PART TWO

CHAPTER THREE

TOWARDS THE 21ST CENTURY: THE SEARCH FOR 'INTELLIGENT' DISASTER MANAGEMENT ORGANISATIONAL STRUCTURES AND ARRANGEMENTS

Chapter One examines the nature of disaster;

Chapter Two reviews Australia's existing counter-disaster organisational structure and associated management arrangements;

Chapter Three searches for intelligent effective and efficient organisational structures, system designs, and associated management arrangements with a view to designing, developing, and implementing an IDMS;

Chapter Four assesses inter-organisational relationships among selected emergency service related personnel in New South Wales and Queensland with a view to designing, developing, and implementing an IDMS;

Chapter Five investigates political and bureaucratic impediments with a view to designing, developing, and implementing an IDMS;

Chapter Six investigates economic impediments with a view to designing, developing, and implementing an IDMS; and

Chapter Seven is the outline of an IDMS and a conclusion to the research project.

INTRODUCTION

Part One of the thesis discussed the nature of disaster and problems of the current Australian disaster management system. Many of these problems are structural, stemming from inter-organisational conflict, boundary rigidity, as well as other inter-organisational jealousies (Britton, 1986a). These structural problems create management and leadership dilemmas, which in turn, reinforce the ineffectiveness of the structure.

In Part Two of the thesis, a search is launched for the Australian Intelligent Disaster Management System (IDMS). The search covers a wide range of academic disciplines including: management; organisational sociology; politics; public policy; and economics. Chapter Three specifically looks at intelligent organisational design criteria, particularly that coming from systems design and planning; new management practice; and organisational sociology. Other Chapters in Part Two address inter-organisational

cooperation, political-bureaucratic, and economic issues. As expected, from covering a diverse set of academic disciplines, there is a plethora of possible information.

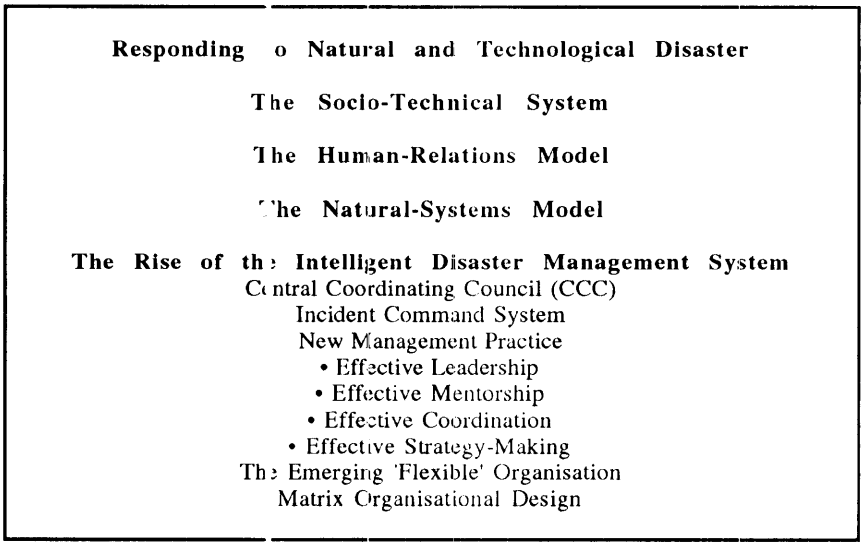
In essence it is important for the reader to recognise that Australia's disaster management system acts as a large constraint on modern management practice, as does the nature of the disaster problem. Australia's disaster management system is also contingent on the nature of the disaster problem. In this thesis, however, arguments are advanced for modifying Australia's disaster management system in the light of modern management practice.

For manageability purposes, a deliberate selection of relevant information has been made: information which demonstrates an ability to cope with an uncertain dynamic environment, which exhibits such opposing tendencies as centralisation versus decentralisation, stability versus dynamism, and uniformity versus diversity. These tendencies characterise the needs and requirements of the Australian disaster management system.

These issues will now be discussed further. Two relevant organisational perspectives will introduce the discussion. One perspective relates to a closed-system model (human-relations model), the other an open-system model (natural-system model). The closed human-relations model based on the non-rational assumption has been chosen for its capacity to integrate diverse people into an organisation and motivate them accordingly to be productive and cooperative. The open natural-systems model has been chosen for its organic and innovative flexibility. It will be shown that attributes from both the human-relations and natural-system models hold particular value in the design of an IDMS, in which cooperation, coordination, and collaboration are the critical factors. Closed-system models based on the rational assumption (ie. machine models) have been discounted for their apparent inflexibility and capacity to reinforce an inappropriate bureaucratic sub-culture.

The diagram below outlines the sequence of discussion in Chapter Three.

ORGANISATION OF CHAPTER THREE



RESPONDING TO NATURAL AND TECHNOLOGICAL DISASTER

In responding to natural and technological disaster:

> No group, community or organisation has [or can, for that matter] been prepared for disaster, in terms of all its implications. Some organisations, such as emergency services, may have experience with certain aspects of disaster response, but this often forms only a very small part of their work...(Hodgkinson & Stewart, 1991:66).

Because disasters have unique qualities in respect of threat, urgency and uncertainty which affect not only victims but also responding organisations:

> ...these features provide challenges to the process of effective decision making. Organisations find themselves taking decisions which they have not anticipated, and many of the immediate decisions which are taken irrevocably shape the pattern of response for good or for ill. Organisations are forced to take crucial decisions in areas where they have little knowledge , and in the heat of the crisis when they themselves are undergoing extremely rapid organisational change (Hodgkinson & Stewart, 1991:66).

In such crisis situations four types of organised behaviour can be discerned: established; extending; expanding; and emergent behaviour (see Dynes, 1970; Tierney, 1989). This organised behaviour was discussed in Chapter Two. Responding to natural and technological disaster also identifies an unequal power relationship among emergency service organisations, and more generally, the disaster-relevant organisational network (Britton, 1985a). This again was discussed in Chapter Two. Irrespective of the type of organised behaviour or power relationship, emergency service organisations in responding to disaster, form a disaster mega-organisation (Denis, 1995) or inter-organisational network orientated to managing the response to a disaster in human, material, and financial terms (Evan, 1966; Gillespie & Mileti, 1979; and Gillespie & Colignon, 1993). While organisations located in the network are not forced to exchange human, material and financial resources (Denis, 1995), disaster response organisations are nevertheless in a relationship of symbiotic interdependence [at least, ideally one would hope this is the case!], where they "...complement each other in the rendering of services" to clients (Pennings, 1981:435)

Effective coordination between members in the disaster mega-organisation, is the "Holy grail" of disaster management. Effective coordination or mutual-aid arrangements between diverse organisations is the outcome of a situation where no single organisation can be prepared for disaster, in terms of all its implications (Hodgkinson & Stewart, 1991). A disaster requires the participation of many different organisations, with each organisation acting as a specialist in its area of responsibility. For each responding organisation there is usually disruption to the more routine modes of organisation functioning (Perrow, 1984). Furthermore, disaster organisational responders no longer work in well-defined domains (Denis, 1995). The implications of this, is that organisational specialists often have to liaise and work with personnel from a number of different organisations. A fundamental problem with this, suggests Denis (1995 [citing Clarke, 1989; Lagadec, 1991]), is that:

> Different rationales...underlying the various fields of expertise are partly responsible for the lack of credibility of experts, for example in warning...because any given situation can be explained in different ways by different experts (p30).

Clearly inter-organisational cooperation and coordination must take into account these different rationales. In this regard, coordination in the disaster mega-organisation can be spontaneous, imposed, or it can be personal, impersonal. Table 3.1 details the principal major coordination mechanisms most frequently used by disaster managers.

Table 3.1

Ma or Coordination Mechanisms

Coordination Mechanisms
Hierarchy
Impersonal Rule
Culture • Organisational Culture • Professionalisation • Disaster Culture
Technology
Planning
Liaison Roles • Mutual Adjustments (feedback) • Coordinators • Task Force Committees • Permanent Teams • Matrix Design
Cooptation

Source: Adapted from Denis (1995:31)

More often than not, poor inter-organisational coordination in disaster (Fritz & Williams, 1957; Mileti et al., 1975; & Drabek, 1986) is characterised by:

- A convergence of responders;
- A great sense of the importance of acting urgently;
- Ambiguity about which organisation has authority;
- An absence of an agreed upon division of labour;
- A rumour(s); and
- A lack of central coordination mechanisms.

The aetiology of disasters is typically comprised of a complex combination of technical, individual, group, organisational, and social factors. Quarantelli (1995b) stresses that since disasters, as a whole, differ significantly from the everyday emergency, to plan for and manage them, requires new or innovative (as well as traditional) behaviours. Specifically, Quarantelli identifies ten pre-conditions which are outlined in Table 3.2.

Table 3.2

Identification of Pre-Conditions Which Require New or Innovative, as Well as Traditional Behaviours

• Unlike in the past, our knowledge about disasters is now research based;
Nature of Disasters:
• Risks and hazards are myriad and everywhere, but relatively few of them result in crisis situations;
• Crises and everyday emergencies create different social occasions;
• Crisis occasions can be conflictive or consensus ones;
• The consensus crises that are suddenly disruptive of ongoing social life are disasters, either of a major or catastrophic nature;
Planning for and Managing Disasters:
• A problem solving rather than a command and control model of planning and managing is more realistic;
• Disaster planning and managing are different social processes;
• Planning is not enough, it has to be good planning, the major characteristics of which are known;
• Good managing particularly has to deal with the heterogeneity that is distinctive of the crisis time period of disasters; and
• Social change in societies is a constant that will affect future disasters as well as planning and managing them.

Source: Quarantelli (1995b:1)

Moreover, there is increasing realisation that disaster causation is the result of failure in organisational systems to cope with complexity and uncertainty (Horlick-Jones, 1990; Toft & Reynolds, 1994). An understanding of the socio-technical system provides a means of evaluating the complexity and uncertainty surrounding disaster.

THE SOCIO-TECHNICAL SYSTEM

In the socio-technical system, Pasmore (1988) suggests:

> Effective organisations are those which produce excellent results by any measure of costs, quality, or efficiency while simultaneously enhancing the energy and commitment of organisational members to the success of the enterprise (p1).

The socio-technical system perspective (Table 3.3) recognises that any organisation is made up of people (the social system) using tools, techniques and knowledge (the technical system) to produce goods and services valued by customers (who are part of the organisation's external environment) (Emery, 1963). Such recognition defines an open system (Cherns, 1976).

Furthermore, Pasmore (1988) identifies six general advantages of socio-technical systems design:

- The encouragement of innovation versus preserving the status quo;
- The development of human resources;
- The awareness of the external environment;
- The maximisation of cooperative effort;
- The development of commitment and energy; and
- The effective utilisation of social and technical resources.

These advantages appear to combine the best attributes of the open human resources models.

Table 3.3

Principles of Socio-Technical System Design

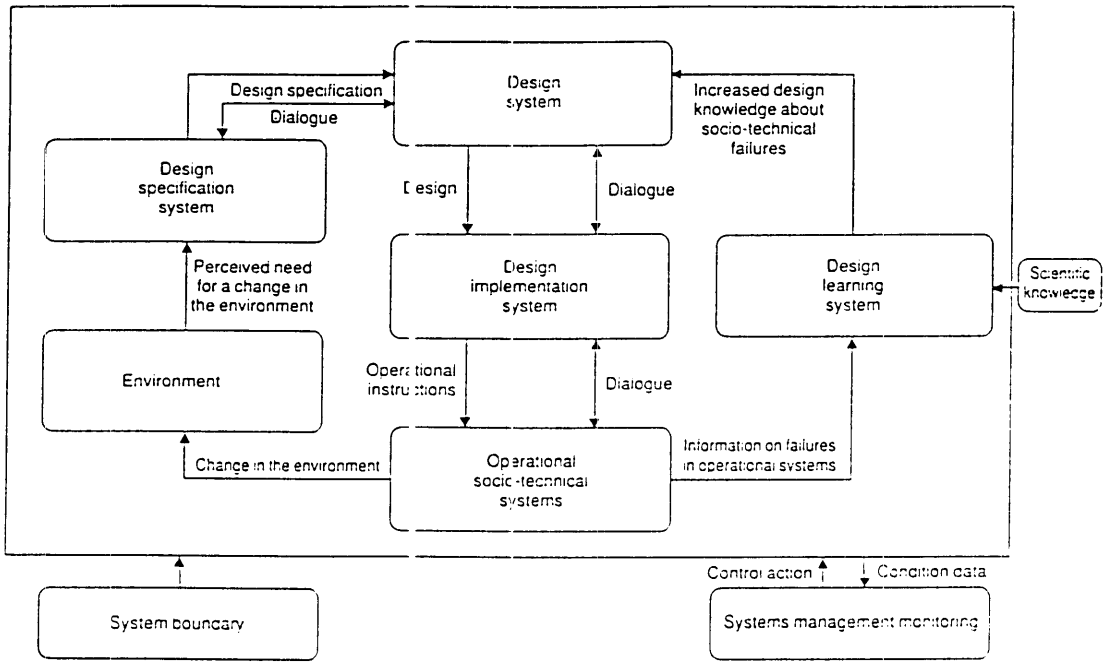
• To create intelligent variety in tasks;
• To construct meaningful patterns of tasks that lead to holistic jobs;
• To optimise the length of the work cycle;
• To leave scope for workers to set their own standards and determine their own means of production;
• To include auxiliary tasks such as maintenance and quality control in primary jobs;
• To ensure that jobs are worthy of respect in the community and contribute directly to the end product;
• To employ various forms of group work when tasks are interdependent;
• To ensure worker involvement in the design of tasks;
• To allow workers to select their peers and supervisors;
• To make certain that the design of the organisation fits with the goals intended and that each part of the design fits in with the others;
• To control technical variances at their source;
• To create jobs that require multiple skills;
• To locate boundaries among departments appropriately;
• To ensure that information is available to all who need it to make sound and timely decisions;
• To provide opportunities for individuals to meet needs for growth, learning, decision making, social support, and recognition; and
• To put in place processes that encourage re-examination of the design itself.

Source: Pasmore (1988:93-94)

It is recognised that many systems have underlying similarities and possess common properties (Beishon, 1980). The implications of this, is that failure in one system will have propensity to recur in another system for similar reasons (Ackoff, 1980; Buckley, 1980; Checkland, 1981; Bignell & Fortune, 1984; Beer, 1985). Second, although two particular systems may appear to be completely different, if they possess the same or similar underlying component parts or processes then they will both be open to common

modes of failure (Kletz, 1988; and Toft & Reynolds, 1994). Pasmore (1988) outlines a design model that attempts to overcome socio-technical system failure. The design, development, and implementation of an IDMS has much to learn from the operations of this model; not least because disasters more often than not are failures in complex systems (Hood & Jackson, 1991). Organisational learning based on feedback and a capacity for self-assessment and/or self-evaluation are critical components of the socio-technical failure minimising system (see Figure 3.1).

Figure 3.1
A Socio-Technical Failure Minimising System



Source: Pasmore (1988:125-126)

Additionally, it can be said that organisational learning based on feedback and a capacity for self-assessment and/or self-evaluation requires intelligent human resources.

THE HUMAN-RELATIONS MODEL

Traditional organisational models which focus upon rational factors are criticised, in part, because they assume that human beings will perform tasks without emotion (Champion, 1975:45). Elton Mayo in the 1920's founded in response to this criticism the "human-relations school", which argued that although organisations exhibit many rational properties, the work attitudes and sentiments of the members must be considered as the primary motivating factors affecting variables such as productivity and morale (Champion, 1975).

The human-relations model (Davis, 1962 [cited in Champion, 1975] examines:

> ...the integration of people into an organization in addition to those factors which motivate them to work together cooperatively and productively. It is action-orientated, relating to people at work in organizations and their economic, psychological, and social satisfactions. It examines variables which contribute toward building a more productive and satisfying worker interrelation (p46).

Much of the scientific evidence compiled by researchers in the early development of the human-relations model stems from a series of investigations conducted at the Hawthorne plant of the Western Electric Company near Chicago, Illinios during the years 1927-1932. These investigations became known as the "Hawthorne Studies". The major outcome of the studies was the discovery of the "Hawthorne effect". The Hawthorne effect revealed that increased production appeared to be one result of increased group cohesiveness among workers; significant modifications and improvements in their levels of psychological satisfaction; and new patterns of social interaction (Etzioni, 1964:33). Moreover, increased participation of workers in decisions affecting their work and a greater identification with managerial goals also contributed substantially to increased productivity, further indirectly supporting the Hawthorne effect (Champion, 1975:47).

As with all models, the human-relations model has not been without its critics (see Landsberger, 1958; Miller & Form, 1964; Sykes, 1965; Carey, 1967; and Shephard, 1972). Carey (1967) offers the most negative appraisal of the Hawthorne Studies by suggesting that the abundance of methodological and theoretical deficiencies, coupled with apparent bias surrounding the inclusion of experimental subjects raises serious questions

about the validity of the Hawthorne research. Champion (1975:49-50) highlights some further criticisms:

- That the human-relations model places too much emphasis upon the importance of social factors;
- That although the human-relations model emphasises harmonious superior-subordinate relations and close associations within work groups, we must recognise the importance of conflict as a means of promoting eventual organisational progress;
- That human-relations may bring about a more pleasant social condition within which to work, but this approach does not lessen the tediousness of tasks (Chinoy, 1952); and
- That the human-relations model is functional for those kinds of organizations requiring a high degree of social skills and communicative abilities.

Despite these criticisms, Litwak (1961) suggests that the human-relations model is most appropriate for situations in which:

> ...tasks are relatively not uniform or involve social skills; to illustrate: situations which are not so uniform that government cannot lay down highly specific laws but sets up commissions with broad discretionary powers...and situations involving the selling of undifferentiated products...(p182).

It could be argued that a similar situation can be found in disaster management. Indeed, several leading disaster researchers, including E.L. Quarantelli and Russell Dynes have recognised, and continue to recognise, the value of adopting a human-relations approach to disaster management. Quarantelli (1995b) suggests that the human resources or problem solving model makes the following assumptions:

> Among its assumptions is that while behaviour during crises often moves away from the traditional patterns, what occurs is nonetheless socially structured, and not chaotic and purely random [see Dynes 1993; 1994]. Therefore, it follows there is no need to try to impose order; instead what is required are efforts to coordinate the decentralized and pluralistic decision making that goes on. Consequently, the planning should allow for improvisation and encourage new initiatives and the use of non-traditional groups and volunteers. In essence, this is an open model of social behaviour at times of crises (p16).

This compares with the conventional or military model (sometimes explicitly referred to as the command and control model). Quarantelli (1995b) highlights a number of inappropriate assumptions made by this model:

> Among them is that there will be almost complete personal and social chaos, along with a reduced capacity by relevant organizations for action, and also the loss of emergency workers in part because they will abandon their work roles [see Dynes 1993; 1994]. Therefore, it seems to follow that there is a need to create order and that this can be done by imposing command and control from a centralized decision making top level structure. In more popular terminology, it attempts to answer the question who is in charge? Therefore the planning assumes the need for standardized scenarios and operational procedures, and the use of established organizations and the minimizing of volunteers. This represents a closed model of social behaviour at the times of disasters...(p15).

The military or command and control model is limited in its usefulness to accident and emergency management, where standard operating procedures are not usually severely tested. Disaster management, however, requires more flexible and innovative individual and organisational behaviour; not least because event complexity often renders decision-making through standard operating procedures useless.

THE NATURAL-SYSTEMS MODEL

The natural-systems model is an open-systems model. The natural-systems model is expected:

> To administer a social organization according to purely technical criteria of rationality is irrational, because it ignores the non-rational aspects of social conduct (Blau, 1956:64).

The major assumptions of the natural-system model are outlined by Gouldner (1959):

> The natural-system model regards the organization as a "natural whole". The component structures of the system are emergent institutions which can be understood only in relation to the diverse needs of the total system. The component parts of an organization are interdependent. The organization becomes an end in itself. The realisation of goals of the system as a whole is but one of several important needs to which the organization is orientated. The organization serves to link parts of the system and to provide avenues for controlling and integrating them. Organizational structures are viewed as spontaneously and homeostatically maintained. The equilibrium of the system depends very greatly on the conforming behavior of group members. Changes in organizational patterns are considered the results of cumulative, unplanned, adaptive responses to threats to the equilibrium of the system as a whole. Responses to problems are...crescively developed defense mechanisms...being importantly shaped by shared values which are deeply internalized in the members (p407).

A major limitation of the natural-system model is considered its unfortunate association with the organic analogy. However, the author would argue on the basis of what previously has been stated in this Chapter, that this association is its 'strength', not weakness. Champion (1975:57-58), however, outlines a number of perceived limitations with the model:

- That the natural-system model, while calling attention to the unplanned and spontaneous nature of organizational structures, has the disadvantage of de-emphasising their rational features (Gouldner, 1959:407);
- That the notions of "natural laws" and "natural development" are somewhat unrealistically applicable to organizations;
- That mechanisms for incorporating planned change into the system are ignored by the natural-system model; and
- That the natural-system model assumes the interdependence of parts in the organisation, and therefore it does not examine the variation in degrees of interdependence which likely exist (Gouldner, 1959:419).

It is clear both the human-relations and natural-system models hold particular significance for the design and development of an IDMS. Dynes (1993; 1994) and Quarantelli (1995b) are of the opinion that an open system, human resources or problem-solving model is more realistic for planning and managing disaster occasions than is a command and control one.

Attempting to reconcile and combine the closed human-relations and open natural-system models is contingency theory. Contingency theory argues that:

> ...there is no one best organizational form but several, and their suitability is determined by the extent of the match between the form of the organization and the demands of the environment. The general form of this argument is ecological; the argument assumes that different systems are more or less well adapted to differing environments. Environmental conditions determine which systems survive and thrive: those best adapted are the most likely to prosper (Scott, 1992:98).

Britton (1991a) recognised correctly, in the opinion of the author, the value of employing contingency theory in disaster management:

> Disaster management is best served by a modified simplified bureaucratic structure, which is more organic, encourages innovation and adaptive behaviour, is flexible, and focuses on end products rather than on functional prerequisites, (if it requires a bureaucratic organisation at all). Internal organisational diversity stimulates organisational innovation and adaptation thereby thwarting organisational mortification; it enables an organisation to learn from its errors; it tends not to breed ritualistic behaviour and helps to prevent bureaucratic means becoming ends in themselves; it tolerates decentralisation of authority; it creates a climate in which the organisation's goals rather than personal goals can take precedence; and it enhances overall organisational effectiveness by utilising more fully the human potential of its workforce. The message from contingency theory, therefore, is that the appropriate form of organisational structure should depend on the kinds of tasks or the environment with which one is dealing and not the reverse (p57).

The value, then, in adopting an innovative flexible design in disaster management systems, which are also interested in the well-being and integration of people into the system is very much underlined

THE RISE OF THE INTELLIGENT DISASTER MANAGEMENT SYSTEM (IDMS)

Combining the natural-systems and human-relations models provides a basis for the design, development, and implementation of the IDMS. The intelligent organisation aims to tap the intelligence and the variety of talents in every individual. This is in keeping with a human-relations approach. Intelligence is needed in an age where that nature of work is

complex and significantly changing. The changing nature of work (Pinchot & Pinchot, 1993) can be summarised as a move:

- From unskilled work to **Knowledge work;**
- From meaningless repetitive tasks to **Innovation and caring;**
- From individual work to **Teamwork;**
- From functional-based work to **Project-based work;**
- From single-skilled to **Multi skilled;**
- From power of bosses to **Power of customers; and**
- From coordination from above to **Coordination among peers.**

Figure 3.2 shows the revolutionary change in the structure of our relationships.

Figure 3.2

Revolutionary Change in the Structure of Our Relationships

What Bureaucracy Is	Why It Once Triumphed	Why It Fails Now	What Replaces It
Hierarchical chain of command	*Brought simple large-scale order* *Bosses brought order by dominating subordinates*	*Cannot handle complexity* *Domination not best way to get organization intelligence*	*Visions and values* *Teams (self-managing)* *Lateral coordination* *Informal networks* *Choice* *Free intraprise*
Specialization *Organization by function*	*Produced efficiency through division of labor* *Focused intelligence*	*Does not provide intensive cross-functional communication and continual peer-level coordination*	*Multiskilling specialists and intrapreneuring* *Organization in market-mediated networks*
Uniform rules	*Created a sense of fairness* *Clearly established power of bosses*	*Still need rules, but need different rules*	*Guaranteed rights* *Institutions of freedom and community*
Standard procedures	*Provided crude organizational memory* *Able to use unskilled workers* *Overcome old ways*	*Responds slowly to change* *Does not deal well with complexity* *Does not foster interconnection*	*Self-direction and self-management* *Force of the market and ethical community*
A career of advancing up the ladder	*Bought loyalty* *Furnished continuity of elite class of managers and professionals*	*Fewer managers needed and more educated workforce expects promotions, therefore, not enough room for advancement*	*A career of growing competence* *A growing network to get more done* *More pay for more capabilities*
Impersonal relations	*Reduced force of nepotism* *Helped leaders enforce tough discipline and make tough decisions*	*Information-intensive jobs require in-depth relationships*	*Strong whole-person relationships* *Options and alternatives* *Strong drive for results*
Coordination from above	*Provided direction for unskilled workers* *Furnished strong supervision required by rapid turnover in boring jobs*	*Educated employees are ready for self-management*	*Self-managing teams* *Lateral communications and collaboration*

Source: Pinchot & Pinchot (1993:37)

Intelligent Organisational Design Criteria

The intelligent organisation in dealing with the changing nature of work (see Pinchot & Pinchot, 1993:19-20) is able:

- To deal with more issues at once, such as caring for one another, customers, the town, and the community;
- To face many competitors simultaneously and deal more effectively with all of them;
- To implement whole-systems thinking without robbing units of local flexibility;
- To better identify core issues and address them rapidly;
- To determine from experience how to do new things, not just what not to do, and better remember what was learned;
- To rapidly apply what was learned in one place to others;
- To integrate learning across the organization and use it creatively and flexibly; and
- To attend to all the details and supporting competencies that add up to cost-effectiveness, superior performance.

The necessary conditions for organisational intelligence are presented in Table 3.4.

Table 3.4

What it Takes to Build an Intelligent Organisation

FREEDOM OF CHOICE
Widespread truth and rights;
Freedom of enterprise; and
Liberated teams.
RESPONSIBILITY FOR THE WHOLE
Equality and diversity;
Voluntary learning networks; and
Democratic self-rule.
LIMITED CORPORATE GOVERNMENT

Source: Pinchot & Pinchot (1993:63)

So, what would define an IDMS? To begin with, emergency service organisations in order to be able to deal effectively with the socio-political-economic-organisational context of disaster management, clearly need to be able to balance three dialectical forces. Specifically:

- The facilitation of creativity, innovation and speed;
- The instilling of coordination, focus and control; and
- The staying power to withstand adversity.

In order to be able to achieve this, the disaster management system needs to be assisted, by what the author will term, a Central Coordinating Council, or CCC.

Central Coordinating Council

The complexities of the current Australian disaster management system make clear that the IDMS would be best served with a structure resembling a federation of organisational units that are typically interdependent, relying on one another for critical expertise and know-how. These units would have a peer-to-peer relationship with a Central Coordinating Council (CCC). Britton (1985a) perceived the CCC somewhat differently; Britton, foresaw the CCC as an organisation' rather than a council, and coined the term - Disaster Management Organisation (DMO). The CCC established at each State and Territory level would become the focal point for a disaster management system (Britton, 1985a). The CCC's role is one of orchestrating the broad strategic vision; developing the shared organisational and administrative infrastructure; and creating the cultural glue which would create the necessary synergies and ensure unity of mission of purpose in responding to natural and technological disaster. The CCC would be assisted, by what the author will term an Event Coordination Management System, or ECMS. The ECMS is critical for the attainment of mutual-aid cooperation, coordination, and collaboration between organisations in the disaster-relevant organisational network. In the United States of America, the ECMS equivalent is termed the Incident Command System; note however, that the author's proposed system is based on 'coordination', and not command.

Incident Command System

The Incident Command System (ICS) grew out of fire suppression activities in brush and forest fires, which often covered extensive areas and involved many different political

jurisdictions (Wenger, Quarantelli, & Dynes, 1990:8). More recently, it has been suggest the ICS can serve as a universal model of disaster response, ie. a standardised model which can be utilised on every occasion for a variety of disasters (Wenger, Quarantelli, & Dynes, 1990:8). Essentially, the ICS addresses the lack of a common organisation; poor on-scene management; poor inter-organisational communications; inadequate joint planning; lack of valid and timely intelligence; inadequate resource management; and limited prediction capability (Irwin, 1989). The ICS accomplishes this by enacting operational procedures that are designed:

- For single jurisdiction/single agency involvement;
- For single jurisdiction with multi-agency involvement; and
- For multi-jurisdiction/multi-agency involvement.

A series of management concepts (Table 3.5) and system characteristics (Table 3.6) assists the ICS.

Table 3.5

ICS Management Concepts

AGENCY AUTONOMY
Throughout ICS, procedures are designed to protect agency (or jurisdictional) autonomy. Unified Command was designed to encourage the close working relationship of diverse agencies while at the same time preventing "power-plays" and "take-overs" by larger or more assertive members. The system recognizes the legal and fiscal authorities of both primary and supporting organizations.

MANAGEMENT BY OBJECTIVES
The objectives set by Command must be "real" in the sense that subordinate positions agree that objectives can be met. Command is required to adjust to any objectives that subordinates state they cannot accomplish. This assures that plans are realistic and that Command is clearly aware of organizational limitations. It also increases the commitment of subordinate positions because those who help to design their own assignments have a greater motivation to reach objectives.

UNIT INTEGRITY
The organization is designed to keep people from the same agencies and emergency management disciplines together (ie., police are not organizationally mixed with fire personnel; fire people are not assigned to public works). This concept improves the safety of the responders, makes it easier to keep accurate time records, and simplifies communication throughout the organization.

FUNCTIONAL CLARITY
Each part of the organization is designed so that its members can concentrate on a primary assignment and not be unnecessarily distracted by other responsibilities. For example, the Operations Section does not have to be concerned with feeding, fixing flat tires, or obtaining special clothing. Units in the Logistic Section are activated to serve these and other needs so that Operations can put full energy into the basic assignment.

UNIFIED COMMAND
Unified Command is needed where an event cannot be handled under a single command structure. Unified Command is the first consistent, systematic means of organising a variety of autonomous civil agencies into one concerted emergency response effort. The concept offers uniform procedures that enable all involved agencies too perform their roles effectively. Unified Command overcomes many inefficiencies and duplications of effort that occur when functional and geographic jurisdictions, or agencies from different governmental levels, have to work together without a common system.

Source: Irwin (1989:138)

Table 3.6

ICS System Characteristics

EFFECTIVE SPAN-OF-CONTROL

Organizational supervisory positions are designed to provide supervisor-subordinate ratios that met modern management practice. The general rule is five subordinate units per supervisory position, although allowance is made to vary this ratio under special circumstances. If tasks are relatively simple or routine, taking place in a small area, communications are good, and the incident character is reasonably stable, then on supervisor may oversee up to eight subordinate units. Conversely, if the tasks are demanding, taking place over a large area, and incident character is changing, then the span of control might be reduced to one supervisor per two or three subordinates. ICS is designed to provide the most efficient leadership possible under crisis conditions.

MODULAR ORGANIZATION

The organization can be increased as an incident escalates in complexity, and it can be decreased as the incident comes under control. Following span-of-control guidance, an Incident Commander may respond initially with only a few units. As the incident grow, Command can ad specific positions with specific assignment. Sections, Branches, Divisions, Groups, and Units can be added. As the incident de-escalates, the organization can be reduced in a systematic manner, relieving those elements that are no longer needed. If appropriate, a demobilization unit can be staffed to assure prompt release of unneeded resources. Thus, ICS provides a means of adding and subtracting resources in the most cost-effective and leadership-efficient manner.

COMMON TERMINOLOGY

Organizational positions - Each position has a specific title (Incident Commander, Planning Section Chief, Branch Director, Division Supervisor)...Adherence to the hierarchical terminology, even though some special terms are needed, is what enables personnel from separate agencies or disciplines to understand and utilize ICS on multi-agency incidents.

Resource elements - ICS defines specific resources...Defining the title and capability of specific resources, and having those definitions used throughout any particular discipline, has several advantages. First, resources can be ordered and managed to meet specific tasks; second, both the ordering and the sending parties know exactly what is needed; and third, the grouping of some resources into "teams" or "task forces" allows simplified resource accounting...

Facilities - Common terms are used to identify the facilities used at an incident, and each facility has a defined function...Having common facility definitions and functions is another means of communicating and avoiding confusion; when personnel understand these functions and terms, they know where to go and what they will find at a given facility.

COMPREHENSIVE RESOURCE MANAGEMENT

ICS resource management procedures are designed to overcome the typical problems of too few, too many, lost, or mismanaged response forces. As with all other parts of the system, the resource management procedures are interrelated and compatible with the design criteria and management concepts.

Source: Irwin (1989:138-141)

The ICS management concepts and system characteristics combine to ensure the effective performance of five integrated functions (Table 3.7).

Table 3.7
ICS Functions

COMMAND The Command Section responsibilities are designed to develop, direct, and maintain a viable organization and to keep that organization coordinated with other agencies, elected officials, and the public.
OPERATIONS The Operations Section responsibilities are of a line nature. Operations is the "doer" in the organization, where the real work of incident control is accomplished. Operations is charged with carrying out Command direction.
PLANNING The Planning Section responsibilities are of staff nature. They are in support of Command and Operations, and designed to provide past, present, and future information about the incident.
LOGISTICS The Logistics Section responsibilities are also of a staff nature. Logistics provides all of the personnel, equipment, and services required to manage the incident.
FINANCE The Finance Section is also of a staff function. The Section is responsible for financial management and accountability on the incident. In keeping with the functional clarity concept, Finance authorizes expenditures in accordance with agency policies.

Source: Irwin (1989:143-150)

The ICS's ability, given its modular flexibility, to incorporate volunteer units, teams, and task forces is important in any design of an IDMS. To this end, incorporating volunteers into the Australian disaster management system has not been without its problems (Britton, 1990b; 1991c). But, the ICS:

> ...is a common system. It is designed with a great deal of inherent flexibility. This allows modification of the on-scene organization to meet specific conditions, complexities, and workloads for different incidents (Irwin, 1989:158).

The ICS as a model, is not without its critics. Wenger, Quarantelli & Dynes (1990:9-10) cite a number of problems which they feel need to be addressed if the ICS is to have

universal applicability for all manner of disaster response; and in particular, the Australian disaster management system:

- That the concept of the ICS has become a 'buzzword' in emergency planning and fire agencies, but the buzzword bears little relationship to any actual detailed management model.

- That the one component of the system that is selectively adopted and implemented in actual response situations is the weakest element in the model, ie. the transference of command from initially-responding officers of lower rank to those of higher rank.

- That there is little place in the ICS for inter-organisational coordination. The ICS is an intra-organisational plan.

- That this lack of coordination is particularly acute to local emergency management agencies, relief agencies, and volunteers.

- That since the ICS was developed primarily to deal with diffuse and spreading disaster impacts, such as brush and forest fires, it seems in practice less effective where impacts occur in limited, focussed areas. In such situations, it facilities 'overkill' mobilisation of forces and creates serious problems of convergence and congestion at the disaster site.

- That it is also apparent from the research that the ICS is not a panacea for even such typical disaster-generated intra-organisational problems as communication and coordination.

- That unless responding mutual-aid organisations have been involved in developing ICS and in its implementation during numerous previous emergencies, the system does not solve the problems of coordination among responding units.

- That finally, the basic ICS model is derived from notions of command and control, ie. the establishment of authority in a higher level position with overall responsibility for action, the division of tasks based on operational considerations, close supervision, clear chains of command and defined separation of functions.

Adoption, then, of the ICS for Australia is not without its potential problems. Wenger, Quarantelli & Dynes (1990) have highlighted a number of important considerations which must be resolved in the design and development of an IDMS. Nevertheless, it is the opinion of the author that the ICS model could be re-focussed and re-developed as an 'intelligent design', and that with further modification, could hold value and relevance in the 'Australian' context. This potential has already been realised by the Department of Bushfire Services, New South Wales, which is utilising a National Fire Training System for all its training, including ICS (pers. comm., Paul Macmichael, Training Officer, Department of Bushfire Services, May 1996).

Re-focussing and re-developing the ICS would require internal management procedure and policy changed from a command-control mentality, to an open human-relations/human resources mentality, where cooperation, collaboration, and coordination predominate (thus, becoming an **Incident Coordination System**). Clearly, this would require a change in mind-set. Furthermore, as an inter-organisational system, the design focus shifts to an inter-organisational, rather than intra-organisational plan. The reasons for these shifts have previously been made clear. Adoption of this modification would see the current ICS Command function disbanded, and replaced by a new functional area, that of Human Resources Management (Table 3.8).

Table 3.8
Proposed New ICS Functions

HUMAN RESOURCES MANAGEMENT *The Human Resources Management Section responsibilities are designed to develop, and maintain a viable system and to facilitate a means for inter-organisational cooperation, collaboration and coordination. Human Resources Management will also be responsible for training and development, job design, recruitment and selection, occupational health and safety, performance appraisal, identifying and fostering leadership, and the like.*
OPERATIONS The Operations Section responsibilities are of a line nature. Operations is the "doer" in the organization, where the real work of incident control is accomplished. Operations is charged with carrying out Coordination Section direction.
PLANNING The Planning Section responsibilities are of staff nature. They are in support of Coordination and Operations, and designed to provide past, present, and future information about the incident.
LOGISTICS The Logistics Section responsibilities are also of a staff nature. Logistics provides all of the personnel, equipment, and services required to manage the incident.
FINANCE The Finance Section is also of a staff function. The Section is responsible for financial management and accountability on the incident. In keeping with the functional clarity concept, Finance authorizes expenditures in accordance with agency policies.

Source: Adapted from Irwin (1989:143-150)

The ECMS, and thus design of an IDMS, relies on advances in human resources management, and in particular, a realisation of the importance of human-relations. Such advances recognise the contribution made by new management practice.

New Management Practice

Old managerialism models suffer from prescribing "one best way approaches". New management practice is based on a more contingent approach. For example, management is a value-creating process, in which resources are marshalled and directed towards goals. A contingent approach demands a repertoire of prescriptions (Osborne & Gaebler, 1992) and a concomitant set of understandings, attributes and skills on the part of the public sector managers (Caiden, 1991). Part of this is an awareness of and sensitivity to the nature of value to the public and other stakeholders, and of how it is affected by different mixes of public resources and capabilities (Alford, 1993:144). Another issue is creativity and imagination in tapping productive capabilities in innovative ways (Alford, 1993:144). Political awareness and skills are also important. Combined, these issues define the manager's role in policy formation and analysis. It is clear, that the most valuable organisations will be those which place a premium on being able to adapt to changing circumstances; organisations which look outwards to what their environments demand of them rather than inwards to what existing routines and practices dictate (Alford, 1993:144). Alford (1993:144) argues that such a move means that successful managers, particularly those in the public service, will be those who can develop these understandings about value, productive capabilities and the political environment in their own staff.

New management practice, suggests Schermerhorn, Jr (1993:16) will include:

- A move to delayering;
- A move to team-based networks;
- A move to partnerships - strategic alliances and collaboration;
- A move to a new employer-employee covenant;
- A move to make use of developments in information and communication technologies; and
- A move to make use of developments in dualistic systems.

New management practice is a med at ensuring that employees and customers see their organisation as a 'corporate whole' and understand how their contribution fits into the

overall scheme of things, or more specifically, the overall objective. This requires the development of processes, suggests Schermerhorn, Jr (1993:16) which will induce:

- A move to determine overall aims and objectives;
- A move to recognise constraints and opportunities;
- A move to devise strategies and structures to pursue aims, and allocate resources accordingly;
- A move to develop evaluation techniques; and
- A move to communicate these activities to people both within the organisation and within other bodies.

Review of leadership style is instrumental in the development of new management practice.

- Effective Leadership

The value in viewing the disaster management system as a socio-technical system has already been made in this Chapter. A human resources or problem solving approach is at the very heart of an IDMS. The success, moreover, of such a system depends to a large degree on the human resources at its disposal. This raises the issue of leaders and leadership, and how subordinates relate to it. Effective and successful leadership has the capacity to solve the Holy-grail of disaster management. That is, exert some level of control over the complexities of coordination necessitated by the multi-organisational responses of disaster (Wenger, Quarantelli, & Dynes, 1990).

Leadership, suggests Sorensen & Epps (1995): "...is seen variously as a process, an outcome, and a collection of personal attributes" (p3). The leader is instrumental across all management pursuits. Success in management is to a large degree determined by the nature and strength of leadership. It is accepted that there are many different types of leadership ranging from the authoritarian to the democratic (Sorensen & Epps, 1995:3), each with its own unique advantages and disadvantages.

The importance of intelligent leadership appears underrated in Australian disaster management and planning. Indeed, it makes no sense to speak of more efficient and operationally effective intelligent management arrangements and lessons from organisational sociology, without recognising that understanding leadership is always going to be the critical factor in the determination of success or failure.

Mulder, Ritsema van Eck & de Jong (1971) formulated a theory which stated that:

> ...in crisis situations (that is, in situations where there is a greater probability that, under time pressure, values that are important to the system will be lost) a clear exercise of power is the more adequate form of leadership. In non-crisis situations, a more mild relation between the leader and others is called for (p37).

But, strong and effective leadership is not just about "control". Adair (1988:77) suggests that a primary responsibility of a good leader is ensuring that there is group commitment towards a task(s); task(s) which everyone in the group can share because they see it has value for the organisation or society and - directly or indirectly - for themselves as well. Achieving a common task(s) is the principal means of developing high group morale and commitment. Moreover, the contemporary leader is an individual who increasingly must be able to work with and through extremely complex organisations and institutions (Gardner, 1990:81).

In addition, Gardner (1990:11-22) cites nine tasks that are important functions of good leadership:

- Leadership is envisioning goals;
- Leadership is affirming and regeneration/rebuilding of values;
- Leadership is motivating;
- Leadership is managing;
- Leadership is achieving workable unity and trust;
- Leadership is explaining
- Leadership is serving as a symbol;
- Leadership is representing the group; and
- Leadership is renewing.

While Australian disaster management may be characterised by a strong control-command orientated leadership style, as demonstrated during periods of disaster response, it lacks the subtlety of a more consultative and participatory approach to management (Pagram, 1995). The survey conducted by the author into the examination of inter-organisational relationships across a range of emergency service organisations (discussed in Chapter Four) makes reference to evidence of a reluctance to openly speak out, and a sense of uncertainty and resignation in emergency service personnel with regards to the general state-of-affairs in disaster management.

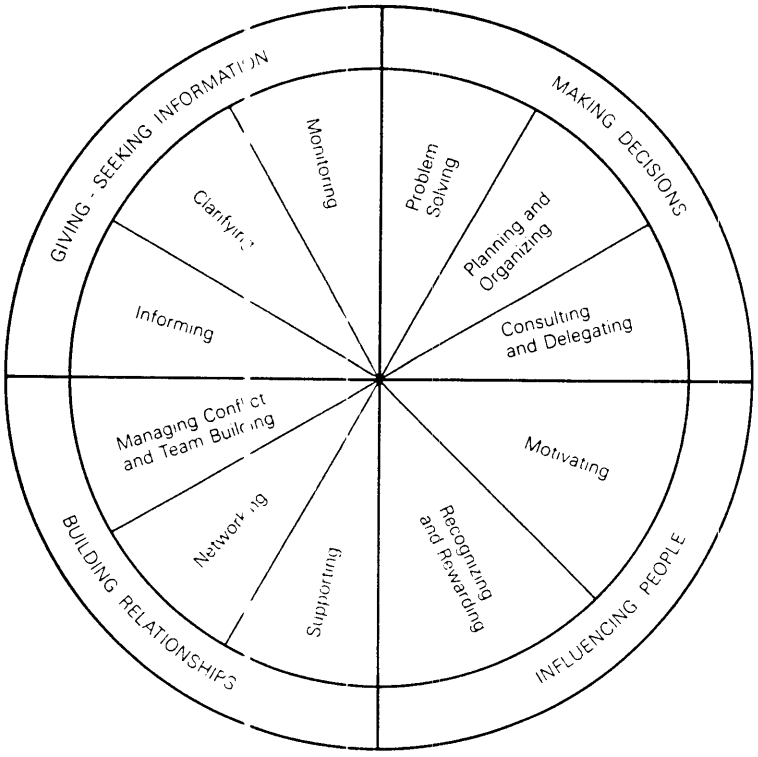
A leader, then, must engage in purposeful management based on planning and priority setting; organising and institution building; agenda setting and decision making; as well

as the exercising of political judgement (Gardner, 1990). Successful leaders address issues of unwillingness to cooperate and conflict with an aim to achieving unity, cooperation, cohesion, and mutual tolerance for effective management and organisational functioning (Gardner, 1990). This builds constituency support. A good leader will be an effective communicator and teacher (Gardner, 1990). People want problems explained in simple language - what they are and why they exist; they want to know why they are asked to do certain things; they want to know why they face particular frustrations and the like. A good leader is a symbol of unity that can be identified and used to quell and/or avoid internal organisational conflicts (Gardner, 1990). Leaders need to be aware that leading people down old paths, using old slogans, towards old objectives does not always satisfactorily work in terms of providing organisational effectiveness and efficiency (Gardner, 1990). In this respect, leaders (when necessary) should foster the process of renewal with respect to new paths, new objectives and new solutions. The disaster manager in an attempt to maintain organisational integrity, will engage in mentorship and leadership based on mutual-understanding (discussed in the next section).

Situations impose particular role requirements for effective leadership, and the relative importance of different behaviours depends on the situation (Yukl, 1989). Comparative research on different managerial situations has provided some explanation of what behaviour pattern is intelligent in any given situation (Yukl, 1989). Moreover, research has also shown how leader behaviour influences outcomes differently from situation to situation (Yukl, 1989). Situational theories of effective leadership behaviour (Evans, 1970; 1974; House, 1971; House & Dessler, 1974; House & Mitchell, 1974; Stinson & Johnson, 1975; Fulk & Wendler, 1982; Hersey & Blanchard, 1969; 1977; 1982; and Kerr & Jermier, 1978; Vroom & Yetton, 1973; and Vroom & Jago, 1988) are worth considering in disaster management because intervening variables ie. subordinate effort, subordinate ability and role clarity, organisation of the work, cooperation and cohesiveness, resources and support and external coordination, can be used to explain why the effect of behaviour on outcomes varies across situations. One can analyse leadership further by examining the interacting effects of managerial behaviour and situational attributes on outcomes. This is the Multiple Linkage Model (Yukl, 1971; 1989), and has been extended to also include leader traits and power. Yukl (1987) also proposed a useful integrating taxonomy of behaviours used by managers to influence intervening and situational variables (see Figure 3.3) and this can also be used to understand leadership in disaster management.

Figure 3.3

Integrating Taxonomy of Managerial Behaviour



Source: Yukl (1989:131)

Furthermore, stress reactions in the disaster context can be understood by considering leadership issues. Stress reactions can become a significant individual and organisational problem. The capacity for individuals to undergo long term physiological and psychological stress reactions after exposure to disaster events will vary from person to person depending on their 'coping' strategies. Quite simply, some individuals are better at being able to deal with stress than others. The question is why? Part of the reason is that individuals as they go through life develop an assorted collection of personal 'baggage' from the experience of childhood, adolescence to work, education, sporting, cultural environments. This baggage develops the individual in terms of knowledge, experience, coping strategies, and individual character traits. Taylor (1989) attributes different responses to stressors, to genetic and partly, environmental influences. Again, quite simply some individuals because of their personality traits and disposition, as well as

coping ability may be better suited to disaster management tasks than others. Recruitment selection procedures and personnel performances measures should reflect this.

New management practice, as well as the design of an intelligent disaster management system, must recognise that effective managers are also leaders. The effective disaster manager for Drabek (1990:209-238) is one whom exhibits a number of leadership inspired management qualities:

- They think through their philosophy;
- They expand their knowledge base;
- They are aware of their managerial style;
- They nurture positive attitudes;
- They build community support; and
- They participate in a professional group.

These leadership inspired management qualities are comparable with Gardener's (1990) functions of good leadership presented earlier. Table 3.9 explains these leadership inspired management qualities further. These qualities exhibit evidence of an interest in mentorship.

Table 3.9

Leadership Inspired Management Qualities

Think through your philosophy
- Ascertain agency mission
- Establish credibility
- Keep a longterm perspective

Expand your knowledge base
- Study the community
- Obtain more training
- Self-initiated education

Be aware of your managerial style
- Invite, don't order
- Management is a social, not a technical job

Nurture positive attitudes
- Enthusiasm is contagious
- Develop communication skills
- Your work -- not just a job (convey intense level of commitment)

Build community support
- Establish personal linkages
- Show how you can help others
- Bring people together
- Increase community support

Participate in a professional group

Source: Adapted from Drabek (1990:209-238)

The successful disaster manager, will however, nevertheless recognise that disaster planning and managing are different social processes (Quarantelli, 1995b). In this respect, it must be understood that planning is **not** managing. Disaster planning involves the general strategy to be followed in preparing for disaster. Management involves using particular tactics to handle the specific situational contingencies inherent in disasters. There are a number of nationally recognised principles and components, that if built into a disaster management system, assist disaster planning and management. These principles and components are presented in Table 3.10 and Table 3.11.

Table 3.10

Principles of Effective Disaster Management Practice

All Hazards

Even though specific measures will often vary with different hazards, a single set of management arrangements should be capable of encompassing emergencies caused by all hazards (natural and technological).

Comprehensive

- Prevention
- Preparedness
- Response
- Recovery

Integrated

- Identify sources of resources and services.
- Delineate organisational roles and responsibilities.
- Facilitate integration of state, regional, municipal and agency plans.
- Be responsive to needs for change.
- Integrate prevention response and recovery policies, plans and activities.
- Minimise unnecessary duplication of services.

Consistent and Equitable

Arrangements are applied equally to all events of similar type and effect regardless of size.

The Responsible and Prepared Community

Emergencies are community events. In an emergency, individual and community self-help can often provide the most decisive and effective relief, as it cannot be assumed that assistance from external sources will always be available or will arrive quickly.

Source: Adapted from Emergency Management Australia (1995:6)

Table 3.11

Components of Effective Disaster Management Practice

Organisation

Disaster management arrangements, involving so many different agencies in a variety of ways, form a network of connections and inter-relationships which, to be coherent and manageable, needs to be structured into a systematic organisational framework.

A Planning Process

The organisation must incorporate systems for developing and maintaining plans at state, regional and local levels covering disaster response and recovery, as distinct from the agencies' own internal operating plans.

An integral part of this process is hazard analysis and risk assessment.

The provision for feedback and plan revision is underlined.

Effective Plans

A disaster management (response and recovery) plan is the formal record of arrangements made and agreements reached between agencies involved in the particular circumstances.

To be effective, it must be written, simple, properly disseminated, regularly tested and revised, and its implementation well understood by those responsible, and their support staff.

Skilled Personnel

In addition to the arrangements and plans, organisations need personnel who are not only familiar with their agencies' responsibilities, and the actions to be initiated under internal plans, but trained and experienced in the emergency management system, and the roles and responsibilities of other organisations.

Essential to the maintenance of readiness is the conduct of training and practice sessions of cross-functional personnel and agencies.

Competency based training becomes a critical issue.

Actions

If responses are to be timely, actions taken in accordance with plans should be responsive solely to need, and be independent of declarations of states of disaster.

Inter-Agency Roles and Responsibilities

Disaster management plans need to clearly specify the agency or agencies responsible for overall control of disaster situations (response), for the internal direction of each organisational element involved, and the overall coordinating responsibility for the general type of activity (response or recovery), which carries with it the responsibility for assembling support resources.

Information Management and Communications

Effective disaster management is dependent upon liaison and exchange of information within and between agencies.

The corollary of this is that communications networks will be needed to link organisations and agencies to ensure that decisions/actions are made according to the most reliable and preferably, common data.

There is also a requirement for communication to the community of various types of information covering prevention, response and recovery issues.

Adequacy of Resources and Maintenance of Readiness

Agencies and individuals tasked for response or recovery activities need to ensure they are appropriately equipped, staffed and organised.

They must also maintain a state of readiness to be able to perform their allotted tasks with minimal lead times.

Many organisations involved with disaster response or recovery do not normally operate in a disaster mode, and they may need to plan for alternative operating arrangements to ensure timely decision making and provision of resources, material, etc., during a disaster

Operational Flexibility

Because disasters can and do occur without regard for inter and intra organisational boundaries and state borders, there must be arrangements in place to ensure that there is no loss of planning and operational effectiveness across such boundaries or borders.

Capacity to Manage Extreme Events

Some low probability disasters can have such a high impact that the system's capacity to manage the effects is impaired. or which present particular problems if there is a breakdown of some of the wider society's normal systems.

There is need for means to activate extreme measures to ensure that there is rapid deployment of needed resources to deal with the event(s).

Funding

Financial arrangements for disaster management should be available:

For agencies on a consistent basis over the years, commensurate with strategic importance and need.

For inter-agency needs, such a as policy development, planning, training, exercises, communication links, etc.

With assurances of supplementation when the needs created by major events exceed normally available resources.

Parliamentary Accountability/Ministerial Authority

The disaster management arrangements needs to have a clear line of authority and accountability to the executive government, desirably through a single minister who has directive powers under extreme circumstances. These aspects should be set out in legislation.

A Policy Development Process

The disaster management system needs to have clear, defined means to have policy considered by Government, through the responsible Minister, to enable the formulation, approval and implementation of policy in relation to disaster management.

Evaluation of the Results

The system needs to have both internal and external feedback and evaluation mechanisms to assess whether its structure and operations are meeting their objectives effectively and efficiently.

Source: Adapted from Emergency Management Australia (1995:10)

- Effective Mentorship

Mentoring, it has been argued:

> ...is a complex, interactive process occurring between individuals of differing levels of experience and expertise which incorporates interpersonal or psycho-social development, career and/or educational development, and socialisation (Carmin, 1988 cited in Bush et al., 1996:121).

As a multi-faceted concept, mentoring incorporates the idea of personal support and more importantly, the notion of professional development leading to enhanced competence. The accomplished emergency manager, then, will identify in a new recruit natural apprehension and uncertainty with regard to their particular role and responsibilities, and actively seek to provide direction and encouragement. The accomplished and experienced emergency manager is in a unique position to pass on practical insight derived from experience, as well as assist the new recruit to set realistic expectations and steer them in the right direction as far as career aspirations are concerned. Mentoring is made easier if the mentor views the mentee as a protege who must be appropriately nurtured. Moreover, mentoring can, and should be a mutually rewarding experience (Thomson, 1993 cited in Bush et al., 1996:122). That is to say, the mentor must also benefit from mentoring in terms of the opportunity given to reflect on and question their own subconscious practice, as well as share new ideas and developments that newly appointed recruits bring to an organisation.

Effective mentoring programmes are those that produce benefits for the organisation as a whole. In schools, teachers may develop collaborative models of working which enable them to share ideas and problems and enhance the collective competence of the staff (Bush et al., 1996:122). Indeed, mentoring:

> ...proliferates organizational norms and culture, ensures hard-learned knowledge and skills are transferred to younger colleagues [and] improves the overall performance of the work group (Chong et al., 1989 cited in Bush et al., 1996:122).

There is no reason why emergency service organisations cannot find the same benefits and successes from developing similar collaborative models of working through effective mentoring programmes. Indeed, responding to emergency necessitates a high level of

collaboration, cooperation, and coordination between participating emergency service organisations.

Ultimately, mentorship and thus effective leadership is developed through experience and learning. Blanchard & Johnson's (1994) concept of the 'one-minute-manager' provides a valuable model by which organisational learning and commitment may be effected. The model is rationalised by means of one-minute-goal-setting (Table 3.12), one-minute-praisings (Table 3.13), and one-minute-reprimands (Table 3.14). The model is in keeping with a flexible, innovative, and human-relations emphasis.

Table 3.12

One-Minute-Goal-Setting

- Agree on your goals;
- See what good behaviour looks like;
- Write each of your goals on a single sheet of paper using less than 250 words;
- Read and re-read each goal, which requires only a minute or so each time you do it;
- Take a minute every once in a while out of your day to look at your performance; and
- See whether or not your behaviour matches your goal.

Source: Blanchard & Johnson (1994:34)

Table 3.13

One-Minute-Praisings

- Tell people right from the start that you are going to let them know how they are doing;
- Praise people immediately;
- Tell people what they did right - be specific;
- Tell people how good you feel about what they did right, and how it helps the organisation and the other people who work there;
- Stop for a moment of silence to let them 'feel' how good you feel;
- Encourage them to do more of the same; and
- Shake hands or touch people in away that makes it clear that you support their success in the organisation.

Source: Blanchard & Johnson (1994:44)

Table 3.14

One-Minute-Reprimands

- Tell people beforehand that you are going to let them know how they are doing and in no uncertain terms.

The first half of the reprimand:

- Reprimand people immediately;
- Tell people what they did wrong - be specific;
- Tell people how you feel about what they did wrong - and in no uncertain terms; and
- Stop for a few seconds of uncomfortable silence to let them feel how you feel.

The second half of the reprimand:

- Shake hands, or touch them in a way that lets them know how you are honestly on their side;
- Remind them how much you value them;
- Reaffirm that you think well of them but not of their performance in this situation; and
- Realise that when the reprimand is over, its over.

Source Blanchard & Johnson (1994:59)

Blanchard & Johnson's (1994) model of the 'one-minute-manager' has significance for the development of cooperation and coordination among emergency service organisations. Consequently, modification of the model within the ECMS, provides a basis for developing the IDMS. To do this, however, requires the development of a productive mind-set, and significantly, this is something also recognised by the Blanchard & Johnson (1994) model (Table 3.15).

Table 3.15

Productive Mind-Set

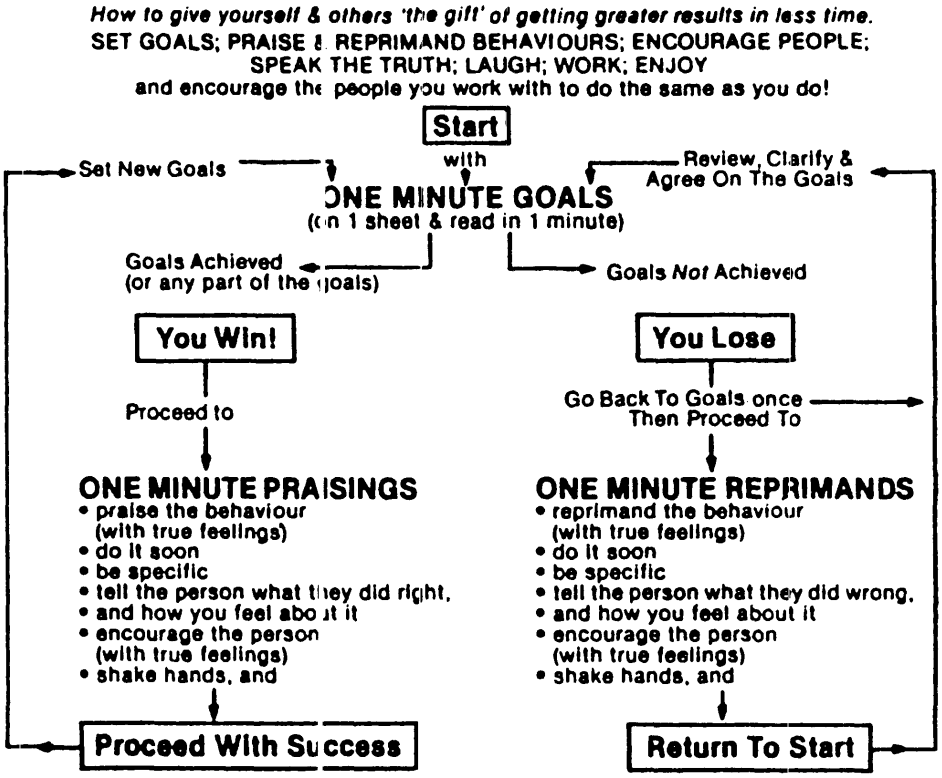
• People who feel good about themselves, produce good results;
• Help people reach their full potential, catch them doing something right;
• The best minute I spend is the one I invest in people;
• Everyone is a potential winner, some people are disguised as losers, don't let their appearances fool you;
• Take a minute: look at your goals, look at your performance, see if your behaviour matches your goals;
• We are not just our behaviour, we are the person managing our behaviour; and
• Goals begin behaviours, consequences maintain behaviours.

Source: Blanchard & Johnson (1994:19-97)

The disaster manager, then, adopting Blanchard & Johnson's (1994) 'one-minute-manager' concept and model, effectively will follow a process that potentially could be very rewarding in fostering mentorship and an understanding in human-relations (Figure 3.4).

Figure 3.4

The One-Minute-Manager's Game Plan



Source: Blanchard & Johnson (1994:101)

- Effective Coordination

Where would leadership and mentorship be without coordination? Intelligent organisational design must facilitate effective cooperation and coordination. Wanna, O'Faircheallaigh, & Weller (1992:79) argue that to improve coordination between and within public sector organisations, and to enhance efficiency and effectiveness, the following conditions are regarded as essential:

- That there are clear and explicit statements of agency objectives, allowing ministers to ensure their compatibility with the government's goals, providing clear guidelines for action within organisations, and helping to foster an organisation ethos which would encourage the committed support of individual employees;

- That there are strategies which offer concrete ways of pursuing agreed objectives, based on an analysis of constraints and opportunities present in the external environment;

- That there are resource allocation mechanisms which give preference to those areas and activities crucial to implementation of strategies and pursuit of objectives;

- That there are evaluation techniques which indicate the extent to which agency objectives are being achieved and the degree to which employees at all levels of the organisation contribute towards their achievement (or fail to do so); and

- That there are recruitment and reward systems which encourage maximum staff commitment to pursuit of organisational goals.

It should be noted that in post-bureaucratic organisations, most coordination between functions and other organisations is undertaken by teams (Pinchot & Pinchot, 1993:36). Teams rather than wrestling with bureaucracy, work together as entrepreneurial generalists when granted authority to make most of their own decisions (Pinchot & Pinchot, 1993):

> [Reality has become so complex and multi-dimensional]...that there is no way dividing the organization into chains of command that will work for all aspects of the challenges faced. As a result, integration is achieved through peer-level cross organizational communication rather than hierarchy. Huge volumes of cross-functional communications are needed because every important process crosses the boundaries of the organization... In the intelligent organization communications whenever possible are direct, without intermediaries (p38).

Table 3.16 distinguishes the processes in a competitive and collaborative system.

Table 3.16

Processes in a Competitive and Collaborative System

	In a Competitive System ...	*In a Collaborative System ...*			
When	1. *Conflict* is tied to hierarchy.	1. *Conflict* is rooted in *legitimate difference*.	Which Leads To	7. *Alienation.* Reinforcement that *conflict* is *based* in and *resolved by* the hierarchy.	7. *Commitment, involvement,* and *investment* in organization. Reinforcement that conflict is based in *legitimate differences,* and is *resolved* outside the hierarchical system.
These Dynamics	2. *Control* is gained at other's expense (assumes fixed power pie). *Mastery* is never gained.	2. *Control* and *mastery* are gained at other's expense (unlimited power pie.)	Then To	8. *Frustration.*	8. *Problem-solving* rather than perpetuation of conflict.
Result In	3. Individual and group boundary permeability decreasing.	3. Individual and group boundary permeability increasing. Difference are incorporated.	And	9. *Aggression.*	9. *Awareness, creativity,* and *excitement.*
Which Leads To and Results In	4. Indivduals *protect* self and *perpetuate* hierarchy.	4. Self is a given; individuals *present* self and do not respond to hierarchy.	And Thus	10. *Passive-aggressive* behavior pattern—all behavior is in *response* to control and authority and resolution of these dynamics in formal organization. Risk taking is calculated.	10. *Interactive behavior pattern. Interdependence* is supported and rewarded. Risk taking is valued.
This Happens Because	5. Someone outside the individual determines what needs are and how they will be satisfied. This is *External Control.*	5. Individual determines what needs will be satisfied, and how this will happen. This is *Internal Control.*	Once Again	11. Return to 1.	11. Return to 1.
And Results In	6. Feeling of being *out of control* of self and organizational environment; need to control others increases as a way of gaining self-control.	6. Feelings of *mastery* and *control* of self and organizational environment increases; need to control others decreases.			

Source: Kraus (1980:193)

- Effective Strategy-Making

Effective coordination should lead to effective strategy-making. Top mangers will adopt a variety of postures in strategy making. Different priorities will be focussed upon for each of five distinctive modes of strategy making. Table 3.17 identifies an integrative framework of strategy-making based on five strategy making modes: command, symbolic, rational, transactive, and generative.

Table 3.17

An Integrative Framework for Strategy-Making Processes

Descriptors	Command	Symbolic	Rational	Transactive	Generative
Style	(*Imperial*) Strategy driven by leader or small top team	(*Cultural*) Strategy driven by mission and a vision of the future	(*Analytical*) Strategy driven by formal structure and planning systems	(*Procedural*) Strategy driven by internal process and mutual adjustment	(*Organic*) Strategy driven by organizational actors' initiative
Role of Top Management	(*Commander*) Provide direction	(*Coach*) Motivate and inspire	(*Boss*) Evaluate and control	(*Facilitator*) Empower and enable	(*Sponsor*) Endorse and support
Role of Organizational Members	(*Soldier*) Obey orders	(*Player*) Respond to challenge	(*Subordinate*) Follow the system	(*Participant*) Learn and improve	(*Entrepreneur*) Experiment and take risks

Source: Hart (1992:334)

Hart (1992:339-345) operationalising and empirically validating the five strategy making modes assessed their performance in terms of current profitability, growth/share, future positioning, quality, and social responsibility. As a result of these assessments, Hart proposed the following:

- That the symbolic, rational, and transactive modes of strategy making will be more predictive of high performance than will the command and generative modes;
- That given its emphasis on mission and vision, the symbolic mode will be positively associated with future positioning and growth/share;
- That given its emphasis on formal planning and control systems, the rational mode will be positively associated with current profitability and growth/share;
- That given its emphasis on feedback and learning, the transactive mode will be positively associated with quality and social responsibility;
- That given its orientation toward total top management control, the command mode will not be associated with any of the performance dimensions; and
- That given its complete dependence upon employee initiative, the generative mode will not be associated with any of the performance dimensions.

Addressing strategy making modes and key contingency factors, Hart (1992:342-344) proposed:

- That the command mode will be most prevalent among small organisations in relatively simple environments;
- That the symbolic mode will be most prevalent among either rapidly growing or reinforcing firms following proactive strategies in dynamic, high-velocity environments;
- That the rational mode will be most prevalent among larger, steadily growing firms, defending established strategic positions in relatively stable environments;
- That the transactive mode will be most prevalent among large firms following "analyser" strategies in mature industries characterised by heterogeneity and complex interactions among suppliers, customers and other stakeholders; and
- That the generative mode will be most prevalent among firms competing in turbulent (complex and rapidly changing) businesses environments. where prospecting is important to competitive success.

Table 3.18 examines the strategy-making modes combined with contingency factors.

Table 3.18

Strategy-Making Modes and Contingency Factors

Contingency Factors	Command	Symbolic	Rational	Transactive	Generative
Environment	Simple; Low-level complexity	Dynamic; High velocity or radical change	Stable; Low degree of change	Complex; Many stakeholders	Turbulent; Dynamic and complex
Firm Size	Small	Medium-Large	Medium-Large	Large	No relation
Stage of Firm Development	No relation	Rapid growth, Reorientation	Steady growth	Mature	No relation
Strategic Orientation	No relation	Proactive change (Prospector/ Analyzer)	Solidify position (Defender)	Continuous improvement (Analyzer)	Innovation (Prospector)

Source: Hart (1992:342)

These propositions identify the strengths of five individual strategy making modes. The propositions do not reveal which combinations or packages of modes work effectively. Indeed, Hart (1992:345) suggests that the greater the firm's strategy making capability

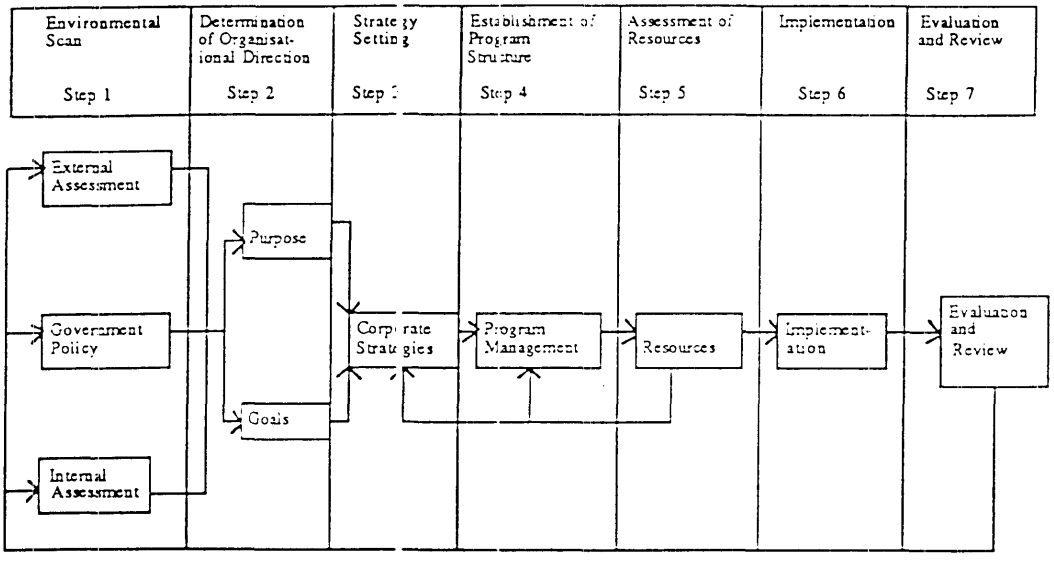
within each mode, and the greater the number of strategy-making modes it combines, the higher its performance. Hart proposed:

- That the more the firms are able to develop capability in multiple strategy making modes (high process capacity), the better their performance on all dimensions;
- That the higher performing firms will combine distal modes of strategy making; and
- That the lower performing firms will combine proximal modes of strategy making.

The IDMS, through its ECMS will nurture the development of effective cooperation and means of strategy-making. Undoubtedly, such development will aim to achieve a balance of command, symbolic, rational, transactive, and generative strategy-making.

Successful new management practice is also dependent on a strategic planning process being undertaken. The strategic planning process is outlined in Figure 3.5.

Figure 3.5
The Strategy-Making Planning Process



Source: Wanna, O'Faircheallaigh, & Weller (1992:78)

Wanna, O'Faircheallaigh, & Weller (1992:77-78) explain the strategic planning process in the following way: The process commences with an assessment of the internal and external environment, and proceeds to the identification of goals, development of strategies to pursue these goals, creation of structures and processes to ensure that strategies are implemented, application of review and evaluation procedures, and feedback of information from these procedures. Feedback mechanisms suggests Wanna, O'Faircheallaigh, & Weller (1992:77-78) are of particular importance in the strategic planning process because they represent renewal of the cycle; indeed, corporate management is never complete, but rather an endless process in which an organisation re-evaluates its goals and modifies its structures and strategies accordingly.

The Emerging 'Flexible' Organisation

New management practice highlights the value of flexible organisational structures and management arrangements. Pinchot & Pinchot (1993) define the requirements for a flexible organisation as:

> Radical changes in the nature of work are revolutionalizing what it is to be human in modern society. Every institution is changing as the relationships between employee and employer, woman and man, offspring and parent, student and teacher alter the deep and permanent ways in response to the need for all to contribute their intelligence, creativity, and responsibility to society. After decades of narrow focus, employees are being asked to consider the whole, to be innovative and care for customers, to work in teams , and to figure out their own jobs and coordinate with others rather than just follow orders. Nearly all growing sectors of work require technical and human understanding, cute observation, creative problem thinking and skill in collaboration...
>
> Bureaucracy as we know it, a structure defined by chains of dominance and submission, cannot survive these changes...bureaucracy is too simple-minded to deal with the multi dimensional complexity caused by the diversity of customers, employers, partners, suppliers, and technologies. Bureaucracy fails to meet today's challenges because it discourages employees from using their native intelligence and sociability to run their own area of the organization...

> In intelligent organizations employees put their heads together to milk opportunities, co-create products and services, find and solve problems. They "get in over their heads" and help each other emerge with stronger skills and a bit more wisdom. Employees run their areas like small businesses, serving their internal and external customers with care and working with others across the organization to make sure the whole system is going well. Everyone, not just the people at the top, is exercising his or her intelligence and responsibility at work (p4).

As previously stated, new management practice is one of: delayering, team-based networks, alliances and partnerships, and a new employer-employee covenant. Delayering and down-sizing is triggered by the need to reduce costs as well as developments in information and communication technologies (Bahrami, 1992:34). As a consequence, the need for middle management is reduced.

The benefits of flatter hierarchies means a more flexible and responsive organisation (Bahrami, 1992:34). There is increasing reliance on multi-functional, multi-unit teams. Bahrami (1992:34) considers that a key advantage of using teams is their intrinsic flexibility - they can be formed, re-formed, and disbanded with relative ease; they can bypass the traditional hierarchy; and their composition can evolve over time in order to blend skills and address changing priorities. Collaborative partnerships are also on the increase because they are a flexible means of blending capabilities, sharing risks and generating options (Evans, 1982). Such partnerships facilitate boundary spanning in the IDMS and a means to pursue the development of effective cooperation and strategy-making.

Flexibility is the emerging imperative as we move into the 21st Century:

> The concept of flexibility, in an organisational context, refers to the ability to precipitate intentional changes, to continuously respond to unanticipated changes, and to adjust to the unexpected consequences of predictable changes (Bahrami, 1992:37).

> The organizations that are smart enough to deal with the complexity and fluidity of today's world have what computer people call "mutable architecture" meaning the structure shifts to face the problem at hand. As the business opportunities and challenges change, people are changing their work processes, their connections, their relationship to technologies, even the values and directions embraced (Pinchot & Pinchot, 1993:19).

Indeed, while bureaucracy is a system that achieves coordination by confining people so narrowly that there is no chance for most to use a broad range of talents (Pinchot & Pinchot, 1993:19), the intelligent organisation, by contrast, is designed to tap the intelligence and the variety of talents in every individual (Pinchot & Pinchot, 1993:19-20):

- It can deal with more issues at once, such as caring for one another, customers, the town, and the community;
- It can face many competitors simultaneously and deal more effectively with all of them;
- It can implement whole-systems thinking without robbing units of local flexibility;
- It can better identify core issues and address them rapidly;
- It can learn from experience how to do new things, not just what not to do, and better remember what has been learned;
- It can rapidly apply what has been learned in one place to others;
- It can integrate leaning across the organization and use it creatively and flexibly; and
- It can attend to all the details and supporting competencies that add up to cost-effective, superior performance.

These attributes are particularly worth noting for their linkage to human-relations and natural-system organisational design models. The attributes also underline a socio-technical system. This is very important in the design of an IDMS.

As intelligent structures, high technology organisations are dependent on strategic and innovative flexibility for survival. Bahrami (1992) makes the comment:

> Irrespective of their size or stage of development, they need to remain disciplined, lean, and focused, requiring minimal duplication of effort, stringent accountability, and effective control and coordination. However, a loose, hands-off management style is needed to manage expectant professionals, maintain a conducive environment for creative thinking, and provide the capability for rapid response to competitive and market developments (p36)

The building of strategic alliances and collaborative relationships is also a fundamental part of pooling complementary, addressing rapid changes, reducing risk and providing strategic flexibility (Bahrami, 1992:44). The emergence of semi-permeable boundaries in

the high technology sector takes the form of access to partners' internal information systems through electronic mail networks; workers assigned to joint development projects become a temporary employee of a partner organisation for a limited period of time, thereby forging crucial relationships and gaining access to vital information about a partners culture and modus operandi (Bahrami, 1992:45).

The traditional model of the industrial enterprise is one with an all-powerful centre and various subsidiaries. The model of the omnipotent centre has been criticised by Bahrami (1992:38) in three fundamental areas:

- That rapid change demands quick reactions and continuous re-calibration. Separating the brain (the centre - which plans a response) from the muscles (the line units - which enact the response) can lead to slow response and result in information distortion through hierarchical filtering processes.
- That the executives with the most up-to-date understanding of evolving market realities are typically in the trenches. These executives are the best positioned to strategise and execute the necessary actions in real time as new imperatives unfold.
- The line managers in knowledge based companies have the professional expertise and the educational background to undertake much of the strategising and analytical work; assisted by new technologies, they can minimise their reliance on corporate support groups.

It is clear that the emerging organisational system of the 21st Century for high technology organisations is more akin to a federation of business units that are typically interdependent, relying on one another for critical expertise and know-how (Bahrami, 1992:38). Moreover, they have a peer-to-peer relationship with the centre (Bahrami, 1992:38). The centre's role is to orchestrate the broad strategic vision, develop the shared organisational and administrative infrastructure, and create the cultural glue which can create synergies , and ensure unity of mission of purpose. These tasks, however, are undertaken together with the line units, rather than for them.

One has then a development of organisational dualistic systems. Systems, which strike a dynamic balance between stability on the one hand and flexibility on the other. Bahrami (1992) explains further:

> The first component is a substrate of the formal structure which only periodically undergoes major transformation. This provides a formal mechanism for grouping skills, clustering activities, and assigning reporting relationships, as well as a base unit which gives many employees an anchor of stability (cited in Bahrami and Evans, 1989). However, due to inertial forces, these bedrock structures can not be changed as frequently as may be warranted by internal and external changes. Many firms compensate for the relative inflexibility of the bedrock structure by using overlays of temporary project teams and multi-functional groups whose members are drawn from various operating units. These enable a firm to focus on critical assignments without causing major disruptions (p39).

The bi-modal organisational system is one that accommodates opposing tendencies (centralisation and decentralisation, stability and dynamism; and uniformity and diversity) and yet function as coherent and cohesive forces.

Any IDMS requires inspired leaders who can think critically and logically. Particularly, with regard to self-evaluation. No intelligent organisational system would be complete without the development of a capacity to self-evaluate its performance regularly. Emergency service organisations are no exception. Wildavsky (1971) spoke of the need for the development of an organisational design which:

> ...would continuously monitor its own activities so as to determine whether it was meeting its goals or even whether these goals should continue to prevail...
>
> The ideal member of the self-evaluating organisation is best conceived as a person committed to certain modes of problem solving...believes in clarifying goals, relating them to different mechanisms of achievement, creating models (sometimes quantitative) of the relationships between inputs and outputs, seeking the best available combination (p509).

Establishing a capacity for organisational self-evaluation, overcomes an inability on the part of the organisation, to learn from experience. Self-evaluation can also facilitate an understanding of network organisation failure and how alterations to the operating logic in these organisations affects effectiveness (Miles & Snow, 1992).

Matrix Organisational Design

New management practice will employ a form of matrix organisational design. Manufacturing, professional, service, and non-profit organisations tend to use matrix design as a means of remaining viable in changing environments. A need for open, flexible, and innovative human-relations characterises the requirements of an IDMS. The matrix design is a very important way of facilitating these needs. So what is matrix organisational design?

Matrix design is defined by Davis & Lawrence (1977) as :

> ...any organization that employs a multiple command system that includes not only a multiple command structure but also related support mechanisms and an associated organizational culture and behavior pattern (p3).

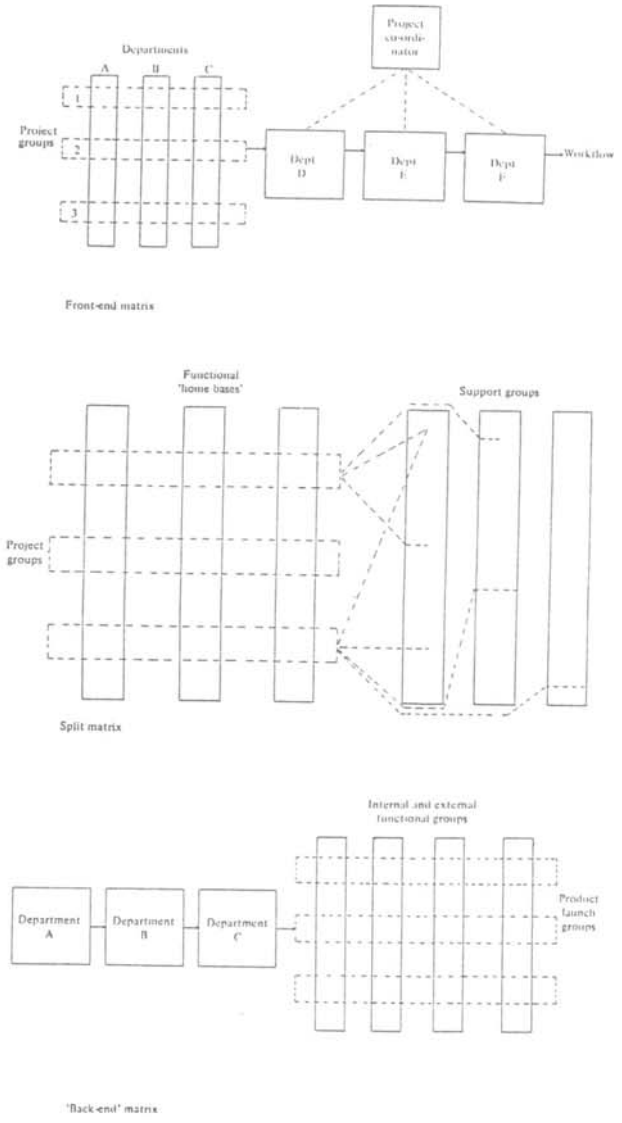
Matrix structures can be permanent, temporary or both. More specifically, we can speak of an operating and administrative adhocracy. The operating adhocracy innovates and solves the problems directly on behalf of its clients; its multi-disciplinary teams of experts often work directly under contract (Mintzberg, 1979:436). As temporary and/or permanent project teams, disaster-relevant personnel could be assigned disaster mitigation, preparedness, response and recovery problems to solve. The administrative adhocracy, rather then undertaking projects to serve its clients, undertakes projects to serve itself. In this respect, temporary and/or permanent project teams will consider issues relating to organisational and/or network planning, operations, logistics, finance and human resources management.

Significantly, matrix design has applicability for human service orientated organisations (Davis & Lawrence, 1977); thus its significance in the area of disaster services provision.

An important feature of the matrix design is its use of a dual chain of command (Davis & Lawrence 1977). This represents abandonment of the one-boss or single chain of command in favour of a multiple command system. Whereas the one-boss or single chain of command approach may have worked reasonably effectively in military or command-control type situations (Bennett Degan & Spiegel, 1969), it is not flexible or innovative enough to work effectively in disaster situations where there are often a diversity of organisations in assistance, including emergent and/or volunteer personnel. The matrix is

a structural design that significantly assigns specialists from specific functional areas to work on one or more interdisciplinary teams led by project leaders (Robbins & Barnwell, 1989). This constitutes an intelligent design principle which is of relevance to the IDMS. Figure 3.6 illustrates three hypothetical matrix designs.

Figure 3.6
Hypothetical Matrix Organisational Designs



Source: Gunz & Pearson, 1977:41-43

The matrix provides flexibility, a dimension created by the use of multi-disciplinary teams. This attribute alone, holds particular value in the development of an ECMS.

The threefold behaviour (Davis & Lawrence, 1977:21) that one is trying to induce with the matrix are:

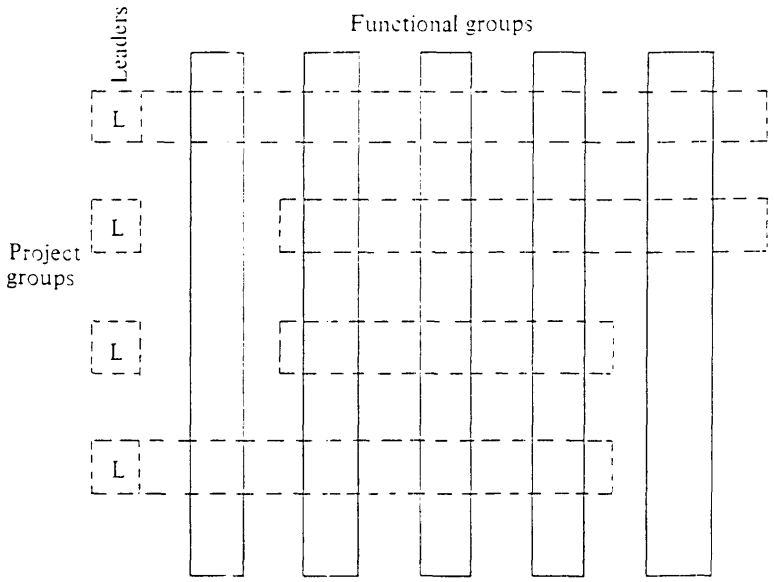
- The focussing of undivided human effort on two (or more) essential organisational tasks simultaneously;
- The human processing of a great deal of information and the commitment of the organisation to a balanced reasoned response (a general management response); and
- The rapid redeployment of human resources to various projects.

Mechanisms for processing information along overlapping dimensions simultaneously also characterises matrix design (Davis & Lawrence, 1977:52). This is a very important consideration in judging the success of inter-organisational relationships among emergency service organisations. Elements in an organisation's culture which are responsive to the requirements of a matrix are:

- An open and flexible attitude with regards to "the way things are done around here" and to change in general;
- An open and frequent exchange of ideas and positions on issues;
- A shared belief and excitement that those in the matrix are participating in an experiment;
- An emphasis on flexibility, informality, and minimisation of hierarchy. The physical setting is a reflection of the internal culture (Davis & Lawrence, 1977:57).

These factors are indicative of a culture that enhances managerial behaviour based on planning, organising, leading, and coordinating. The IDMS will similarly, want to identify and encourage factors that facilitate an inter-organisational awareness and understanding, thereby establishing meaningful mutual-aid arrangements and memorandums of understanding. To this end, leadership proves a critical factor in the mature matrix (see Figure 3.7).

Figure 3.7
Leadership Matrix



Source: Gunz & Pearson, 1977:34

Leadership when combined with intelligent mentorship, provides a means of overcoming possible deterioration in network organisational form, like the matrix. Network design has been shown to fail when it is overloaded, or where its operations are extended beyond the capability of its structure (Miles & Snow, 1992:62). It would be the role of a CCC to oversee IDMS operations and ensure that its ECMS was performing appropriately. Developing a capacity for self-evaluation within the ECMS and IDMS would also safeguard possible matrix design overload or unnecessary extension. If properly implemented, the matrix creates opportunities for people as well as the organisation:

> People can grow and develop in ways and at rates not normally possible in more traditional organisations. There are opportunities for growth in knowledge, skill inter-personal competence and influence. There are opportunities for the organisation to reap greater motivation and commitment from organizational members...(Davis & Lawrence, 1977:103).

The advantages, then, of using matrix design are real (Table 3.19), despite inevitable disadvantages (Table 3.20).

Table 3.19

Advantages of Using Matrix Design

• The direct and frequent contact between different specialities in the matrix can make for better communication and more flexibility;
• Information permeates the organisation and more quickly reaches those people who need to take account of it;
• Reduces bureaupathologies;
• Facilities the efficient allocation of specialists;
• Achieves the advantages of economies of scale by providing the organisation with both the best resources and an effective way of ensuring their efficient deployment;
• Creates increased ability to respond rapidly to changes in the environment; and
• Dual lines of authority reduce tendencies of departmental members to become so busy protecting their little worlds" that goals become displaced.

Source: Robbins & Barnwell (1989:226)

Table 3.20

Disadvantages of Using Matrix Design

• The confusion it creates;
• Its propensity to foster power struggles and the stress it places on individuals;
• Ambiguity and possible conflict increases with the dispensing of the unity of command concept;
• Reporting to more than one boss introduces role conflict; and
• Unclear expectations introduce role ambiguity.

Source: Robbins & Barnwell (1989:227)

While organisation and management costs associated with the matrix are high (Davis & Lawrence, 1977), the potential benefits are sufficient to out-weigh anything negative. A matrix design properly implemented within the IDMS can make all the difference between success and failure:

> Teams may be merely communications devices or fully integrated decision-making groups...Similarly, people can adapt marginally to a new way of functioning or they can develop significantly as individuals and managers. It is out of experience that one of the biggest benefits of the matrix is the developmental opportunities that it provides for members of an organization. Understanding of other functions is enhanced in ways that only job transfer has been able to achieve in traditional organizations. Skills relating to other people and working in groups are sharpened. Skills in planning, analyses of business problems and decision making are developed...
>
> A matrix organisation allows more individuals the opportunity to develop from technical or functional specialists into general managers. Thus, the organisation has an increased number of people from which they can choose their leaders (Davis & Lawrence, 1977:118).

Criticisms of the matrix design creating unnecessary tension and conflict are disputed by Davis & Lawrence (1977), who argue that this does not always have to be the outcome:

> The assumption in a matrix is that conflict can be healthy and that higher quality solutions will develop if people with different expertise and orientations relating to a given task get together and thrash out their differences. There is a demand for confronting and problem solving. In this approach conflict, management differences are valued...(p104).

Achieving cooperation, however, requires the mutual development of trust and understanding, and in this regard, Davis & Lawrence (1977) suggest:

> Individuals and groups must learn to rely on each other and to accept each other and to accept each other's judgements when these are based on unique competence and knowledge. Without trust, the organization quickly reverts back to a reliance on chain-of-command authority. Individuals share less, make more unilateral decisions, use forcing as a way of resolving conflicts, and see greater differences between themselves and those in other functions...(p107).

To develop and maintain trust, individuals in the matrix must be prepared to take personal risks in sharing information and revealing their own views, attitudes and feelings. Team-building is fundamental to the matrix. Davis and Lawrence (1977:110-111) suggest that the following considerations might be useful in team-building:

- That group members begin a dialogue by talking about their expectations and concerns for the team and the project The inevitably causes differences to surface which need to be recorded and worked through;
- That a discussion aimed at developing agreement on the objectives of the group;
- That a discussion about leadership in the team--the role of the chairperson, responsibility for initiative taken in meetings and outside meetings, and the extent to which the group expects the leader to push the group to a decision;
- That roles and responsibilities of group members are discussed, with the aim of recognising ambiguities and overlaps;
- That the group discusses how decisions will be made;
- That ground rules for communication and conflict resolution are developed;
- That understanding is developed about the responsibilities of team members in relating back to their departments what is happening in the team; and
- That any interpersonal problems are aired so that they do not block team functioning.

It is accepted that the matrix will attract compatible and incompatible personalities and that despite all development efforts, some individuals cannot or will not adapt to the behavioural and attitudinal requirements of the matrix. People are different, and their capacity to adapt is limited by their personalities and cumulative effect of their work experience. Effective matrix design, suggests Davis & Lawrence (1977:114-115) requires managers and leaders who:

- Have knowledge of all functional specialities, particularly those that are most complex and uncertain;
- Can assess the judgement of the functional specialists and know how to challenge their positions if they are thought to be biased;
- Are motivated to work collaboratively and has the skills to do it:
- Are unbiased in orientation toward other functions and can work and maintain a balanced orientation;
- Use personality and expertise as a source of influence even when formal power is available;

- Involve others in decision-making rather than making sole decisions;
- Are not dogmatic and impatient with the participative problem-solving process;
- Have high levels of inter-personal competence;
- Have the capacity to develop and maintain a broad organisational perspective; and
- Have the capacity and skills to engage in problem solving in groups.

Adopting these strategies within the IDMS may go some way towards breaking down barriers and lack of trust between emergency service organisations (discussed Chapter Four).

Pressures for shared resources see organisations under considerable pressure to achieve economies of scale in human terms and high performance in terms of both costs and benefits by fully utilising scarce human resources and meeting high-quality standards (Davis & Lawrence, 1977:17). Organisations with conventional designs tend to develop resistance to the rapid redeployment of specialists across organisational lines; structures are traditionally thought of as solid and static (Davis & Lawrence, 1977:18). Moreover, they do not change very often and since environmental and strategic changes tend to evolve in a continual process, the organisations is often always catching up with already changed circumstances (Davis & Lawrence, 1977:18). The matrix because of its flexibility and fluid nature, facilitates structural change in frequent small doses, rather than infrequent major shake-ups and helps induce the kind of behaviour that views rapid redeployment and the shared use of scarce human resources as basic (Davis & Lawrence, 1977:18).

The change to a matrix design cannot be accomplished by issuing simply a new organisational chart. There needs to be a realisation and understanding of matrix structure, matrix systems, matrix culture, and matrix behaviour:

> ...every organization has a culture of its own...for the matrix to succeed the ethos or spirit of the organization must be consistent with the new form..
>
> People are brought up, by and large, to think in terms of "one-person, one-boss" and such habits of mind are not easily changed. People must learn to work comfortably and effectively in a different way of managing and organizing (Davis & Lawrence, 1977:19).

CONCLUSION

Wenger, Quarantelli, & Dynes (1990) make the point that the outcome of thirty years of research from the Disaster Research Center, University of Delaware, as well as outside research has concluded that there is very little evidence to support that 'one model' is workable in all disasters and by all groups ie. organisations. The social complexity of disaster precludes the application of one organisational model to a response which is multi-organisational in nature The work of the Disaster Research Center has also suggested that variants of command and control models often create the illusion of effectiveness by ignoring a number of issues outside the system.

The most useful model for disaster management then has to take into account the complexity of the community, the organisational forms which make up the pattern of response, and the need for coordination (Wenger, Quarantelli, & Dynes, 1990:11). Furthermore, planning which assumes that a model based on a particular organisational type management, specific type of disaster, and the need for control is bound to show deficiencies; such deficiencies do not emerge from poor implementation, but with the limitations of the model itself (Wenger, Quarantelli, & Dynes, 1990:11). It is for this reason, that understanding the complexities of coordination necessitated by the multi-organisational responses is the best route planning and managing can take (Wenger, Quarantelli, Dynes, 1990:11).

Emergency service organisations in order to be able to deal effectively with the socio-political-economic-organisational context of disaster management need to be able to balance dialectical forces - facilitating creativity, innovation and speed, while instilling coordination, focus and control, and the staying power to withstand adversity. To this end, aspects of the socio-technical system, human-relations model, natural-systems models, and matrix design were highlighted. These models are significant for their use of intelligent design principles; principles, that have significance in the design, development and implementation of an IDMS

The IDMS, then, with the assistance of its CCC and ECMS, is a product of the application and modification of the socio-technical system, human-relations, natural-systems, and matrix design models.

New management practice, and in particular, the development of effective leadership and mentorship is fundamental to the IDMS. To this end, strong leadership is much more than just an relationship based of command-control. Indeed, strong leadership is coordination based of shared human understanding and commitment with a legitimate interest in human relations. The effective disaster manager is indeed one whom exhibits a number of inspired management qualities they think through their philosophy; they expand their knowledge base; they are aware of their managerial style; they nurture positive attitudes; they build community support; and they participate in a professional group (Drabek (1990).

In Chapter Four we investigate the development of cooperative inter-organisational relationships among emergency service organisations in Australia, with particular reference to New South Wales and Queensland.