



T1900156646

**ACTUAL AND POTENTIAL USE OF ACTIVITY-BASED
VERSUS VOLUME-BASED COST SYSTEMS:**

AN EMPIRICAL STUDY OF COST SYSTEMS INCLUDING
INTERRELATIONSHIPS WITH CONTEXTUAL FACTORS.

Michael Wilson

A dissertation submitted in partial fulfillment of the requirements for the degree of
Master of Economics in The Department of Accounting and Financial Management at
The University of New England, Armidale, New South Wales.

February 1997.

CERTIFICATION:

I certify that the substance of this dissertation has not already been submitted for any other degree and to the best of my knowledge, any help received in preparing this dissertation and all sources used have been acknowledged herein.



Michael Wilson

February 1997.

ACKNOWLEDGMENTS:

Various people have assisted greatly in various ways in the completion of this dissertation. I thank the staff at UNE who provided assistance along the way and especially David Warwick for patience and invaluable guidance.

Many staff at UWS-Macarthur have provided directions and help when it was needed. Garry Tibbits, Michelle Sexton, Pat Bazely, Robert Mellor, and Neil Hopkins all provided assistance in their areas of expertise at important times.

To all those who have helped in this enormous task I owe a sincere debt of gratitude.

ABSTRACT

The aim of this study is to contribute some explanation and understanding to the debate about the adoption and use of activity-based cost systems versus volume-based cost systems.

A theoretical model is developed from the literature that links changes of contextual factors: intensity of competition, production complexity, and product diversity, to cost system use.

Three hypotheses are developed which propose that the actual use of a cost system is interrelated between each contextual factor and cost system type. The expectations based on the theoretical model are that greater comparative use will be made of activity-based cost systems, when contextual factors are high, than of volume-based cost systems.

Three alternate hypotheses are developed based on the first three. These hypotheses propose that activity-based cost systems are perceived to have, when each contextual factor is high, greater potential use. These hypotheses are specifically developed after consideration of the literature, and existing broadly based survey evidence that often did not validate expected findings.

An 'information gap' hypothesis is developed to discover any differences between actual and potential use of cost systems. Data is obtained and used to test for a relationship between cost system type, and differences between actual and potential use. An information gap varying according to cost system activities and type, demonstrates perceptible differences by users, between the alternative cost systems being examined. The search is undertaken to reveal if implementation or other difficulties currently exist, that prevent the achievement of activity-based cost system potential.

The data used to test the hypotheses and compute statistical information comes from survey responses of 79 NSW and ACT manufacturers.

Analysis of the data showed that as contextual factors increased cost system use increased. Cost system actual use was found to be significantly and positively interrelated with increasing product on complexity and activity-based cost systems. This finding supports the literature for using activity-based cost systems. The other five hypotheses for actual and potential cost system use were not confirmed.

A relatively small information gap was found to be associated with activity-based cost systems. This indicates that such systems are believed capable of more comparative use and evidences some difficulty in achieving expected use.

TABLE OF CONTENTS

	Page
Title	i
Certification	ii
Acknowledgements	ii
Abstract	iii
Table of Contents	v
List of Figures	viii
List of Tables	ix
Chapter 1: Introduction	
1.1 Foreword	1
1.2 Research Question Background	1
1.3 Research Question and Method	5
1.4 Purpose and Aim	6
1.5 Management Accounting Scope	7
1.6 Organisation of Dissertation	8
1.7 Conclusion	8
Chapter 2: Literature Review of the Challenge to Cost Systems	
2.1 Foreword	10
2.2 The Challenge	11
2.3 The History	13
2.4 Criticism of Volume-Based Cost Systems	15
2.5 Outline of Activity Analysis	21
2.6 Conceptual Critics	26
2.7 Search for Broadly Based Evidence	29
2.8 Conclusion	36

Chapter 3: Cost Systems and Contextual Factors

3.1	Foreword	38
3.2	Cost System Study	39
3.3	Contextual Factors and Cost System Use	42
	3.3.1 Intensity of Competition	42
	3.3.2 Production Complexity	45
	3.3.3 Product Diversity	49
3.4	Cost Systems and Potential Use	53
3.5	Model	56
3.6	Conclusion	57

Chapter 4: Research Method

4.1	Foreword	59
4.2	Selection of Method	59
4.3	Questionnaire Design	61
4.4	Sample	70
4.5	Survey Statistics	72
4.6	Development of Scale	79
4.7	Regression	81
4.8	Conclusion	82

Chapter 5: Data Analysis and Results

5.1	Foreword	84
5.2	Cost System Type and Plant Characteristics	85
5.3	Actual Use, Potential Use and Contextual Factors	89
5.4	Cost Systems, Use and Contextual Factors	90
	5.4.1 Cost Systems, Use and Intensity of Competition	91
	5.4.2 Cost Systems, Use and Production Complexity	93
	5.4.3 Cost Systems, Use and Product Diversity	95

5.5	Cost Systems, Potential Use and Contextual Factors	96
	5.5.1 Cost Systems, Potential Use and Intensity of Competition	97
	5.5.2 Cost Systems, Potential Use and Production Complexity	99
	5.5.3 Cost Systems, Potential Use and Product Diversity	100
5.6	Information Gap	102
5.7	Conclusion	107
Chapter 6:	Conclusion	
6.1	Foreword	110
6.2	Summary of Findings	111
6.3	Validity of Theoretical Study	117
6.4	Survey Instrument and Limitations	118
6.5	Future Research	120
	References	122
	Appendix A: Survey Questionnaire	135
	Appendix B: Sample Data	141

LIST OF FIGURES

	Page
Figure 2.1 Pricing Decisions in Practice	20
Figure 2.2 Cost Assignment View Diagram	26
Figure 2.3 Manufacturing Overhead Allocation Bases	32
Figure 3.1 Intensity of Competition	43
Figure 3.2 Production Complexity	47
Figure 3.3 Product Diversity	50
Figure 3.4 Cost System Type Diagram	53
Figure 3.5 Contextual Factors, Cost Systems and Use: Activity-Based and Volume-Based Model	57
Figure 5.1 Cost System Type Classification	86

LIST OF TABLES		Page
Table 4-1	Survey Statistics	72
Table 4-2	Non Response Bias	73
Table 4-3	Survey Research Methods	74
Table 4-4	Descriptive Statistics	75
Table 4-5	Recoding for Continuous Variables - Actual and Potential Cost System Use	76
Table 4-6	Recoding for Continuous Variables - Information Gap	77
Table 4-7	Correlation Matrix	78
Table 4-8	Rotated Factor Matrix	79
Table 4-9	Variables - Factor 3	80
Table 5-1	Cost System Classification	86
Table 5-2	Cost System Type and Plant Variables	87
Table 5-3	Cost System Type and Contextual Factors	88
Table 5-4	Cost System Type and Cost System Actual Use and Potential Use	89
Table 5-5	Cost System Actual and Potential Use Interrelation with Contextual Factors Regression Models	90
Table 5-6	Cost System Type, Use and Intensity of Competition Interrelation Regression Models 1A and 1B	92
Table 5-7	Cost System Type, Use and Production Complexity Interrelation Regression Models 2A and 2B	94
Table 5-8	Cost System Type, Use and Product Diversity Interrelation Regression Models 3A and 3B	96
Table 5-9	Cost System Type, Potential Use and Intensity of Competition Interrelation Regression Models 1C and 1D	98
Table 5-10	Cost System Type, Potential Use and Production Complexity Interrelation Regression Models 2C and 2D	99
Table 5-11	Cost System Type, Potential Use and Product Diversity Interrelation Regression Models 3C and 3D	101
Table 5-12	Mean Information Gap	104
Table 5-13	Cost System Type and Information Gap Regression Model 4	105