pressure, berthing of vessels and temperature. A rooftop solution was considered

but deemed unsuitable due to the weight it would put on the roof structure (every 1000 litre of rainwater tank would result in 1 tonne of weight added to the The Wharf slab). Running the pipe beneath The Wharf addressed these concerns by distributing weight evenly across the underside of structure.

2. *STC's water and sewage service needed to align with government and environmental standards.* Sydney Water advised that the harvested non-potable water could not be used with dyeing troughs, paint washup areas and washing machines. These elements were therefore removed from the scope of works by NSW Public Works.
3. *Urban rainwater collection deals with extra contaminants such as dead airborne vermin (bats, birds, etc), dirt and dust.* This was addressed with a built-in, first-flush system, plus a rigorous maintenance cycle for water filters.
4. *Toilets still need water in the event of limited rainfall.* The system automatically reverts to town water if there's a power outage or no rainfall for a long period. Assuming an 80% capture efficiency of rainfall on the 5745 m<sup>2</sup> roof space, the system requires approximately 22 mm of rainfall to fill the tanks (based on 152 years of average rainfall in mm/hr at Sydney Observatory Hill weather station). See calculation in box.

#### Installation

Grateholt Plumbing built external scaffolding to ensure construction was independent of the harbour's swells and tidal movements. By the numbers, the project took more than 3,000 man hours to complete and involved:

- 935 meters of Aquatherm pipe linking the toilets to the rainwater system
- 445 metres of 525mm diameter storage pipe under the pier
- 295 stainless steel brackets supporting the storage pipe
- 600 stainless steel bearing plates
- 490 metres of stainless steel support rod
- more than 2,000 stainless steel nuts for connections and setting the pipe to a slight gradient.

#### Summary

Rain is now captured from The Wharf's vast roof and connected to all downpipes which flow into the 445 metre pipe suspended beneath the pier. Water is then pumped through a reticulation system to all non-potable water outlets.

The storage pipe under The Wharf is a modular system allowing sections to be taken offline during heritage maintenance work to the pier's timber sub-structure. The rainwater harvesting can continue independently of this – an engineering feat which maintains water efficiency whilst upholding heritage requirements.

# Capacity building

The rainwater system is unique and, given The Wharf's structural and heritage context, it's a first in Australia. The project was a significant opportunity for capacity building, particularly for NSW Public Works who managed the project on behalf of Arts NSW. Grateholt Plumbing was selected to undertake the complex installation works and worked in close consultation with NSW Public Works.

## The water results

*"We are pleased that early data for the first few months of operation indicates the rainwater tank is on track to achieve projected savings."*

*Steve Simpson, Australian and New Zealand Regional Manager for Social Infrastructure, SKM*

Previously, rainwater was either discharged to the storm water drain or ran into the harbour. Now, STC has a harvesting system that captures 80% of rainwater on the roof, has a storage capacity of 100,000 litres and supplies 100% of non-potable water to all tenants on The Wharf.

Working with Arts NSW and NSW Public Works, STC's system supplies water to Bangarra Dance Theatre, Sydney Dance Company, Australian Theatre for Young People, Sydney Philharmonia Choirs, Regional Arts NSW, Accessible Arts, The Song Company, Gondwana Choirs, Ausdance and Sydney Children's Choir.

At the time of writing a full year of data was not yet gathered, however through a combination of bathroom upgrades, leaking pipe repairs, new water-efficient equipment and the rainwater harvesting system, STC is on track to:

- Reduce its water consumption by around 60% (from around 15m litres per annum to around 5m litres per annum).
- Save around 11.3 million litres of water (the capacity of over four Olympic swimming pools)
- Demonstrate it's possible to work around 'business-as-usual' on a major infrastructural project – an important consideration for active arts organisations. STC, Sydney Dance Company and Bangarra rehearsals and performances continued throughout the installation of the system but careful sequencing meant no significant disruptions were experienced.

## Heritage issues

For a heritage or existing building, a rainwater harvesting system is often considered more effective and cost-efficient than retrofitting a black-water harvesting system.

Since 1984, STC's base has been The Wharf building on Pier 4/5 at Walsh Bay. The Wharf stretches 200 metres out into glistening Sydney Harbour and, just 250 metres from the Sydney Harbour Bridge, is one of the world's most inspirational settings. The Wharf is part of the NSW heritage-listed Walsh Bay precinct and is one kilometre from The Rocks area of Sydney, which attracts huge numbers of sightseers every day to enjoy its 'old Sydney' feel and heritage sites.

The Walsh Bay Precinct is a revitalised inner city development where high-quality residential, commercial and retail spaces thrive in the restored surroundings of this historic maritime precinct. The redevelopment of Pier 4/5 has received numerous accolades for its adaptive re-use (the process of adapting old structures for purposes other than those initially intended). Architect Vivian Fraser in association with NSW Government Architect was awarded the 1985 Royal Australian Institute of Architects NSW Chapter Sulman Award, the President's Award for Recycled buildings, and then the 25 Year Award For Enduring Architecture.

The rainwater harvesting system is the first to be installed on a Sydney finger wharf and the first to be approved by the NSW Heritage Council. The rainwater piping system is painted dark grey to blend in with the heritage surroundings. The below-pier storage system disperses the weight of the water over a large area and minimises the impact on the heritage building.

The age and location of the site created a number of technical and procedural challenges for the project including NSW Heritage Council approval and design. However, STC's successful installation of the rainwater harvesting system on this high-profile, heritage-listed building positioned over water proves that, as long as a location is found for the storage vessel, it's possible for other heritage buildings too. The project sets an important precedent for future water conservation systems on significant heritage architecture.



In 2010, STC Residents and Staff officially opened the upgraded public bathrooms by Caroma

## Budget

Water scarcity and prices are set to increase in coming years. Even if your home or business doesn't use much, it's incumbent on everyone to be more water wise. Sydney Water offers the following suggestions:

### \$

- Measure usage, set baselines and reduction targets.
- Read water meters regularly.
- Read water meters when no one is in premises to assess if you have leaks.
- Inspect your water equipment regularly.
- Ask your water authority to help.
- Raise awareness about water minimisation.
- Get shower timers and have showers and taps fitted with reducers.

### \$\$

- Fix leaking plumbing.
- Install water-efficient appliances and fittings.
- Integrate WELS water efficiency into major purchasing decisions.

### \$\$\$

- Replace inefficient toilets and dishwashers.
- Install a waste-water capture and re-use system.
- Install rainwater tanks for non-potable water use.

Learn more:

[waterrating.gov.au](http://waterrating.gov.au)

[smartwatermark.org](http://smartwatermark.org)

[greenplumbers.com.au](http://greenplumbers.com.au)

[savewater.com.au](http://savewater.com.au)

[caroma.com.au](http://caroma.com.au)

## The water future

The rainwater harvesting system can be expanded if there's more demand for non-potable water in coming years. "The system has a warranty period of 20 years but because the modules are heavy-duty fibreglass, have no moving parts and are not exposed to sunlight, the lifespan could well be extended," said Chris Stammers, Project Manager, NSW Public Works. Regular and effective maintenance to indicate replacements for the pump, filters and water meters will also help extend the system's lifespan.

In the meantime, The Wharf companies will continue their advocacy efforts about water conservation.

## Steps

Assess and identify baseline water use.

Analyse the cost-benefit ratio of recommended water efficiency initiatives.

Analyse the feasibility of a rainwater capture system and plumbing costs.

Secure funds to implement top-priority projects.

Develop and implement a water awareness / conservation program for users.

Monitor and review water performance indicators on an ongoing basis.

Review latest water saving technologies and assess for future use.

*"The Australian Government has been proud to support the Sydney Theatre Company's Greening the Wharf project which is a great example of innovative energy and water-saving technologies being put to use in the urban environment."*

Senator the Hon. Don Farrell,  
Parliamentary Secretary for Sustainability and Urban Water, Australian Government

## Advocacy

Education and community engagement about water conservation has been a major project component from the start. All aspects of The Wharf's efforts demonstrate best practice in water conservation and aim to inspire other Australian homes and businesses to play their part too. STC communicated to its 16,000 subscribers and around 300,000 theatre goers through its online communications, theatre programs and website.

The Wentworth Group of Concerned Scientists holds regular presentations at the STC. In 2010, highly-regarded water management expert Professor Mike Young spoke about the development of integrated and sustainable management of Murray-Darling Basin water resources.

School groups and casual visitors to The Wharf are invited to visit the STC Green Screens to follow the progress of the rainwater storage project, including a time-lapse video of the huge pipe being installed.

*"It is impressive to see arts companies and Government working together to make real change happen. I hope the Greening The Wharf model will inspire other organisations and businesses around Australia, and the world, to act as well."*

Rafael Bonachela,  
Artistic Director, Sydney Dance Company

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RAINWATER HARVESTING AND WATER CONSERVATION

PROJECT MANAGEMENT  
Services NSW:  
Public Works & Arts NSW

FEASIBILITY AND CONCEPT  
DESIGN  
**SKM**

WATER CONSERVATION  
CONSULTATION  
Sydney Water's Every  
Drop Counts

BATHROOM FITTINGS  
Caroma

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Energy Advisor to  
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**Appendix 4**  
**STC Green design policy**



GREENING  
THE WHARF



## GREEN DESIGN POLICY

### 1. Policy Statement

"It is estimated that 70% of a product's environmental impact is determined at the design stage. Designers and product developers are in a key position to influence and reduce these impacts, often through straightforward methods."<sup>1</sup>

Sydney Theatre Company (STC) is committed to incorporating green design initiatives for all productions designed and built in-house from 2011 onwards. The guiding principal for the development of this policy is the ongoing commitment to the Greening of the Wharf project, a dynamic environmental strategy commenced in 2008.

This policy will focus on developing sustainability in designed products for STC productions, including set elements; scenic art; costumes; props; lighting and sound installations and operations.

Where practicable, designers will consider the use of the most ecologically sound products and processes at the pre-design stage and throughout the construction phase of the production. Designers will work in collaboration with STC staff to research and implement green design initiatives, and ensure that materials purchased to complete design elements include cost competitive sustainable products that are readily available and meet the design criteria.

### 2. Aims

The aims of this policy and procedures are to:

- Lead, educate and inform the arts and wider community of the significance of effective incorporation of green design practices into the theatre production process;
- Foster well designed, practical and sustainable working and presenting environments for performers, theatre practitioners and audiences;
- Create theatre productions that minimise the consumption of natural resources;
- Introduce an appropriate framework for inclusion of green design initiatives into all STC productions.
- Contribute to meaningful reductions to STC's carbon footprint in order to assist in reaching STC's target of carbon neutrality by the end of 2011.

<sup>1</sup> *Design for Sustainability – D4S and WPS Environmental*

#### Green Design Policy

Date: 27 Aug 2010  
Review date: July 2011  
Document / Version #: V. 3.1  
No. of pages: 1 of 5

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Status: FINAL  
Department: Production  
Author: M.Colvin  
Contributor: R.Brookman

### 3. Definitions

Sustainability: Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.<sup>2</sup>

Green design initiatives: Ideas that support the move to sustainable productions that include commitments to reducing greenhouse gases, increasing the use of renewable energy, conserving energy and water, minimising waste, recycling and increasing sustainability in STC productions.

### 4. Application

This policy applies to all aspects of design for STC productions including sets, props, costumes, lighting and sound covering the pre-design, construction, post production and disposal phase.

### 5. Responsibilities

#### 5.1. Casting Director

Ensure that all directors and designers are aware of this policy through inclusion in contracts and contract negotiations.

#### 5.2. Director

Take a leadership role in arriving at creative solutions with the design team through inclusion of this policy in discussions during the design phase.

#### 5.3. Head of Production

Include additional funds in budgets from 2011 onwards to allow for green design initiatives to be researched, tested and adopted in line with this policy.

Ensure that Production Managers, Production Department Managers and Heads of Departments have been made aware of this policy and provided with appropriate knowledge and support to engage with designers on this policy.

#### 5.4. Production Manager

Ensure that designers have been made aware of this policy and provide opportunity in design parameters meetings, design presentations, construction meetings and production meetings to discuss green design initiatives.

Document green design initiatives implemented for productions in Production Meeting minutes and copy to Greening project manager.

#### 5.5. Production Department Managers and Heads of Departments

Provide designers during the pre-design, design and construction phase support and information on known green products and procedures that will assist the overall sustainability of the design.

Where possible, from a cost and time perspective, actively engage with the designer to research alternative eco products that could be used to complete the design.

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<sup>2</sup> 1987 World Commission on Environment and Development (*the Brundtland Commission*)

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Where applicable, provide samples of sustainable materials to be considered for use so that the designer can determine the design implications.

Encourage designers to use stock set elements from sets, props and costumes stores.

## 5.6. Designers

Consider green design initiatives in the development of any designs for Sydney Theatre Company.

Research and investigate the use of sustainable materials in the design including the re-use and recycling of existing stock items.

Consult with the Production Manager, Heads of Departments and suppliers in regards to sustainable products and procedures that may be available for use and minimise the carbon footprint of the design.

Consider the impact the design may have on the environment including materials, construction processes, transport and delivery impacts, operation and maintenance during use, and end-of life disposal options.

Adopt the use of some sustainable materials and processes in the construction phase of the design in consultation with the Production Manager, Production Department Managers and Heads of Departments.

## 6. Procedure and Guidelines

It is important that the sustainability of the design is taken into account at the earliest phase of the design as possible. This will ensure that the best green practices can be evaluated and tested in advance of products being purchased for use and construction procedures implemented. Consideration will be given to green design initiatives at the following stages of the design process:

- Parameters Meeting
- White Card Model Presentation
- Final Design Presentation
- Build Period
- Bump-out and Disposal

When needed, expert consultation shall be employed to assist with the implementation of green design initiatives.

### 6.1. Set Designer

#### Materials

All timber built scenery will be constructed from non-old growth timber. To the greatest extent possible, only certified timber with a chain of custody will be used. Preference should be given to Australian and New Zealand products that assist in minimising transport requirements.

Where metal framing is required steel should be used, where practicable, in preference to aluminium as aluminium has the least sustainable life cycle.

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Designers must consider the re-use or recycling of suitable stock materials that can be adapted for use in the design.

Sustainable alternatives must be considered for the application of set dressing finishes and aesthetic treatments, i.e. plaster as opposed to polystyrene.

### Set construction

Sustainable procedures must be considered in the set build. Procedures that require excessive use of highly unsustainable materials must be assessed and managed appropriately to limit the creation of harmful emissions, use of excessive transport, or sending non-biodegradable and / or chemical waste to landfill.

### Props

Designers must consider the re-use or recycling of suitable stock props or second-hand goods that can be adapted for use in the design.

Limits should be put on the purchase of new reproduction furniture that is supplied without a chain of custody and predominantly constructed from old growth rainforest timbers.

Sustainable alternatives must be considered for the application of props finishes and aesthetic treatments.

### Scenic Art

Designers must consider the use of sustainable paint finishes and coatings, especially low VOC (volatile organic compounds) paints, in consultation with the Head of Scenic Art. Low VOC paints and finishes reduce the emission of harmful compounds into the environment through the manufacturing and painting process, and reduce the level of harm in waste water at the clean-up stage.

Where possible, paint should be applied by roller with pressurised spraying being limited to specialist applications. This will assist in minimising the release of harmful particles into the environment.

## **6.2. Costume Designer**

### Materials

Designers must consider the re-use or recycling of suitable stock materials that can be adapted for use in the design including costumes, undergarments, shoes, wigs, and accessories.

Sustainable alternative fabrics must be considered for use where possible. Costume designers are encouraged to explore the use of predominantly Australian made fabrics and sustainable fabrics, like bamboo textiles.

### Wigs

Wigs will be constructed from recycled stock items. New wigs will only be constructed if current stock cannot meet design criteria.

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## Costume construction

Sustainable procedures must be considered in the costume build. Procedures that require excessive use of water, chemicals, or highly unsustainable materials must be assessed and managed appropriately to limit the creation of harmful emissions and waste water, use of excessive transport, or sending non-biodegradable and / or chemical waste to landfill.

### **6.3. Lighting Designer**

Designers are encouraged to research, test and explore the use of new LED and low energy lighting fixtures in STC productions. Some new “green” equipment will be available for trial and show purposes in Wharf 1 and 2 productions. A list of available equipment is available from the Head of Lighting.

To assist in the reduction and management of STC’s energy consumption at the Wharf, Lighting Designers of Wharf 1 and Wharf 2 productions are asked to design a rig in line with existing lighting infrastructure and lighting fixtures available at STC and to not exceed the following gross wattage caps:

- Wharf 1 – 190,000 watts
- Wharf 2 – 120,000 watts

The energy usage caps are based on current trends measured across several productions in each venue and should be adequate for the vast majority of lighting designs. If the genuine need arises to exceed these caps, the agreement to do so rests with the Head of Production and Head of Lighting.

### **6.4. Sound Designer**

The Sound Designer must consider all areas of sustainability in the process of developing the sound composition for the production, including minimising the use of excessive high energy audio equipment.

It must be noted and accepted that STC will be trialling the use of high quality recyclable batteries in radio headset packs and these may be adopted for permanent use if trials are successful.

## **7. Balancing Sustainable Practices and Creative Freedom**

It is not the intent of this policy to create unrealistic constraints or excessive inflexibility which may lead to significant compromise of artistic vision and creativity in the development of a production. It is, however, designed to create a meaningful requirement of our creative teams to consider the ecological impact of their productions and to contribute to the reduction of STC’s carbon footprint.

## **8. Policy Review**

This document is a dynamic and evolving policy that will be reviewed annually to allow for emerging sustainable technologies and materials to be adopted where practicable.

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**Appendix 5**  
**Mind map of complex dynamic influences on the Greening  
the Wharf project at STC**

