

**DEVELOPMENT OF A FLEXIBLE AND ADAPTABLE
OPERATIONAL PROPERTY ASSET MANAGEMENT
FRAMEWORK FOR LOCAL AUTHORITIES**

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**DEVELOPMENT OF A FLEXIBLE AND ADAPTABLE
OPERATIONAL PROPERTY ASSET MANAGEMENT
FRAMEWORK FOR ENGLISH AND SCOTTISH LOCAL
AUTHORITIES**

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TABLE OF CONTENTS

TABLE OF CONTENTS.....	i
LIST OF FIGURES.....	vi
LIST OF TABLES.....	vii
ACKNOWLEDGEMENTS.....	xiii
DECLARATION.....	xiv
ABSTRACT.....	xv
PUBLICATIONS ARISING.....	xvi
CHAPTER ONE.....	1
RESEARCH BACKGROUND.....	1
1.0 INTRODUCTION.....	2
1.1 BACKGROUND TO THE RESEARCH.....	2
1.2 CURRENT STATUS OF RESEARCH AND PRACTICES.....	4
1.3 RESEARCH RATIONALE.....	9
1.4 RESEARCH QUESTION.....	11
1.5 AIM AND OBJECTIVES OF THE STUDY.....	11
1.6 RESEARCH METHODOLOGY.....	12
1.7 SCOPE OF RESEARCH STUDY.....	13
1.8 ORGANISATION OF THE THESIS.....	15
CHAPTER 2.....	19
ASSET MANAGEMENT STATUS, THEORETICAL CLARIFICATION AND ASSET MANAGEMENT DEVELOPMENT TRENDS.....	19
2.2 REVIEW OF EXISTING PROPERTY MANAGEMENT PRACTICE.....	20
2.3 THE CONCEPT OF ASSET MANAGEMENT.....	28
2.4 ASSET MANAGEMENT: THEORETICAL CLARIFICATION.....	32
2.4.1 Relationship Between Asset Management And Organisational Management Theory.....	34
2.5 BENEFITS OF ASSET MANAGEMENT.....	40
2.6 ASSET MANAGEMENT DEVELOPMENT: TRENDS AND INFLUENCES.....	41
2.6.1 Origins of Asset Management.....	42
2.6.2 Internal and External Drivers of Asset Management Development.....	45
2.6.3 Asset Management Development in the UK.....	46
2.6.4 Asset Management Development in other parts of the World.....	51

2.7	CHAPTER SUMMARY	54
	CHAPTER THREE	56
	CURRENT STATUS OF ASSET MANAGEMENT PRACTICE.....	56
3.1	INTRODUCTION	57
3.2	RAISING AWARENESS ABOUT SCALE AND STRUCTURE OF.....	57
	OPERATIONAL PROPERTY ASSETS	57
	3.2.1 Structure and Scale of Operational Property Assets	57
	3.2.2 Role of Property Assets	59
3.3	PROPERTY MANAGEMENT PERFORMANCE AND MONITORING.....	61
3.4	QUANTIFICATION OF GAINS.....	69
3.5	ASSET MANAGEMENT FRAMEWORKS AND GUIDELINES	69
3.6	SUMMARY OF ASSET MANAGEMENT IMPLEMENTATION AND	73
	PRACTICE LIMITATIONS	73
3.7	CHAPTER SUMMARY.....	74
	CHAPTER FOUR	76
	IDENTIFICATION AND DEFINITION OF ASSET MANAGEMENT CONCEPTS.....	76
4.1	INTRODUCTION	77
4.2	CONCEPTUAL FRAMEWORK CLARIFICATION	77
4.3	ROLE OF FRAMEWORKS	78
4.4	STRATEGIC MANAGEMENT THEORY AND ASSET MANAGEMENT FRAMEWORK.....	79
4.5	RELATIONSHIP BETWEEN ASSET MANAGEMENT AND ORGANISATIONAL MANAGEMENT THEORY	81
4.6	EXAMINATION OF EXISTING FRAMEWORKS.....	82
	4.6.1 The Total Asset Management Process.....	82
4.7	REVIEW OF LITERATURE.....	84
	4.7.1 Strategic Planning	85
	(i) Development of Vision, Mission Goals and Objectives	86
	(iii) Asset Information, Data Collection and Asset Knowledge.....	90
	4.7.2 Asset Management Planning	94
4.8	TOOLS AND TECHNIQUES	100
4.9	ASSET MANAGEMENT OUTCOMES	101
4.10	CONSOLIDATION OF IDENTIFIED AND DEFINED CONCEPTS.....	104
4.11	CHAPTER SUMMARY	107
	CHAPTER FIVE	109

CONCEPTUAL FRAMEWORK DEVELOPMENT: <i>OPERATIONALISATION AND EXAMINATION OF RELATIONSHIPS BETWEEN ASSET MANAGEMENT CONCEPTS</i>	109
5.1 INTRODUCTION	110
5.2 EXPLORATION AND EXAMINATION OF RELATIONSHIPS.....	110
BETWEEN CONCEPTS.....	110
5.2.1 Strategic Planning	111
5.2.2 Asset Management Planning	111
5.2.3 Asset Management Outcomes	113
5.2.4 Tools and Techniques	113
5.3 OPERATIONALISATION THE FRAMEWORK CONCEPTS	113
5.3.1 Definitions Terms	114
5.3.2 Robust And Dynamic Performance Measurement Methodology	116
5.3.3 Benchmarking.....	120
5.4 DESCRIPTION OF THE DEVELOPED CONCEPTUAL	123
FRAMEWORK.....	123
5.4.1 Developed Conceptual Framework	126
5.5 CHAPTER SUMMARY	128
CHAPTER SIX.....	129
RESEARCH DESIGN AND METHODOLOGY.....	129
6.1 INTRODUCTION	130
6.2 RESEARCH PHILOSOPHY	130
6.2.1 Introducing Positivist, Naturalistic and Pragmatic Paradigms	130
6.2.2 Philosophical Paradigm Adopted	135
6.3 RESEARCH APPROACH.....	136
6.3.1 Qualitative, Quantitative and Mixed Method Approaches	136
6.3.2 Choice of Research Approach	138
6.4 THE RESEARCH METHOD	143
6.4.1 Available Research Methods	143
6.4.2 Choice of Research Strategy / Method.....	146
6.4.3 Survey Method	151
6.5 ETHICAL CONSIDERATIONS	158
6.6 PILOT STUDY.....	159
6.7 DATA COLLECTION.....	161
6.7.1 Sources of Data	161

6.7.2 Nature and Type of Data Collected	162
6.7.3 Available Data Collection Methods.....	162
6.7.4 Choice of Data Collection Methods	166
6.8 DESCRIPTION OF STUDY SUBJECTS	172
6.9 CHAPTER SUMMARY	172
CHAPTER SEVEN	174
QUALITATIVE DATA ANALYSIS	174
7.1 INTRODUCTION	175
7.2 QUALITATIVE METHOD	177
7.2.1 The Sampling Frame and Sample Selection	177
7.2.2 Purpose of the Researched Local Authorities.....	179
7.2.3 Semi-Structured Interview	179
7.2.4 Method of Analysis.....	183
7.3 RESULTS AND ANALYSIS	185
7.4 SUMMARY OF FINDINGS.....	227
7.5 CHAPTER SUMMARY	235
CHAPTER EIGHT	238
QUANTITATIVE DATA ANALYSIS	238
8.1 INTRODUCTION	239
8.2 THE SURVEY.....	239
8.2.1 The Sampling Frame and Selecting an Appropriate Sample Size.....	239
8.2.2 Sample.....	241
8.2.3 The Questionnaire	242
8.3 THE ANALYSIS.....	248
8.4 IDENTIFYING THE UNDERLYING FACTORS	289
8.4.1 Introduction.....	289
8.4.2 Factor Analysis Steps.....	290
8.5 SUMMARY AND MAIN FINDINGS.....	306
8.6 CHAPTER SUMMARY	310
CHAPTER NINE.....	314
DISCUSSION AND VALIDATION OF RESULTS	314
9.1 INTRODUCTION	315
9.2 RESULTS DISCUSSION.....	315
9.2.1 Summary of Findings.....	315

9.2.2	Contextual Interpretation of The Findings	316
(a)	ENABLING ENVIRONMENT.....	316
9.3	DEVELOPMENT OF THE FRAMEWORK	330
9.4	VALIDATION	332
9.4.1	Concept of Validation	333
9.4.2	External Validation	333
9.4.3	Internal Validation	341
9.4.4	Research Reliability	342
9.5	CHAPTER SUMMARY	344
CHAPTER TEN		346
CONCLUSIONS AND RECOMMENDATIONS.....		346
10.1	INTRODUCTION	347
10.2	DISCUSSION.....	347
10.3	OBJECTIVE 1 – to undertake a critical review of literature on the concept of asset management, its development and implementation	347
10.4	OBJECTIVE 2 - to undertake a critical review of literature on property management in the public sector.	349
10.5	OBJECTIVE 3 – to develop a conceptual framework of operational property asset management for English and Scottish local authorities.....	350
10.6	OBJECTIVE 4 – to develop a methodology for the application of an asset management framework for local authorities in England and Scotland.....	352
10.6.1	Developing The Research Methodology	352
10.6.2	Findings from Qualitative Analysis of the Data	353
10.6.3	Findings from Quantitative Analysis and Factor Analysis.....	355
10.7	VALIDATION OF THE FRAMEWORK.....	357
10.7.1	External Validity of the Results.....	358
10.7.2	Internal validity of the Results.....	358
10.7.3	Reliability.....	358
10.8	RESEARCH LIMITATIONS	359
10.9	RECOMMENDATIONS FOR FURTHER RESEARCH	359
10.10	ORIGINAL CONTRIBUTION TO KNOWLEDGE OF THIS _RESEARCH	360
10.11	CONCLUSIONS	361
APPENDICES.....		363
REFERENCES.....		396

LIST OF FIGURES

	Page
Figure 1.1: The Breakdown of the Value (£bn) of Operational Properties in England	3
Figure 1.2: The Value of Property Assets held by Scottish Local Authorities	3
Figure 1.3: The Research Process	17
Figure 2.1: Lack of strategic approach and the resultant problems	24
Figure 2.2: Strategic Property Considerations and Property Services	28
Figure 2.3: Asset Management, FM and Property Management Activities	31
Figure 2.4: How organisations create value	38
Figure 2.5: The Evolution of Asset Management	42
Figure 3.1: The Breakdown of the Value of Operational Properties in England	57
Figure 3.2: The Value of Property Assets held by Scottish Local Authorities	58
Figure 4.1: The Total Asset Management Process	82
Figure 4.2: SWOT Analysis	89
Figure 4.3: Key Drivers of Asset Management	92
Figure 4.4: The Process for Establishing Levels of Service	93
Figure 4.5: Demand Management options	97
Figure 5.1: Strategic Planning and Derivation of Strategic Task	111
Figure 5.2: Asset Management Planning Process Elements and their inter-relationship	112
Figure 5.3: Asset Management Outcomes	113
Figure 5.4: Efficiency and Effectiveness	115
Figure 5.5: Asset Management Conceptual Framework	125
Figure 5.6: Conceptual Asset Management Framework showing Limitations	127
Figure 6.1: Deductive Process	137
Figure 6.2: The Inductive Process	138
Figure 6.3: Four Major Mixed Methods Designs	140
Figure 6.5: Mixed methods design matrix	143
Figure 7.1: Geographical representation of the Local Authorities	186
Figure 8.3a Position	252
Figure 8.3b Type of Local Authority	253
Figure 8.3c Nature of Authority	253

Figure 8.3d: Age	254
Figure 8.3e: Experience in the organisation	255
Figure 8.3f: Experience outside the organisation	255
Figure 8.4: Scree plot for component extraction criterion	299
Figure 9.1: Asset Management Process Framework.	338
Figure 9.2: Asset Management Conceptual Framework	379
Figure 9.3: Asset Management Process Model.	382
Figure 9.4: Strategic Planning and Derivation of Strategic Task	384
Figure 9.5: Asset Management Planning Process Elements and their inter-relationship	387
Figure 9.6: Asset Management Outcomes	402

LIST OF TABLES

	Page
Table 1.1: Issued Asset Management Frameworks	8
Table 2.1: Asset Management Benefits	40
Table 3.1: Value of Operational Property Assets of Local Authorities in Scotland	58
Table 3.2: Summary of ‘Best Practice’ Guidance in Asset Management	70
Table 3.3: Limitations of Asset Management Implementation	73
Table 4.1: Good Practice Arrangements at Corporate Level	98
Table 4.2: Identified and Defined Asset Management Concepts	106
Table 5.1: Summary of the Strategic Measurement Systems and Tactical Tools used in CREM	118
Table 6.1: Major Assumptions of the Positivist and Naturalistic Paradigms	134
Table 6.2: Contrasting Characteristics of the Qualitative Approaches	145
Table 6.3: Perception of Importance of Factors Influencing Asset Management Performance	153
Table 6.4: Strategic Planning	155
Table 6.5: Asset Management Planning – processes and practices	157
Table 6.6: Asset Management Outcomes	158
Table 6.7: Qualitative and Quantitative Data Collection Types, Options, Advantages and Limitations	163
Table 6.8: Interview Preparation, Skills and Progress Monitoring	167

Table 6.9: Distribution of Scales within Each Local Authority	169
Table 7.1: Types of Local Authorities	176
Table 7.2: Summary of the Interviewees	185
Table 7.3: Structure of Asset Management	188
Table 7.4: Corporate Landlord Approach in Local Authorities	188
Table 7.5: Linkage between Corporate Objectives and Asset Management Objectives	191
Table 7.6 Availability of Property Management Information Systems and Capabilities	197
Table 7.7: Embedding of Asset Management in Local Authorities	198
Table 7.8: Type of Data Captured by Local Authorities	200
Table 7.9: Management Information System: Decision Making and Assessment of Property Performance	201
Table 7.10: Strategy Implementation Arrangements	207
Table 7.11: Benchmarking Arrangements	211
Table 7.12: Efficient and Effective use of Operational Property Assets	217
Table 7.13: Introduction of New Work Practices, Cross Service, Co-location and Environmental Improvements	220
Table 8.1: List of Statistical Tests	248
Table 8.2: Kurtosis and Skewness Values	249
Table 8.3: Frequency of scoring to the importance of Including Enablers of Asset Management for asset management implementation	256
Table 8.4: Summary of the level of significance from the Chi-square test	257
Table 8.5: Kruskal Wallis Analysis of Variance for the Enablers of Asset Management	257
Table 8.6: Frequency of scoring to the importance of Vision, Mission and Objectives and their Asset Management Implications	258
Table 8.7: Summary of the level of significance from the Chi-square test	258
Table 8.8: Kruskal Wallis Analysis of Variance	259
Table 8.9: Frequency of Scoring to the Importance of Knowledge About Assets	260

for Asset Management Implementation

Table 8.10: Summary of the level of significance from the Chi-square test	260
Table 8.11: Kruskal Wallis Analysis of Variance for Asset Knowledge	261
Table 8.12: Chi-square Crosstabs analysis of frequencies for the importance of including suitability asset management within asset knowledge in relation to Position	262
Table 8.13: Chi-square Crosstabs analysis of frequencies of participants for the importance of including asset costs tracking in relation to Type of authority	262
Table 8.14: Chi-square Crosstabs analysis of frequencies of participants for the importance of including suitability assessment and property information system in relation to age	263
Table 8.15: Importance of SWOT Analysis	264
Table 8.16: Summary of the level of significance from the Chi-square test	264
Table 8.17: Kruskal Wallis Analysis of Variance for SWOT Analysis	265
Table 8.18: Chi-square Crosstabs analysis of frequencies for the importance of including Colocation and joint service delivery asset management within SWOT analysis in relation to Position	266
Table 8.19: Chi-square Crosstabs analysis of frequencies of participants for the importance of including Benchmarking Arrangements within SWOT Analysis in relation to Experience in the Organisation	267
Table 8.20: Frequency of Scoring to the Importance of Establishing Performance / Service Level Gap for Asset Management Implementation	268
Table 8.21: Summary of the level of significance from the Chi-square test	268
Table 8.22: Kruskal Wallis Analysis of Variance for Service Level Gap	269
Table 8.23: Chi-square Crosstabs analysis of frequencies of participants for the importance of including Asset management capabilities and Service statements in relation to Type of authority	270

Table 8.24: Frequency of Scoring to the Importance of Asset and Non Asset Strategy Formulation for Asset Management Implementation	271
Table 8.25: Summary of the level of significance from the Chi-square test	271
Table 8.26: Kruskal Wallis Analysis of Variance for Strategy Formulation	272
Table 8.27: Frequency of Scoring to the Importance of Option Appraisal for Asset Management Implementation	273
Table 8.28: Summary of the level of significance from the Chi-square test	273
Table 8.29: Kruskal Wallis Analysis of Variance for Option Appraisal	274
Table 8.30: Frequency of Scoring to the Importance of Strategy Implementation Arrangements for Asset Management Implementation	275
Table 8.31: Summary of the level of significance from the Chi-square test	276
Table 8.32: Kruskal Wallis Analysis of Variance for Strategy Implementation	277
Table 8.33: Chi-square Crosstabs analysis of frequencies of participants for the importance of including Senior management asset champion' and 'Specialised project management team in relation to Type of authority	279
Table 8.34: Frequency of Scoring to the Importance of Performance Monitoring and Control for Asset Management Implementation	280
Table 8.35: Summary of the level of significance from the Chi-square test	280
Table 8.36: Kruskal Wallis Analysis of Variance for Asset Monitoring and Control	281
Table 8.37: Chi-square Crosstabs analysis of frequencies for the importance of including Continuous asset management performance review asset management within performance monitoring and control in relation to Position	282
Table 8.38: Chi-square Crosstabs analysis of frequencies of participants for the importance of including Comprehensive property review programme within performance monitoring and control in relation	283

to age

Table 8.39: Chi-square Crosstabs analysis of frequencies of participants for the importance of including continuous asset management performance review within performance monitoring and control in relation to Experience Outside the Organisation	284
Table 8.40: Frequency of Scoring to the Importance of efficient and effective use of property assets for Asset Management Implementation	285
Table 8.41: Summary of the level of significance from the Chi-square test	285
Table 8.42: Kruskal Wallis Analysis of Variance for Efficient and Effective Use of Property Assets	286
Table 8.43: Chi-square Crosstabs analysis of frequencies of participants for the importance of including Recycled capital receipts in relation to Type of authority	287
Table 8.44: Frequency of Scoring to the Importance of efficient and effective use of property assets for Asset Management Implementation	288
Table 8.45: Summary of the level of significance from the Chi-square test	288
Table 8.46: Kruskal Wallis Analysis of Variance for improvements in service delivery	289
Table 8.47: Chi-square Crosstabs analysis of frequencies of participants for the importance of including ‘increased cross service working’ in relation to Experience Outside Organisation	290
Table 8.48: Analysed Questionnaire Variables	291
Table 8.49: Communalities	294
Table 8.50: KMO and Bartlett’s tests	296
Table 8.51: Total Variance Explained by Extracted Factors	297
Table 8.52: Factor loading for the rotated factors	300
Table 8.53: Coefficient Alpha (α) Reliability Analysis of Components	305

Table 8.54: Analysis of Variance (ANOVA)	306
Table 9.1: Profile of the Validation Experts	339
Table 9.2: Summary of Responses from Experts	339
Table 9.3: Summary of Asset Management Problems	380

APPENDIX

	Page
Appendix A: Published sources of Asset Management Guidelines in the UK	362
Appendix B: Published sources of Asset Management Guidelines in Australia	363
Appendix C: A sample of Asset Management Guidelines	364
Appendix D: Profile of Interviewees	366
Appendix E: Strategic Planning Interview Questions	367
Appendix F: Asset Management Planning Interview Questions	370
Appendix G: Survey Questionnaire	372
Appendix H: Research Report and Validation Questionnaire	376

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DECLARATION

I declare that no part of the work contained in this thesis has been submitted in support of an application for another degree or qualification of this or any other university or other institute of learning.

ABSTRACT

The growing recognition amongst local authorities of the potential of asset management to improve property management practice has led to its increased adoption. The growing trend has been supported by the development of asset management frameworks. However, evidence indicates that local authorities are failing to achieve the full benefits from their asset management implementation. The factors contributing to some of the property management problems such as reactive management, lack of leadership support, ineffective corporate landlord approach, remain. The available frameworks are incapable of mitigating the identified problems by failing to provide understanding of local authority differences. Therefore, this research aimed to develop an adaptable and flexible operational property asset management framework for local authorities in England and Scotland. The strategic management theory, review of existing literature findings and evaluation of available asset management frameworks especially the Total Asset Management Process model helped to identify, define and establish the causal logic of the asset management concepts underpinning the developed conceptual framework. Face to face semi-structured interviews followed by large scale questionnaire surveys were used to gather primary data. The key research findings are that the following are the key factors limiting asset management practice improvements in local authorities: ineffective leadership support, asset management capabilities and corporate landlord approach; inadequate asset management information systems and performance management arrangements. Principal components factor analysis was utilised to help establish underlying factors that account for flexible and adaptable asset management framework. The findings suggest that asset management processes associated with an adaptable and flexible asset management framework include a board level cross functional asset management structure; strong leadership support for both direct and indirect property; an enabling environment; an effective corporate landlord approach; an effective performance management arrangement; and availability of an appropriate management information system. The framework has been validated to be robust and can be utilised and flexibly adapted by different local authorities and provides the basis for improving the process and outcome of asset management practice.

PUBLICATIONS ARISING

The process of reviewing the literature culminated in the write-up of a total of the following four papers which were presented at a number of major international conferences and published in a real estate journal.

- (1) Ngwira, M.M., Parsa, A., and Manase, D (2011). An effective framework for strategic asset management: the case for local authorities in Scotland and England. *Salford Postgraduate Annual Research Conference (SPARC), University of Salford. 10-11 June, 2011*
- (2) Ngwira, M.M., Parsa, A., and Manase, D (2011). Effectiveness of Asset Management Processes in Scottish Councils: Property Management Information Systems and Capacity Building. *COBRA, University of Salford, 12-13 September 2011*
- (3) Ngwira, M.M., Parsa, A., and Manase, D (2012). Evaluation of Effectiveness of Operational Property Asset Management Processes in Scottish Local Authorities. *European Real Estate Society (ERES), Edinburgh, Scotland. 13-16 June, 2012*
- (4) Ngwira, M.M., Parsa, A., and Manase, D (2012). Effectiveness of Property Asset Management in Scottish Councils. *Journal of Corporate Real Estate, 2012, Vol. 14, Number 2, pp106-120*
- (5) Ngwira, M.M., and Manase, D (2015). *Public Sector Property Asset Management*. Oxford, Wiley Blackwell: ISBN: 978-1-119-08576-8 (Book due to be published in July 2015)

CHAPTER ONE

RESEARCH BACKGROUND

1.0 INTRODUCTION

This chapter provides an overview of the study and presents the research context. It presents the background of the study and statement of the research problem to be addressed. In addition, the justification and scope of the research and the main research question posed is also stated. Thereafter, the aim and objectives are outlined including a summary of the research methodology adopted. The chapter concludes with an explanation of the organisation of the thesis.

1.1 BACKGROUND TO THE RESEARCH

Local authorities in England and Scotland own and control a significant operational property asset base. As at 2013 for example, local authorities in England held operational property assets with a book value estimated at more than £170 billion (Figure 1.1). This represented an increase from £70 billion in 1999. Despite slight loss in value of the portfolio in recent years due to the economic recession, the asset base still represents a very large property portfolio base. The size of operational property assets in the hands of Scottish local authorities is equally significant. In terms of value, this was estimated at £13 billion in 2007/08 (Figure 1.2) (Audit Scotland, 2009; RICS and ODPM, 2005).

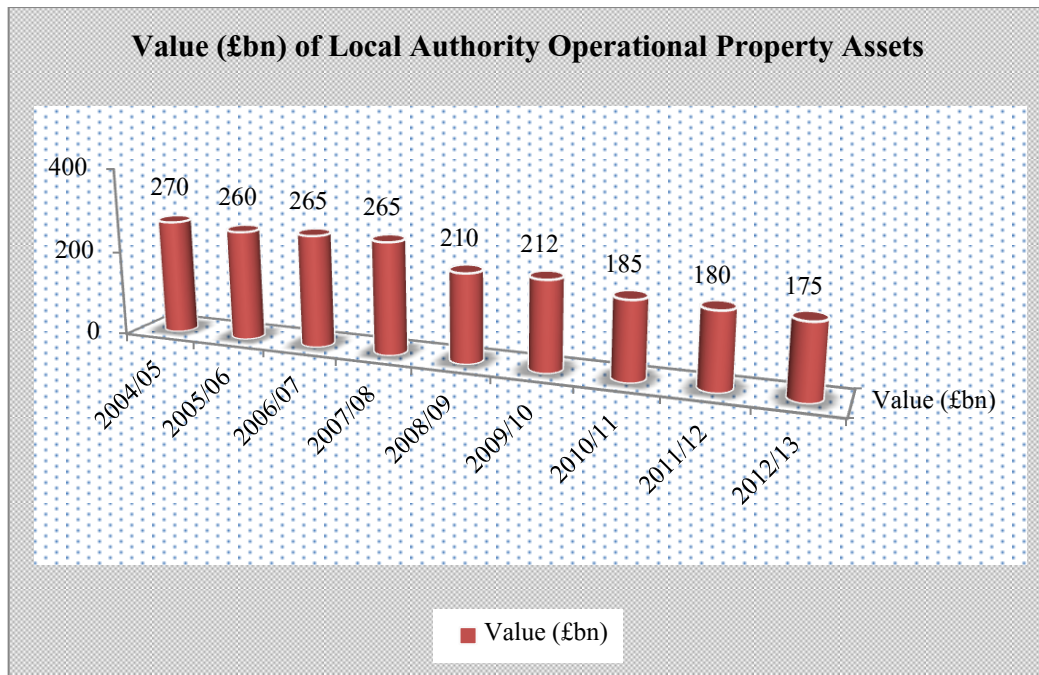


Figure 1.1: The Breakdown of the Value (£bn) of Operational Properties in England

Source: Audit Commission (2014)

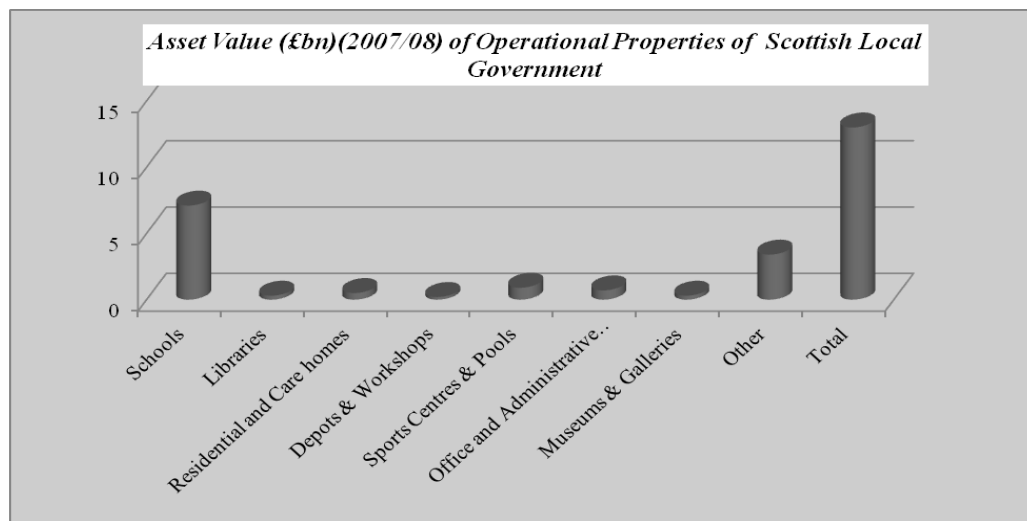


Figure 1.2: The Value of Property Assets held by Scottish Local Authorities

Source: Audit Scotland (2009)

The size of the asset base that is in the hands of local authorities underlies the important role property assets perform in supporting local authority functions. According to Kaganova, McKellar and Peterson (2006) government land and property assets can be very important for many public management objectives. For instance, operational properties are important

as assets on the balance sheet which can be used to collateralise borrowing. Such funding sources are often critical to financing local government operations.

Property belonging to local authorities is also important as is often used as a physical platform on which to carry out its activities (Megan, 1999). Activities typically include service delivery and discharging of a range of crucial policies. The policies range from planning policies to facilitate spatial development of cities, regeneration and local economic development, local housing policies, as well as a variety of enforcement policies. All of these take place from land and buildings owned and controlled by local authorities (Kaganova, et al, 2006). Apart from service delivery and execution of policy, local authority operational property assets such as parks and open spaces provide recreation opportunities. Buildings provide communities with places to meet and celebrate, to obtain information and access to enjoy the arts and cultural activities (Vermiglio, 2011; IIMM, 2006).

1.2 CURRENT STATUS OF RESEARCH AND PRACTICES

Despite the important role that operational properties play in supporting local authority objectives, they have not always been effectively managed. Historically, the management of operational property asset base adopted a reactive management approach. The approach is fragmented and narrowly focused principally targeted only at those responsible for managing properties but ignoring users.

According to Kaganova and McKellar (2006); and Kaganova (2010) the approach is fragmented as property management involves respective departments of local authorities becoming involved in managing, financing, and using property assets. Fragmented management flourishes because local authorities lack wide strategies, policies and rules which are normally only available where resources are strategically managed. The narrowly focused and fragmented approach to property management results in economic inefficiencies associated with the performance of operational property assets. Such inefficiencies mean that there is physical and economic underutilisation of property. In addition the property stock has accumulated backlog maintenance and repair. Furthermore,

fragmentation means that local authorities in the UK and elsewhere are unable to promote and implement policies that encouraged joint occupancy of properties with partners or other public agencies. In addition, inefficient property management practices also means that local authorities are unable to readily exploit surplus or under-utilised property as there are no mechanisms to transfer property between local authority committees who are entrusted with the legal ownership of properties. Moreover, as a result of inefficient management approach local authorities have no mechanism for encouraging the identification of surplus property for disposal (Audit Commission, 1988a, 2000; Avis et al., 1989; Veale, 1989; Bon, 1992; Joroff, 1992; Bon, McMahan, Carder and 1994; Gibson, 1994; Bond and Dent, 1998; Tanzi and Prakash, 2000; Kaganova, Nayyar-Stone, and Peterson, 2000; Hentschel and Utter, 2006; CIPFA, 2008; Arnaboldi and Lapsley, 2010).

Local authorities in the UK and elsewhere came to recognise that improving operational property asset management through the implementation of an appropriate asset management framework is a critical component of better asset management (Office of Government Commerce, 2008; Department for Communities and Local Government (DCLG), 2007; Brackertz and Kenley, 2002; Bon et al., 1994; Fryer, Antony and Ogden, 2009). The RICS (2008) define asset management as: *“a structured process that seeks to ensure best value for money from property assets in serving the strategic needs of local authority organisations”*.

The Strategic asset management component is the activity that ensures that the land and building asset base of a local authority is optimally structured and aligned with its corporate goals and objectives (RICS, 2008). It asks the questions such as: Where should the property be located? Why should the property be sited in a particular location? What size of property is needed to support a service? The operational component of asset management has two strands. These strands are estates and facilities management services. Both strands deliver the strategic asset management objectives by undertaking the professional, technical and management work necessary to ensure that property is in the condition, form, layout and location desired.

The definition recognises the distinction between the strategic asset management and operational property management components of land and buildings. An appropriate asset management framework is one that integrates the strategic asset management and operational property management components (Accounts Commission for Scotland, 1999; Audit Commission and IDeA, 2002; Department for Communities and Local Government, 2007; Stoy, 2007; Tucker and Pitt, 2008; Fryer, Antony and Ogden, 2009; Office of Government Commerce (OGC), 2008; RICS & ODPM, 2005; CIPFA, 2014; CIPFA, 2008; IAM, 2006).

The beneficial effects of asset management approach in promoting service improvement objectives are recognised by OGC (2003) who stated that:

“the appropriate use of assets in the right location can make the difference between good and poor service delivery. The whole point of asset management is to ensure that the front line services provided by the public sector organisation are done so via the most effective and efficient property portfolio”.

The realisation that an asset management approach has the potential to improve property management practice has led to its growing interest. It has become increasingly noticeable in recent years that there has been an increasing trend, with an international dimension, towards the adoption of an asset management approach by local authorities (Kaganova, 2006; Hentschel and Utter, 2006; Grubisic, Nusinovic, and Roje, 2009; White, 2011). Various initiatives have been behind the increasing international trend towards the adoption of asset management by public sector organisations. For instance in New Zealand asset management has developed as part of the public sector structural reforms. The funding dilemmas affecting local authorities have influenced the development of asset management in the USA. The need to emulate asset management practices of privatised utilities in Australia, New Zealand and the UK all were contributory factors towards the adoption of asset management (Worley Ltd, 2000, Burns, 2002). The continuing development of asset

management in the UK in particular has been aided by a combination of initiatives. Some of these initiatives include development of asset management frameworks with associated guidelines. The initiatives have also included government commissioned research reports urging local authorities to improve property management by adopting asset management practices (Department of the Environment Transport and the Regions (DETR) / Pidea Consulting, 1999; Department for Communities and Local Government (CLG), 2001, 2007). Unlike England, in Scotland the Local Government in Scotland Act (2003) has imposed a legal duty on councils to adopt an asset management approach (Scottish Executive, 2003). The growing interest to embrace asset management practices in the UK has also been influenced by budgetary pressures on the part of councils. Councils have come to realise that there is a lot of wealth tied in operational property assets and that improvements in the management of these assets could have a real impact on the financial resources available to them (Audit Commission, 2009).

Probably, the most important initiative to aid asset management development in local authorities in the UK and elsewhere has been the publication of asset management frameworks and associated guidelines. A number of asset management frameworks and support guidelines have been issued by central, devolved governments, and local authorities in the UK; professional bodies such as the Royal Institution of Chartered Surveyors (RICS) and Chartered Institute of Public Accounts (CIPFA); and various other bodies. Table 1.1 shows some of the issued asset management frameworks.

Table 1.1: Issued Asset Management Frameworks

The Total Asset Management Process (IIM, 2006)
PASS 55 Asset Management Process Model (BSI, 2008)
The Property Asset Management Process (IAM, 2006)
The RICS Detailed Property Asset Management Process Model (RICS, 2005; 2008)
Consortium of Local Authorities in Wales (CLAW) (2003)
Chartered Institution of Public Finance and Accounts (CIPFA) (2008)
Scottish Executive (2003)
Audit Commission (1988a; 2000; 2009)
Audit Scotland (2007)
Department for Communities and Local Government (2001; 2007)
RICS / office of The Deputy Prime Minister (2005)
Asset Management Excellence Model (AMEM) (AMCL, 2010)

The verification of the extent to which local authorities have developed, adopted and successfully implemented asset management practice was undertaken. This was aimed at establishing the current status of asset management practice in English and Scottish local authorities. The evidence suggests that despite increased adoption of asset management, aided by a range of asset management frameworks, many authorities in England and Scotland are not achieving best practice in the way they manage their operational property assets. There are a number of limitations that still hinder attainment of asset management best practice. These include:

- limited awareness about the role of property as a strategic asset;
- ineffective performance management framework;
- lack of corporate culture to asset management;
- asset management function not at board level structure;
- lack of corporate approach to property ownership;
- undeveloped joint working and co-location;
- ineffective leadership support from elected members and senior officers;

- lack of culture of property challenge to rationalise property portfolio;
- ineffective asset management plans; and
- minimal improvements to portfolio in terms of condition, suitability, sufficiency, accessibility and running and operating costs

(Audit Commission, 2000; 2009; Lyons, 2004; RICS and ODPM, 2005; 4Ps, 2007; York Consulting, 2007; Department for Communities and Local Government, 2008; Audit Scotland, 2009; Gibson, 1994; Gershon, 2004; Office of Government Commerce, 2006; National Audit Office, 2006; Harris, 2010; Phelps, 2009).

These limitations arise because asset management processes are not effectively implemented. An effective asset management framework should be capable of translating the Strategic Planning and Asset Management Planning into asset management processes covering asset management policy and asset management practice. Once asset management processes are properly undertaken on property assets and throughout the local authority organisation, this will reflect on asset and organisational performance results or outcomes. Improved asset management results should affect service users, practitioners and other stakeholders' satisfaction on the organisational level, which would result in improved service provision.

This makes it clear, therefore, that there is an asset management problem. The available asset management frameworks which guide asset management implementation are preventing the realisation of having a property portfolio that is efficiently managed and fit for purpose to support local authority objectives including the principal aim of service delivery.

1.3 RESEARCH RATIONALE

There is need, therefore, for an appropriate framework to improve and assist the implementation of asset management for use by local authorities. To enable the implementation of an asset management framework to improve asset management practice

in English and Scottish local authorities; a framework is required that provides sufficient understanding of local authorities' circumstances when implementing efforts to improve asset management effectiveness. A framework that takes into account different local authority circumstances is flexible and adaptable to reflect differences across local authorities. Differences across organisations which call for the need for an adaptable and flexible asset management framework have been emphasised by researchers. For instance, Woodhouse (2010b) argues that existence of a variety of asset management frameworks is evidence that there is no ideal model. Many of the requirements for good asset management are independent of asset type, industry, geography, or the regulatory framework within which an organisation operates. However, every organisation has a different mix of business goals, priorities, strengths, weaknesses and constraints. As such every asset management road map is different. Differences between organisations equally apply to local authorities. It is the case, therefore, that property asset management practices differ across local authorities given differences in organisational culture; leadership; size; social, economic and cultural composition of the communities they serve; geographical and political differences. The lack of recognition and failure to embed an appropriate asset management framework that is flexible and adaptable as core property management activity has the potential of hindering the development and advancement of effective asset management practices.

On the basis that the development of an adaptable and flexible operational property asset management framework represents a significant step for aiding improvements in operational property asset management practice, there is therefore the need for local authorities to adopt such an approach towards the management of operational properties. For instance Lyons (2004); (Male, 2006); and NAMS (2006b) have emphasised the contributory role of an appropriately developed and applied asset management framework towards achieving effective and efficient management of operational property assets.

However, the inadequacy of rigorous research activities towards the development of an adaptable and flexible operational property asset management framework is reflective of

operational property asset management arrangements (Audit Scotland, 2009; Department for Communities and Local Government, 2007; Ngwira, Manase, and Parsa, 2012). Therefore, this research is founded on the premise that, if asset management is to be relevant in Scottish and English local authorities, then an appropriate framework that would help local authorities to realise improvements in operational property asset management need to be developed. Accordingly, while the study focuses on operational property management, it is hoped that the findings would be beneficial to the management of other property types owned and controlled by public sector organisations including those in England and Scotland and elsewhere in the developed economies particularly in respect to the future development of asset management performance.

1.4 RESEARCH QUESTION

From the foregoing, the following research question was proposed:

Is there an effective asset management framework that fits the management of operational properties in English and Scottish local authorities?

1.5 AIM AND OBJECTIVES OF THE STUDY

The question posed (in section 1.4) assisted in setting the key research aim. The aim of this study, therefore was: “*to develop an adaptable and flexible operational property asset management framework for local authorities in England and Scotland*”. To realise this aim, the research sought to undertake the following specific objectives:

- (i) to undertake a critical review of literature on the concept of asset management, its development and implementation. This enables the development of a clearer understanding of key asset management processes and performance outcome indicators.
- (ii) to undertake a critical review of literature on property management in the public sector. This is to identify the contribution of operational property asset management in achieving local authority objectives in the UK and the rest of the world.

(iii) to develop a framework of operational property asset management for English and Scottish local authorities.

(iv) to develop a methodology for the application of an asset management framework for local authorities in England and Scotland.

1.6 RESEARCH METHODOLOGY

It was necessary to adopt an appropriate ontological, epistemological and axiological philosophical paradigm that formed the basis of the study in order to address the research aim and question identified above. The identification of the appropriate paradigm for the study influenced appropriate choice of research methods, data collection, analysis and interpretation of the findings. The study started with an extensive review of literature to provide a thorough understanding of the recent developments in the frameworks used for asset management practice of operational property asset management in local authorities. Review of literature also enabled the identification of an appropriate theoretical framework for the study.

Drawing on strategic management theory, especially the strategic planning model, existing frameworks and review of literature, a conceptual framework was developed to provide the research direction. Consequently, pragmatism as a research paradigm was adopted to reflect the epistemological, ontological and axiological approach involved. To this effect, sequential exploratory mixed method approach was used in eliciting the relevant data from asset managers, property managers and facility managers in English and Scottish local authorities. The collection of data involved a two stage approach. Initially data was collected using face to face semi-structured interviews. This was followed by web based self-administered structured questionnaire survey. The latter approach was also used in validating the findings relating to the potential relevance of the recommended application of

the framework. The adopted research paradigm also facilitated the use of statistical tools such as factor analysis and various statistical tests of independence of variables in the interpretation of the data and discussion of the findings. A detailed discussion of the research methodology is presented in chapter six.

1.7 SCOPE OF RESEARCH STUDY

The research focused on practices relating to operational property assets occupied by local governments in England and Scotland. Operational property assets, as defined by Audit Commission (2000), can be either direct or non-direct. Direct operational property assets include land and buildings used to deliver a direct service to the public. Examples of direct properties include schools, community centres, parks, libraries, museums and so on. Non-direct operational assets, on the other hand, include those operational assets that support service delivery such as administrative offices. The study focused on both direct and non-direct property assets.

The overall focus of this research was to develop an adaptable and flexible operational property asset management framework. If asset management processes of such a framework are effectively undertaken on property assets throughout the organisation, this will reflect on improved organisational performance. Since the principal aim of local authorities is to deliver services, therefore the practices for managing properties in which direct or indirect service delivery take place can play a critical role in aiding organisational performance improvements. Therefore, this research only focused on those properties from which services are delivered (direct properties) or properties occupied by those who support the delivery of such services (indirect properties). Non-operational properties, such as shops, offices and industrial subjects let at arm's length commercial basis, have been ignored. These properties are managed on a more commercial basis. The income or capital receipts arising from leasing or disposal of these assets supports overall council objectives. However, as no service delivery occurs from non-operational properties, it is not possible to evaluate the performance of these

properties on the same basis as operational properties. For instance, crucial factors for evaluating operational property asset performance such as accessibility, suitability, sufficiency, condition, operating costs might not necessarily be regarded in the same way by commercial tenants as in the case of those who access or deliver local authority services from such properties. This is because the property performance expectations of tenants who occupy commercial properties might not necessarily be the same as of those who occupy, deliver or access services from operational properties. Non-operational properties were also excluded from this research because of the potential problems of eliciting data due to data protection issues. The data about these properties is often deemed commercially sensitive. In addition, because the properties are leased the transaction therefore involves third parties potentially making it difficult to secure agreement to use needed data.

The research focused on local authorities in England and Scotland. Even though Wales and Northern Ireland are also part of the United Kingdom, both were excluded from this research. Northern Ireland and Wales are, in terms of population size, very similar to Scotland. Therefore, on this basis potentially very little would have been learnt by comparing asset management practices in Scotland with those of either of these two nations. The legal framework in Wales, notwithstanding the fact it has its own devolved administration, is generally similar to that of England. Therefore, there was little merit in including Wales as well as England. In addition, the resource constraint was also a factor that was taken into consideration in limiting the study to Scotland and England alone. The amount of time and financial resources involved in identification of study cases, travelling to generate data influenced the decision to limit the study to England and Scotland.

As for England and Scotland, these two national states have a number of geographical, social, cultural and political similarities and differences. The two nations are part of the same United Kingdom. Despite belonging to the same political union there are, however, some differences in terms of legislative and political administration,

geographical and cultural ones. For instance, Scotland has its own Parliament with full responsibilities in certain matters including local government administration. At the same time the Westminster Parliament has jurisdiction over both England and Scotland in certain matters such as Defense and Foreign Affairs. This means that there could be similarities and differences in the development of public services in these two countries. Therefore, developed public policies have to be flexible and adaptable to conform to any differences in political, cultural, social and geographical settings.

The two countries can also be regarded as case studies as regards focus of the study, the type of problem being studied and the unit of analysis. Relating to problem focus, the study sought to develop an indepth description, analysis and understanding of multiple of cases of local authorities in both England and Scotland regarding their asset management arrangements. The unit of analysis being studied related to the effectiveness with which local authorities in these two countries implemented their operational property asset management arrangements (Creswell, 2007).

1.8 ORGANISATION OF THE THESIS

The thesis comprises of ten chapters organised as follows:

- **Chapter One:** deals with the background to the research. This includes justification, the problem statement, research questions, aims and objectives, study scope and research methodology.
- **Chapter Two:** critically reviews asset management development by observing trends internationally, especially in the major economies as manifested in the public sector. In addition asset management development in the public sector in the UK including in local authorities in England and Scotland, is specifically reviewed. The evolutionary path of asset management development in the public sector in the UK, including in local authorities, is presented. A critical review of operational property assets including their role in supporting local authority functions is highlighted. Thereafter, a critical review of English and Scottish local authority property asset management practices, in

particular the management of the operational property properties prior to adoption of asset management is provided.

- **Chapter Three:** focuses on the contribution, or otherwise, that asset management approach has made towards engendering effective and efficient operational property management performance is emphasised. The critical review of property asset management practices was in terms of identifying the limitations associated with current asset management practice and therefore establish the rationale for this research study. Against this background, the justification for the research in the English and Scottish local authority context is re-emphasised.
- **Chapter Four:** deals with the first stage of conceptual framework development, namely the identification and definition of asset management concepts. The identification and definition of concepts was based on consideration of three aspects. These are the theory underlying the framework, examination of existing frameworks and a review of relevant literature.
- **Chapter Five:** deals with the remaining three steps associated with conceptual framework development. The steps are exploration and examination of relationships between concepts; description of the developed framework; and operationalisation of the concepts. The exploration and examination of identified concepts was aimed at preparing a causal or concept map and to identify the causal logic of the framework. Following description of the developed framework, the concepts were then operationalised. The operationalisation of the identified and defined concepts involved developing a system for measuring performance of these concepts that can indicate asset management improvement in local authorities.
- **Chapter Six:** addresses the research methodology adopted. The research paradigm is described including the design of the research instrument and method for collecting the relevant data.

- **Chapter Seven:** addresses the qualitative analysis of the data collected by face to face interviews.
- **Chapter Eight:** the follow-up quantitative data gathered through large scale survey questionnaire was analysed involving a three stage process and this is dealt with in this chapter. This three stage process included data description through use of descriptive statistics; testing the data for normality by carrying out kurtosis and skewness statistical tests; and by testing the reliability and validity of the measuring instrument. Factor analysis was used to reduce the large number of variables measuring aspects of asset management performance to a manageable size for the subsequent development of the framework.
- **Chapter Nine:** is devoted to the development of the substantive framework including discussions of the findings and the potential recommended application. The chapter describes the validation process and the methodology adopted in the validation procedure. Results of the validation process are meant to verify the extent to which they lend support to the reliability and robustness of the asset management framework.
- **Chapter Ten:** in this chapter the fundamental objectives of the research are reviewed and appraised. Conclusions drawn from the work are presented and recommendations are made. The overall research structure, including organisation of the thesis, is shown in Figure 1.1.

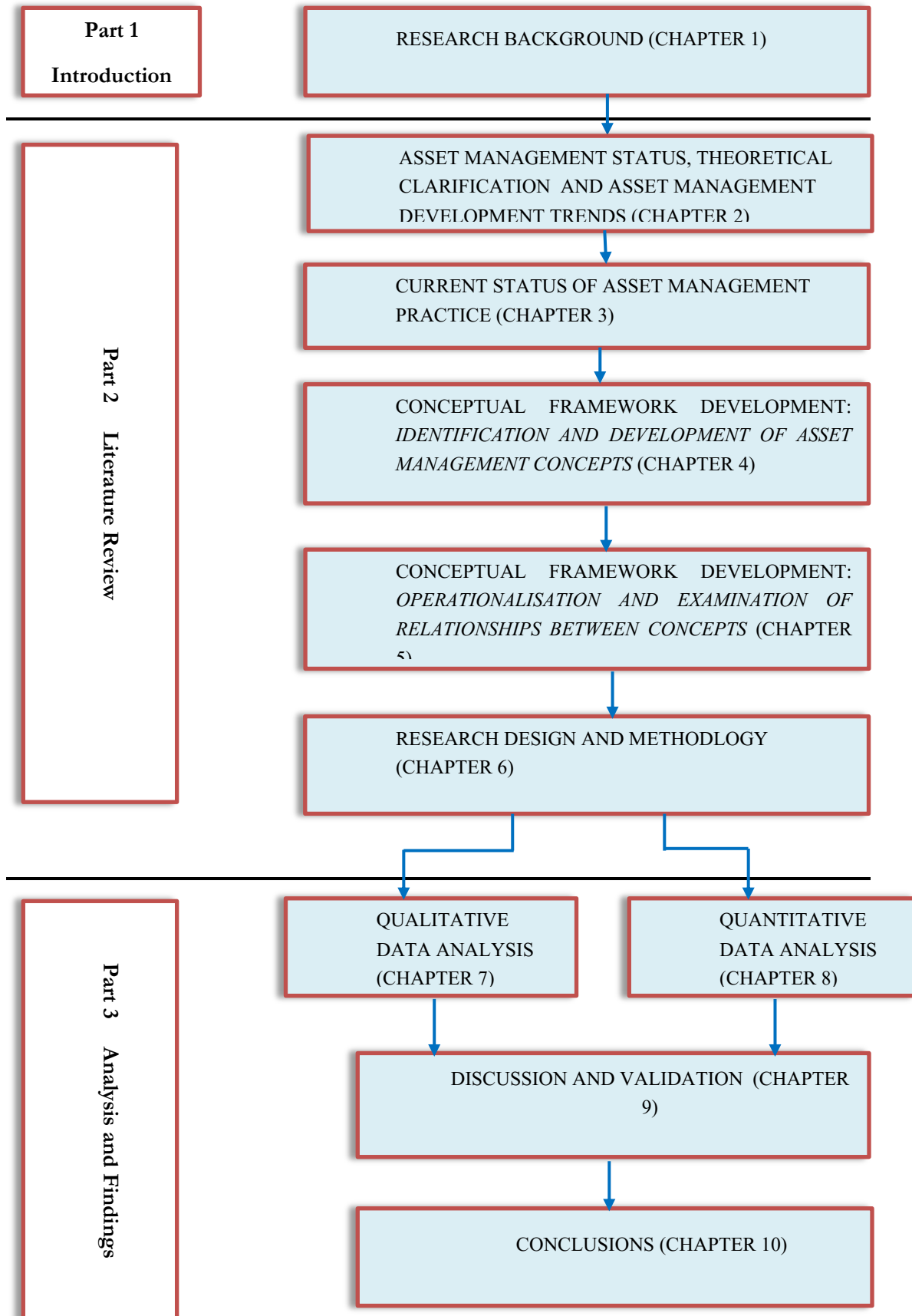


Figure 1.3: The Research Process

CHAPTER 2

**ASSET MANAGEMENT STATUS, THEORETICAL
CLARIFICATION AND ASSET MANAGEMENT
DEVELOPMENT TRENDS**

2.1 INTRODUCTION

In recent years local authorities, like many other public bodies, have had to respond to changes that have affected public services in the wake of rising public expectation. Public services have had to evolve as a result of such expectation and which in turn has led to the pressures for substantive changes in the funding and delivery of public services. Such changes are intended to increase efficiency, effectiveness and responsiveness of service delivery to users (Crawford, 2003; Baldry, 1998; Hood, 1991). The initiatives to improve efficiency and effectiveness of service delivery have also affected property management (Kaganova and McKellar, 2006).

In response, public sector organisations including local authorities, have been advocating that property assets be managed in a strategic way similar to other assets such as human and finance. Asset management is the strategic framework that the public sector advocate as the means by which property assets could effectively support efficient and effective service delivery (CIPFA, 2008). Various initiatives have been employed in recent years to encourage public bodies to adopt asset management and its associated processes.

The focus of this chapter, therefore, is threefold. Initially, literature is reviewed to examine existing property management practice. Secondly, the concept of asset management including its theoretical underpinning is explained. Finally, the development of asset management is reviewed. The review examines the origins of asset management, its development, and trends both in the UK and internationally.

2.2 REVIEW OF EXISTING PROPERTY MANAGEMENT PRACTICE

Prior to the introduction of asset management, the management of operational property asset base adopted a reactive management approach. Such an approach is narrowly focused and therefore not strategic in its approach. The lack of a strategic approach has meant that the management of operational properties has tended to be fragmented resulting in economic inefficiencies which mitigated against the development of best practices.

Local authorities and other public organisations have only recently come to recognise and appreciate the significance and value of adopting strategic property management practices. For instance Kaganova, et al., (2006) point out that only in the past two decades or so have local authorities begun to understand the full implications of managing their property assets. Up until the late 1980s and prior to the adoption of asset management approaches to property management, local authority focus on property management was principally targeted at those responsible for managing properties. This was a relatively small group of staff relative to the overall local authority organisation machinery and its associated range of activities. Only recently have governments, including local authorities, begun to realise the usefulness of implementing broad policies that address the users as well as the managers of these assets. Such a framework is typified by asset management approach to managing property assets (*Kaganova et al, 2006*).

The appreciation by local authorities of the value of implementing such broad policies is as a result of the problems they encounter in managing property assets based on reactive management practices which are narrowly focused in their approach. As observed by CIPFA (2008) who state that: *“in the past local authorities did not in any systematic way consider how property assets had been used and deployed. Issues about asset condition, asset fitness for purpose, long term sustainability of assets, delivery outcomes, and how assets were positioned relative to service user needs were hardly considered”*. The absence of a strategic focus in local authorities is emphasised by Gibson (1994) following a study reviewing reports highlighting the inadequacies associated with local authority property asset management. Gibson (1994) concluded that the main criticism of these reports was that there had been lack of a strategic approach to management of public property assets. Such a lack of strategic approach was further observed by the Audit Commission (2000), commenting that:

“across the local authority, there appears to be a long way to go before it is general practice for property assets to be routinely managed in a strategic fashion. Property is a resource which,

alongside others such as ICT and staff, needs to be actively managed at both service and corporate levels”.

Recognition grew that effective management of local authority properties involves developing a broad policy framework, typically asset management, for managing property assets that address asset users as well as property manager’s needs. According to Kaganova, *et al.*, (2006) an asset management framework for managing local authority organisation assets helps to achieve efficiency and effectiveness through increasing the efficient use of facilities; minimising operating costs; locating offices and services in functional and not necessarily in prime areas; and by knowing the highest and best use of assets amongst other benefits.

One of the consequences of not adopting an asset management approach for managing local authority organisation properties was that the management of such properties tended to be fragmented. Fragmented management, according to Kaganova, *et al.*, (2006); and Kaganova (2006) involved respective departments of local authorities to become involved in managing, financing, and using property assets. In the case of the majority of local authorities in the United Kingdom, one of the reasons individual departments became involved in managing properties was because property was considered to be “owned” by individual service committees occupying it (Audit Commission, 1988a). Such fragmented management of property assets was made worse by a lack of local authority organisation wide strategies, policies, and rules which are normally only available where asset management practices are in place. In practical terms, fragmentation implies that criteria unrelated to asset management effectiveness or efficiency split public property into many portfolios, and these portfolios were managed quite independently. Even if some respective departments of local authorities managed these properties well, the overall result was that the performance of property assets and management practices tended to be suboptimal. In addition, as a result of fragmented management, local authorities experienced economic inefficiencies associated with the performance of their property assets. Such inefficiencies

included physical and economic underutilisation as well as insufficient maintenance and repair associated with local authority organisation property assets. Worse still, as a result of fragmented management, local authorities could not promote and implement policies that encouraged joint occupancy of properties with partners or other public agencies. Furthermore, local authorities could not readily exploit surplus or underutilised property as there were no mechanisms to transfer property between committees or to encourage the identification of surplus property for disposal. This was due to lack of asset management approach. The weaknesses that emerged as a result of the fragmented management manner in which local authorities managed their property assets were compounded by a number of specific problems. According to the Audit Commission (1988a; 2000) these specific problems included:

- a) not having adequate information about property as such they could not make informed property management decisions.
- b) there were no incentives to users to efficiently and effectively manage the properties they occupy as they perceived little benefit in surrendering “their” vacant or underused properties either for disposal or use by other service areas.
- c) failure to carry out regular property reviews which are necessary if property is to be managed as a dynamic rather than as a static resource.
- d) the opportunity costs of holding property were not recognised meaning that properties were not put to their highest and best use.
- e) there was lack of coordinated maintenance strategy resulting in maintenance budgets being used for what they saw to be more pressing needs, with few local authorities carrying out full condition survey of buildings to assess the scale of their maintenance backlog.
- f) lack of effective financial and managerial procedures to aid proper accountability

- g) political apathy and opposition to change property management practices.
- h) Lack of challenge of the need for owning property or did not review the manner in which property services were organised and obtained. As a consequence, most local authorities retained and maintained buildings that were in the wrong place, of the wrong size, or were otherwise unsuitable for their existing use.

According to the Audit Commission (1988a; 2000) the property management problems identified and highlighted had unwelcome consequences. The consequences included:

- a) poor control of running costs;
- b) badly utilised property tying up capital resources and diverting revenue resources from areas of more immediate use;
- c) failure to generate capital receipts as resources were unnecessarily tied up in property which could be released to generate capital receipts;
- d) holding of excessive vacant property; and
- e) deteriorating building stock due to the accumulation of backlog maintenance.

Figure 2.1 shows the inter-relationship between a lack of strategic approach to property management and the resultant problems and consequences. These management problems and consequences arose because local authority organisations failed to recognise the corporate aspects of property portfolio management which necessitates the need to adopt a strategic approach to management (Audit Commission, 1988b).

Consequences of a Lack of Asset Management Approach to Management of Operational Properties

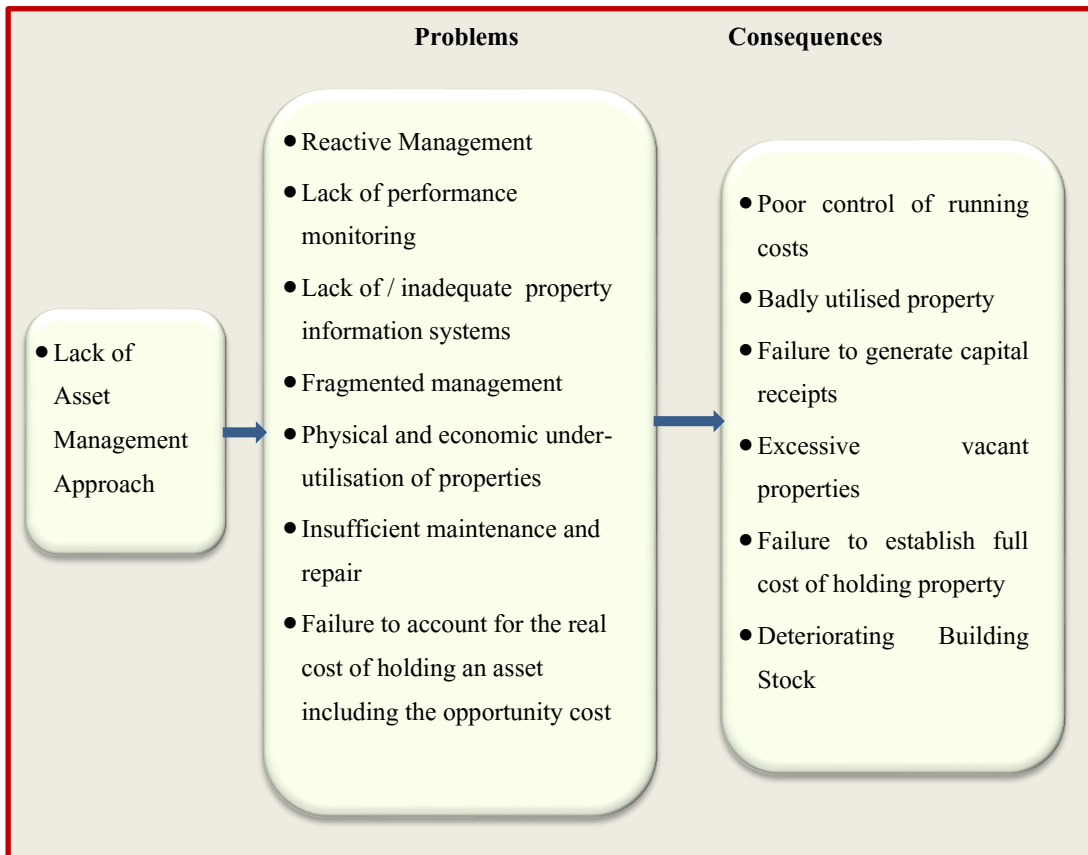


Figure 2.1: Lack of strategic approach to property management and the resultant problems and consequences
Source: Audit Commission (2000)

The lack of a strategic approach to the way local authorities managed their property assets and the resultant management problems and consequences meant that property management introduced economic inefficiencies. Economic inefficiencies included poor control of running costs; failure to put properties to highest and best use through poor utilisation; and deteriorating building stock. According to Kaganova (2006) such inefficiencies persisted in most local authorities and led to an established belief, common amongst public bodies, that property held by a government was a “free good”, owned by the taxpayers and not subject to economic rationalisation. The failure to rationalise their property asset holding had consequences. The consequences included firstly, that organisations seldom accounted for the real cost of holding a property asset and the opportunity cost. Secondly, organisations

incurred opportunity losses stemming from economic underutilisation. Economic underutilisation relates to the failure to capture the property's highest and best use. Apart from economic underutilisation, there was also physical underutilisation where vacant or underutilised properties were unnecessarily retained. Opportunity losses also stemmed from deferring maintenance and repair of properties leading to accumulation of deteriorated stock.

The struggle to control property running costs could have been as a result of the ineffective property information management systems maintained by most local authorities. Using statistical data to reinforce the point, Bond and Dent (1998) state that as of 1996 only 66% of all local authorities in England had their property records computerised. The situation was not any different at the world stage. Grubisic, *et al* (2009) for instance remark that: *“despite the age of information technology and worldwide computer use, many local authorities still did not have asset registers that would enable them to have a true reflection of the total value of assets owned, or their public asset registers were incomplete making it difficult to monitor and control the way public assets are used or misused”*. Kaganova and McKellar (2006), cite the research by Bond and Dent (1998) who state that as of 1996 only 65% % of all local authorities in New Zealand had their property records computerised. In the USA for instance, as of 1997, Washington D.C. had duplicative and inconsistent inventory records of buildings that the city owned and a substantial incomplete inventory of in and out-leases. The situation was no different in the case of the USA federal government. In the case of the federal government the situation was that in early 2002, there was no reliable government-wide data on property holdings. For example, Ungar (2003) states that the USA federal government's worldwide asset register lacked such key data as space utilisation, and facility condition.

It is the case, therefore, that where local authorities lack reliable information about their property assets it means that revenues and expenses are not tracked on a property by

property basis mainly because this information is not collected within local authorities' budgeting systems. Furthermore, the potential market value of operational property assets is also frequently unknown or that bookkeeping values for property are often outdated as to be meaningless. Kaganova and Mckellar (2006) argue that where information management systems do not have information about lease arrangements or access to the information that a lease document provides, effective property management practices cannot be instituted. Since leases record space utilisation as well as operating costs, detailed record keeping is essential to cope with owner tenant disputes, ascertain market trends, set prices, determine values, and compare performance against industry standards and benchmarks (Kaganova and Mckellar, 2006).

Furthermore, Tanzi and Prakash (2000) argue that having reliable information in asset registers, would increase local authority efficiency, and could serve a number of other useful purposes. These purposes include:

- providing the value of the assets owned by a local authority organisation or indeed central government that could help rating agencies in determining the credit rating;
- facilitating the calculation of the balance sheet or the net worth of the local authorities;
- reducing the possibility that some public assets “disappear”; and
- permitting a public body to impute capital charges to public agencies, institutions or other local authority organisation departments that use these assets and force them to use these assets efficiently.

The lack of transparency associated with property asset dealings in most public sector organisations, including local authorities, was another consequence of not adopting an asset management approach to operational property management. Kaganova, *et al.*, (2006) assert that property asset dealings in these organisations were by no means transparent. This lack of transparency in property asset transactions created problems in most countries and

included suspect dealings; “insider” transfers and other abuses. The pressures for transparency reforms in public property asset transactions therefore took momentum requiring that property asset management practices be subject to codified procedures and processes.

Local authorities came to recognise that these property management problems could be addressed by adopting asset management as a strategic framework for managing their operational property asset base.

2.3 THE CONCEPT OF ASSET MANAGEMENT

This section explains the concept of asset management by defining and identifying its components. Different sources variously describe and define the term asset management. For instance, the Royal Institute of Chartered Surveyors (RICS) (2008) settled on the definition and description of the term asset management as it applies to local authorities after evaluating a number of published definitions from various sources such as those by RICS/Office of the Deputy Prime Minister (ODPM) (2005), Male (2006), and Lyons (2004). Thus, the RICS (2008) define asset management as “*a structured process that seeks to ensure best value for money from property assets in serving the strategic needs of local authorities*”. In considering this definition and other definitions of asset management, the RICS (2008) conclude that “*there appears to be considerable consensus over the basic characteristics of strategic asset management for land and buildings and a distinction between strategic asset management and operational property management.*” Asset management is characterised by:

- the adoption of an integrative approach (Institute of Asset Management 2006; British Standard Institution (BSI) 2008; Edwards,2010);
- defining service levels and performance standards and limiting them to strategic planning objectives;
- optimised investment decision making approach;

- adopting a long-term (lifecycle) approach to asset management (Worley, 2000);
- demand management, and risk management (Department of Provincial and Local authority , 2010).

The integrative role of asset management relates to the fact that *the approach combines management, financial, economic and other activities and practices applied to the management of property assets* (Institute of Asset Management (2006); *in a systematic and coordinated manner* (British Standard Institution, 2008). The Audit Commission (2000) states that the strategic approach to managing local authority organisation property portfolio involves two broad strands of activities as illustrated in Figure 2.2. The strands are *Strategic Property Considerations* and *Property Services*.

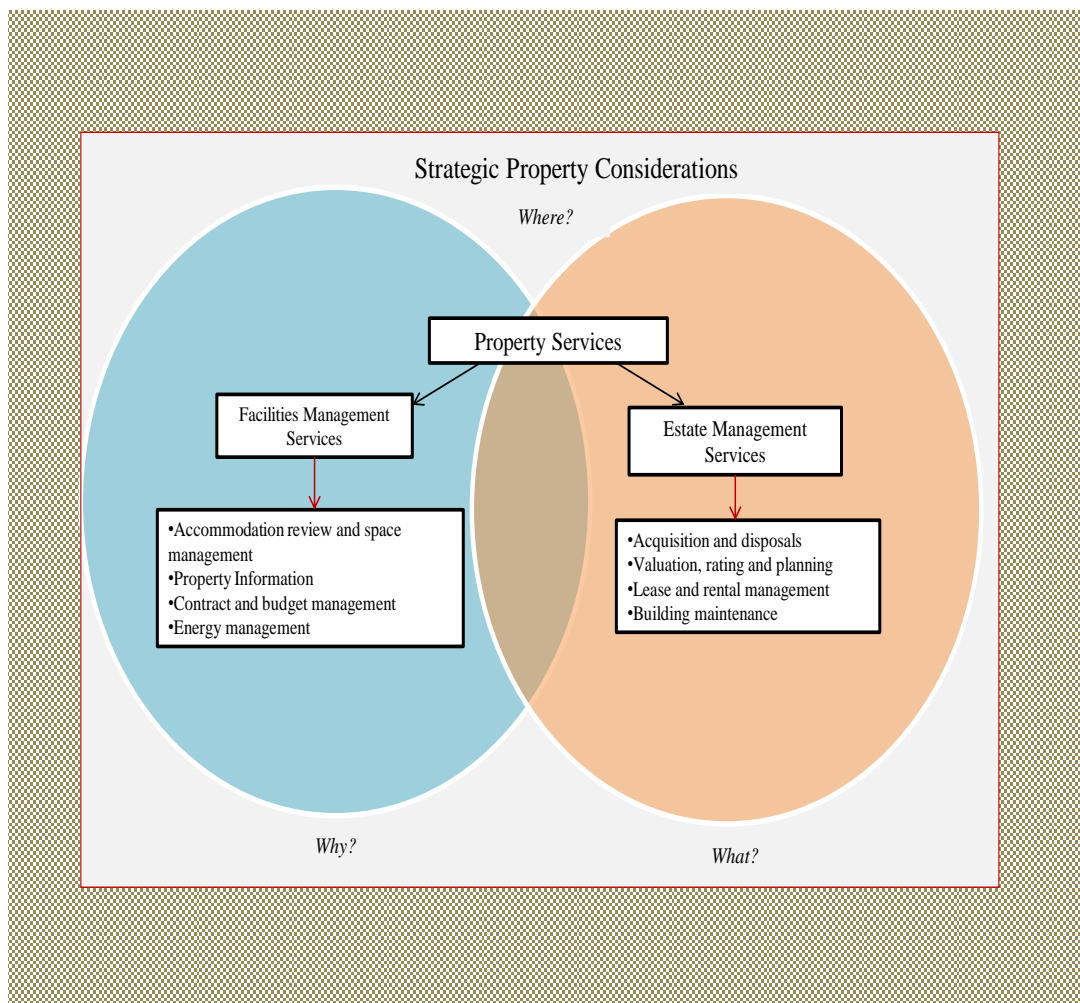


Figure 2.2: Strategic Property Considerations and Property Services
Source: Adapted from Audit Commission (2000)

Strategic Property Considerations includes decisions about the number, type, and location of assets required to meet the organisation's objectives. It is the activity that ensures that the land and building asset base of a local authority, for instance, is optimally structured and aligned with its corporate goals and objectives (RICS, 2008). Strategic Property Considerations asks the questions such as: where should the property be located?; why should the property be sited in a particular location?; and what size of property is needed to support a service?

Property Services delivers the strategic asset management objectives by undertaking the professional and technical and management work necessary to ensure that property is in the condition, form, layout and location desired. It includes ensuring that property is supplied with the services required; surplus property is disposed of and new property acquired and constructed; property is valued; property rates are catered for, and all this in cost-effective manner. It also involves offering advice to decision makers on best way of managing operational property assets (RICS, 2008). What can be discerned from the various activities associated with property services is that it comprises two elements namely Estates Management and Facilities Management (FM).

Property asset management therefore integrates two components, namely facilities and estates management. This integrative role is emphasised by Then (2005) who states that property asset management has the unique role of integrating facilities management and estates management. As such, property asset management, according to Then (2005) embraces two principal areas of management of the operational property assets, namely, Estates Management (EM) and Facilities Management (FM). Ali (2007) cites (Brown *et al*, 1993) who defines Facilities Management services as coordinating the needs of people, equipment, and operational activities into the physical workplace. It focuses on the provision of the quality working environment through various responsibilities such as facilities design, energy conservation and environmental control (Ali, 2007; Tay and Ooi, 2001). On the other hand, Property Management (PM) or Estates Management, according to

Gibson (1994), is concerned with the care of buildings to tenants or owner occupier's satisfaction.

Both, FM and PM, have a responsibility for premises although the focus of activities for meeting those responsibilities are different. The core of estate management activities involve valuation of property, acquisition and disposal of buildings; provision of advice on property investment; administration of leases, administration and accounting for service charges, supervision of building repairs; rent reviews and rating advice, strategic reviews of property and accommodation, and sales of surplus space (Stansall, 1994; Balch, 1994).

Conversely, activities associated with FM include control of operating budgets and occupancy costs, management and maintenance of building services, planning and management of moves, selection of furniture, management of space allocation and use, supervision of cleaning, security, IT/communication and telecommunications services; catering and office support services; materials and equipment purchase management; office equipment and furniture purchase and management, as well as maintenance of the building itself (cleaning, heating and lighting); and maintenance of all mechanical and electrical equipment and building fabric in terms of decoration and repair of internal and external equipment (Stansall, 1994; Balch, 1994).

In practice the functions of PM and FM are not so neatly separated. There are some common roles between them. The interface between operational Property Management and Facilities Management within an organisation is shown in Figures 2.3.

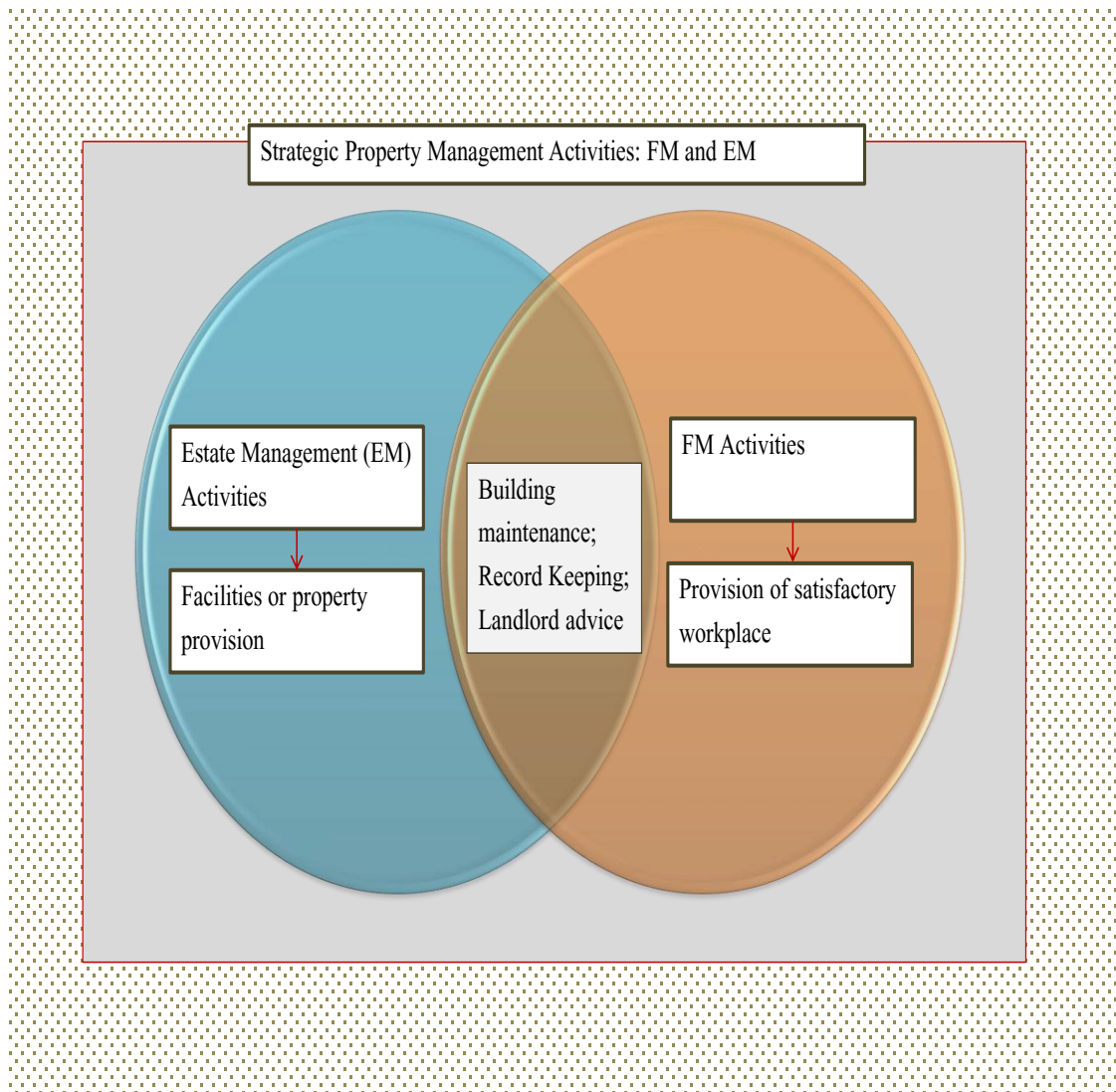


Figure 2.3: Asset Management, FM and Estates Management Activities

Source: Adapted from Ali (2007)

2.4 ASSET MANAGEMENT: THEORETICAL CLARIFICATION

In this section the aim is to identify the theory that underpins asset management. Little is reported in literature about the theoretical basis upon which asset management is founded. Of what is reported, it is suggested that the practice of asset management rests firmly within organisational management discipline (Tanfield and Denyer, 2004; Woodhouse, 2010b). For instance, Audit New Zealand (2010) argues that the notable practices of asset management processes are encompassed within organisational management issues. The organisational management issues of relevance to asset management can be identified, by relating asset management practice processes to organisational management theory.

Within the organisational management framework, there are various theories that seek to explain how various influences operate and how they can be channelled to positively impact on organisational performance. However, the strategic management theory is most pertinent in explaining the operation of influences affecting asset management.

Strategic management has been variously defined. For instance, Mintzberg (1994) defines strategic management as: “ *a system for producing strategies within an organisational infrastructure responding to an environmental context*”. Strategies are actions, often planned, for responding to environmental influences. The processes undertaken in formulating strategies, according to French (2009) include: (i) establishing vision and mission; (ii) objective setting; (iii) external environment scanning; (iv) internal environmental scanning; (v) formulating strategic alternatives; (vi) strategy selection; (vii) strategy implementation; and (viii) control.

A review of literature indicates that asset management adopts such a strategic approach with deliberately designed processes based on strategic management theory. For instance Tanfield and Denyer (2004) state that there is now widespread recognition and acceptance by organisations that the management of infrastructure assets, such as operational buildings, is an essential component of an overall organisational strategy. Thus, regarding asset management as a component of an overall organisational strategy entails adopting a strategic approach. According to Yiu (2008) a strategic management approach is concerned with formulating, implementing and evaluating cross-functional decisions that will enable an organisation to achieve its objective. The recognition and acceptance that operational property assets should be managed on a strategic approach has been driven by cost implications and the important support role of operational properties. As observed by Martin and Black (2006) who state that owner occupied properties are a major cost item for the organisation. They report that corporate assets occupancy costs represent 40-50 per cent of net operating incomes and are often the third most expensive item behind labour costs and IT. Additionally organisations have to appreciate that the primary task of owner-operated

real properties is to support the organisation's core objectives. Consequently, Too (2008) states that those charged with the responsibility of managing such assets have come to view them as an important organisational resource. Perceiving assets as important resource entails managing them as a total enterprise rather than from a traditional functional approach since they are strategic resources at par with other important assets such as finance, ICT and people. The argument that asset management has a strategic focus has been advocated by other commentators. For instance the Audit Commission (1988b; 2000) argued that best practice property asset management arrangement has a strategic focus.

2.4.1 Relationship Between Asset Management And Organisational Management Theory

In this section the relationship between asset management and the specific elements associated with strategic management theory is demonstrated. It has been argued above (section 2.4) that asset management is based on strategic management theory which itself is an aspect of organisational management theory. There are, however, other specific theories and practices within organisational theory that play a crucial role in supporting effective implementation of asset management strategies. As emphasised by Woodhouse (2010b) who states that there is now general recognition and acceptance that asset management is not primarily a technical subject. Instead getting the human factors right is even more important than the tools, processes and technical 'solutions' that are adopted in asset management. The human factors relate to aspects such as workforce motivation, education or capacity building, communication, leadership, team-working and sense of ownership. These human factors are the critical enablers to the establishment of a joined up, sustainable approach to asset management. The specific organisational theories that underpin these human factors are change management (Tanfield and Denyer, 2004; Male, 2010), team and project management (Woodhouse, 2010b; Lloyd, 2010; Fisher, 2009), motivational management, organisational structure (Male, 2006; Ali, McGreal, Adair and Webb (2008), leadership skills (Edwards, 2010; Male 2004), capacity building (Edwards

(2010), motivation (Martin and Black (2006), stakeholder management (Kerley, 1994; Too, 2008; and Too and Too, 2010), and value theory (Ma, 1999; Too and Too, 2010).

The rest of the section demonstrates the inter-relationship between asset management and these organisational theories.

2.4.1.2 Asset Management as a Significant Change Management Event

The term strategic denotes magnitude or scale (Mullins, 2005). The change from the narrowly focused property management to asset management approach is appreciably considered to be of significant scale. Asset management as a major change event is emphasised by Tanfield and Denyer (2004) who state that: “*the strategic management of long-term assets (SMoLTA), such as operational properties, has emerged as a change theme for organisations*”. The magnitude of change associated with asset management is echoed by Male (2010). Male observes that the successful implementation of asset management requires a concerted and coordinated effort across any organisation and could involve substantial organisational change.

2.4.1.2 Team Management, Project Management and Asset Management Approach

Various commentators allude to the fact that cross functional team and project management approach is the most appropriate frameworks for operational property asset management (Woodhouse, 2010b; Lloyd, 2010; Fisher, 2009). Organising asset management under cross functional team arrangements is advocated by Woodhouse (2010b). He argues that asset management needs to be a cross-disciplinary management group with shared responsibility for assisting the asset manager in the optimisation and delivery of the asset management plan. A team approach to asset management is, according to Lloyd (2010) not just desirable, but is essential for unifying asset management activities across organisations and driving progress across departments or other organisational boundaries. Team based approaches provide a way of overcoming fragmented thinking and attitudes and developing holistic approaches, decision-making and practices.

2.4.1.3 Asset Management and Organisational Structure

The need for an effective organisational structure for the successful implementation of asset management activities is considered important. For instance, Ali *et al* (2008) make the point that: “the role of corporate real estate (CRE) manager / asset manager (sic) is challenging, since asset management activities comprise all aspects of real estate holdings in the organisation. It is important therefore to have an appropriate structure which ensures that there is effective communication”. Ali *et al* (2008) go on to state that to ensure effective communication the asset manager should be functionally positioned at a strategic level and close to the chief executive or top leadership. An asset manager so positioned will have the necessary management authority to provide the needed leadership role.

As regards the type of structure, Male (2006) argues that the federal or functional structure within any government or local authority department is a significant obstacle to rolling out a coherent, consistent and common approach to property asset management. Thus, having in place a property asset management board of a strong matrix structure is the most effective structure for implementing asset management in government bodies, such as local authorities (Male, 2006). Such a board is considered the most effective structure because it brings together strategic and operational aspects of property asset management into one organisational unit. Hierarchically, it could in a typical management structure reside just below the executive management board level and can have strategic and operational management roles.

2.4.1.4 Asset Management and Leadership Skills

The role of leadership is, for instance stressed by Edwards (2010) who argues that leadership and development of an asset management culture are important in helping organisations move from a departmental view or functional view of their business towards a more integrated view centred on asset management. The significance of leadership skills for those involved in asset management at the top leadership level is essential for enabling them to drive forward the asset management agenda in an organisation (Male, 2004). Similarly, it is important that an asset management coordinator or manager should occupy a senior

leadership position. Such a position gives the individual sufficient authority and resources to drive through the process and seek and obtain inputs from personnel across the organisation (Edwards, 2010).

2.4.1.5 Asset Management and Capacity Building

Just as in other aspects of generic management there is emphasis in building the capabilities of the workforce, this is also the case with asset management. For example, Edwards (2010) forcefully makes the point, commenting: “organisation and people aspects of asset management are about the capability of an organisation and the individuals who work in it to effectively implement all aspects of asset management”. The capability of an organisation includes the development of asset management roles and competences to ensure that individuals have a wider understanding of how their role contributes to the overall asset management goals and how the activities they are responsible for integrate with other activities in the business (Edwards, 2010).

2.4.1.6 Asset Management and Motivation

Recent research suggests that asset management practices can have motivational influences upon occupiers of properties. Martin and Black (2006) for instance, point out that real estate plays an integral role in either facilitating or hindering human resource. Through the effective utilisation of real estate workspace, real estate strategy can be incorporated with an organisation’s corporate strategy to support human objectives of staff loyalty, employee satisfaction, and retention of staff as well as increase workforce productivity. Effective utilisation of workspace involves arranging the use of space in such a way as to maximise and facilitate the constructive interaction of the workers. Effective utilisation of workspace relates to facilities management, one of the two components of asset management (see section 2.3.1).

Martin and Black (2006) cite Price (2002) who argues that maximising and facilitating the constructive interaction of the workers results in a number of motivational benefits. These motivational benefits include reduced absenteeism; easier recruitment of staff of the right calibre; reduced staff turnover; improved staff morale and customer service; faster

development of new ideas and services or products; higher knowledge worker productivity in terms of case loads; innovation; and reduced costs.

2.4.1.7 Asset Management and Stakeholder Management

Management, especially in the case of a local authority, is characterised by the need to address stakeholder expectations. The stakeholder expectations, according to Kerley (1994), can be significant, multiple and with contradictory objectives because of the many and different communities that expect service provision from the public organisations. The need for integrating stakeholder expectations in asset management, notwithstanding the contradictory objectives, is emphasised. For instance, Too (2008) and Too and Too (2010) make the point that it is vital that differences in stakeholder expectations are recognised and addressed so that in the end the goals and objectives arrived at should be as a result of the interactions and consensus between various stakeholders. This is important to ensure successful performance of assets to meet the expectations of stakeholders.

2.4.1.8 Asset Management and Value Theory

Management processes if effectively executed can add value to an organisation. The value adding potential of strategic asset management has been emphasised by Too and Too (2010) arguing: “asset management is a value-adding pursuit when carried out in a strategic approach”. In particular, Too (2008) cites Norton and Kaplan, who state that value is enhanced by productivity strategy processes and through effective and efficient use of an organisation’s assets. Such productivity strategy processes include those that are knowledge and capability based (Ma, 1999). The knowledge and capability based strategies that add value are those that enable the organisation to create, integrate, coordinate its multiple knowledge streams of knowledge and competencies and reconfigure and redeploy them along changing market opportunities or service user expectations. Additionally, value is added through technical capabilities. These are capabilities that enhance creativity, efficiency, flexibility, speed, or quality in an organisation’s service delivery process; and organisational capabilities that help in mobilising employees, fostering organisational learning and facilitating organisational change.

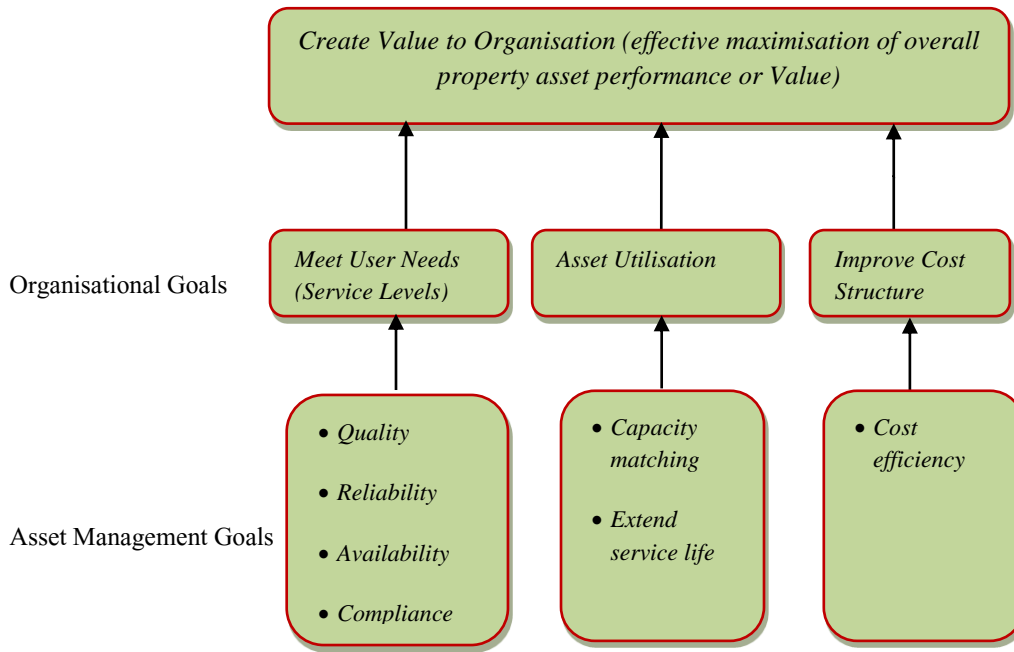


Figure 2.4: How organisations create value
Source: Too (2010)

Figure 2.4 is a representation of how asset management processes and practices support organisational goals to create value for the organisation. Asset management goals support broader organisational goals. In order to realise these goals, asset managers need to make decisions that will maximise financial performance or in the case of public bodies maximisation of cost reduction, achieve excellence in service provision and minimise asset risk. Asset risk is minimised by ensuring that the available assets in which services are delivered are of the right quality, reliable, the right asset capacity is available and that assets comply with the relevant regulatory and legislative frameworks. Too (2008) cites Jones (2000) who argues that there is difficulty in an organisation where the overall performance is centred on an infrastructure asset base. The reason being that the three components of financial performance (cost minimisation), service (quality service provision) and risk (risk minimisation) are not all independent but actually are all outputs of the same infrastructure asset performance. It is not possible as a result to have maximised cost performance at the same time as minimised risk exposure and be excellent in service delivery. The three, according to Jones (2000), have a measure of interdependency. Too (2008) cites Jones (2000); Sklar, 2004); and Humphrey (2003) who advise that in infrastructure asset-

eccentric business or organisation, even at a strategic level, it would be wise to seek an understanding and interplay of the three parameters in order to effectively maximise overall infrastructure asset performance or value. Asset managers need to consider how to achieve the goals by making decision to balance the three. To achieve this balance, the three goals should drive the core processes of infrastructure asset management.

The section sought to identify the theory that underpins asset management. A review of literature indicates that asset management belongs to the overall organisational management theory but specifically strategic planning model. Asset management is undertaken following the deterministic steps suggested by the strategic planning model. The specific organisational management theory and practices that are crucial for effective asset management include managing assets as a change management event, team and project management approach, utilisation of a matrix structure that resides at board level, strong leadership support, motivational techniques, capacity building in asset management, stakeholder management, and improved technical capabilities and processes.

2.5 BENEFITS OF ASSET MANAGEMENT

The integration of facilities and property management services, the hallmark of asset management, is the most beneficial arrangement for supporting local authority organisation objectives. According to International Infrastructure Management (IIM) (2006), there are practical and business benefits that accrue from utilising property asset management arrangements. Such benefits include:

Table 2.1: Asset Management Benefits

No.	Asset Management Benefits
1	Asset longevity is prolonged making it possible for property assets to continue to deliver the desired services on a long term basis.
2	The associated benchmarking of condition and performance promotes innovation and efficiencies
3	Provides a structured and programmed approach to long-term change
4	Improves governance and accountability with regard to its stewardship of property assets

5	Enhances service management and customer satisfaction
	<ul style="list-style-type: none"> • By improving performance and control of service delivery to the required standards; • By improving understanding of service requirements and options; • Through the process of formal consultation and agreement with users on the service levels
6	Improves risk management
	<ul style="list-style-type: none"> • Asset management processes and practices ensure that assets are assessed for the probability and consequences of failure and issues relating to continuity of service are addressed
7	Improves financial efficiency
	<ul style="list-style-type: none"> • By utilising Optimised Decision Making (ODM) options are assessed for their financial viability based on whole life cycle cost and option appraisal of asset management life cycle activities
8	Improves Decision Making by utilising Optimised Decision Making (ODM) by:
	<ul style="list-style-type: none"> • Ensuring that decisions are based on evaluating both financial (costs) and non-financial costs and benefits of alternatives • Enabling the prioritisation of investments, interventions and asset care activities • Making it easier to recognise all costs of creating, owning, maintaining, operating and disposing of assets over the lifecycle of the assets • Ensuring that organisation has a lean, well maintained portfolio which allows it to live within its means
9	Can improve the economic well-being of an area by supporting and facilitating wider objectives, such as:
	<ul style="list-style-type: none"> • Regeneration • Helps to introduce new working practices such as the potential to increase co-location, partnership working and sharing of knowledge • Can trigger cultural organisational changes
10	Improved Environmental Asset Sustainability through:
	<ul style="list-style-type: none"> • Reduced carbon emissions • Reduced energy consumption
11	Improvements in the accessibility of services
12	Compliance with statutes and regulations.
13	Improves asset condition which can lead to the following benefits:
	<ul style="list-style-type: none"> • Fit for purpose to deliver services • Improve the quality of the public realm • Aesthetically pleasing

Sources: NAMS (2006a); RICS (2008); Scottish Executive (2003); Worley (2000); DCLG (2008).

The advantages offered by a structured approach to property management, as is the case with asset management, have not always been appreciated by local authorities.

2.6 ASSET MANAGEMENT DEVELOPMENT: TRENDS AND INFLUENCES

In this section the competing claims about the origins of asset management are examined. Also discussed in the section are the external and internal forces that have driven asset

management development. The section concludes by examining literature on asset management development and trends in the UK and the rest of the world.

2.6.1 Origins of Asset Management

There is lack of consensus amongst researchers and commentators as to the origins of asset management. However, there is unanimity amongst commentators that asset management evolved from other disciplines. For instance, Edwards (2010) argues that the concept is a relatively new description of activities that have been undertaken for many decades but up until recently in a fragmented way. This argument is shared by Piling (2010) who states that asset management is not a new discipline but rather it is a concept that has evolved over a number of decades from the industrial age. Throughout its development phases asset management has learned and incorporated other disciplines and techniques. Piling (2010) further argues that over time, there has been a gradual evolution of these different disciplines and techniques to the management of the business and management systems and frameworks that have supported them. Figure 2.5 shows the evolutionary path of asset management commencing in the 1970s with command and control approaches. However, from the 1970s, realisation by organisations started to take hold that the effective management of assets involved an enterprise wide approach. The enterprise approach is one where organisations look at their entire asset portfolio and the interactions between asset systems. This integrative and entrepreneurial wide approach is what is presently understood to be associated with asset management.

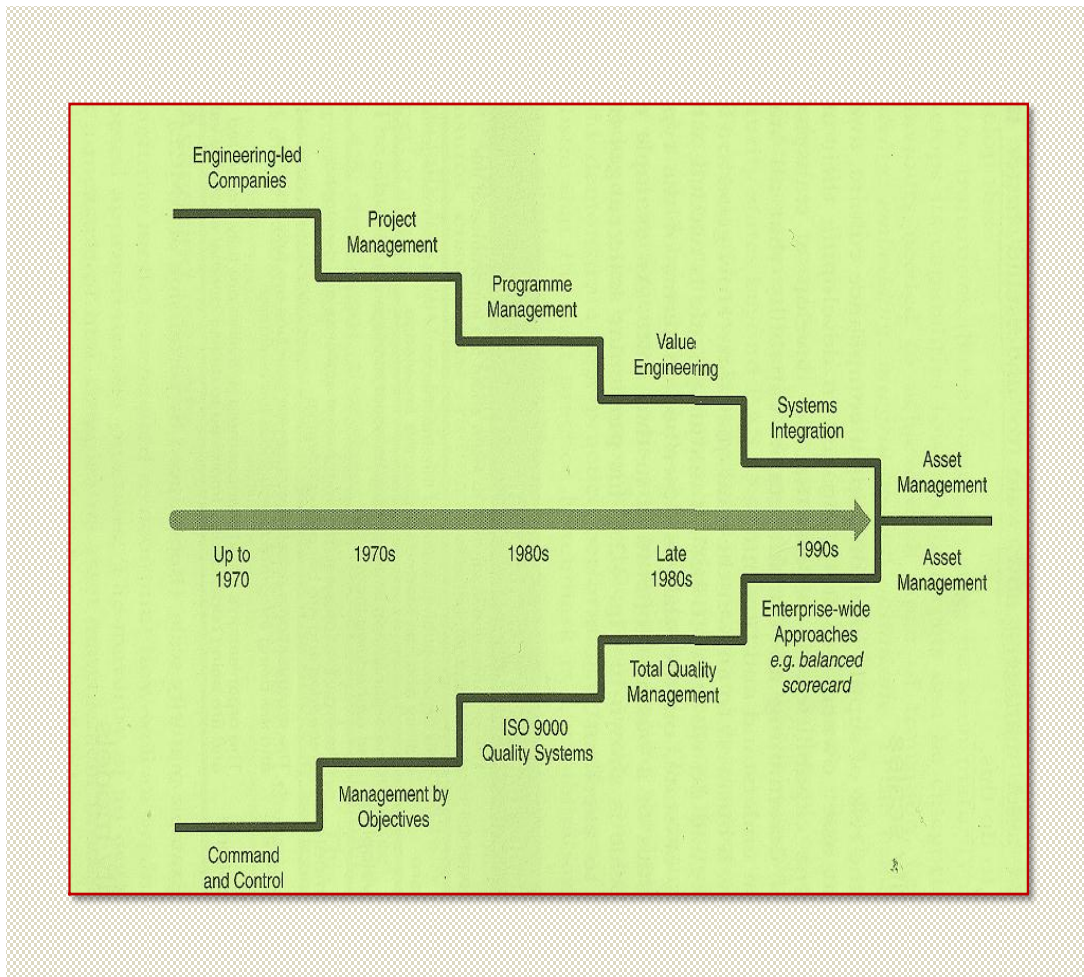


Figure 2.5: The Evolution of Asset Management

Source: Piling (2010)

However, there is no agreement as to the nature and type of business activities from which asset management originated. Woodhouse (2010a) is of the view that asset management evolved principally from UK's North Sea oil and gas industry during the late 1980s and early 1990s. The catalysts for the change is said to have been the survival pressures of the late 1980s following the Piper Alpha disaster and the crash in oil price (Woodhouse, 2010a). These events forced a rethink on the part of these sectors. In response, the oil and gas industrial sectors introduced an initiative known as CRINE (Cost Reduction in the New Era). The initiative challenged many of the existing practices culminating, for most of the industry players, in the creation of business units with clear lines of budget authority, performance accountability, and active encouragement to challenge the status quo. The

improvements that ensued led to significant cost reduction and a management model, akin to what is now termed asset management arose (Woodhouse, 2010a). There were certain features that characterised the management model that arose. The features included firstly, an increased focus on the role of assets that supported the gas and oil business activities. Secondly, there was increased interest in establishing how assets performed in supporting such business activities. Thirdly, the gas and oil industries came to greatly recognise the role and creative input of operators and technicians. Finally, the management of assets supporting gas and oil activities came to be based on “whole life” asset management plan. From these origins, asset management continued to evolve. The continued evolution resulted in growing interest by organisations such as the Institute of Asset Management (IAM) to codify best practice for managing assets. In 2004, there was an initial attempt by the IAM to capture the minimum requirements and best practices for managing assets. The Institute of Asset Management (IAM) and the British Standards Institution (BSI) launched a project on a standard for the management of physical assets known as BSI PASS 55. The BSI PAS 55 (BSI, 2008a) was and is now increasingly seen as the framework for good asset practices particularly in the engineering and utilities sectors. BSI PAS 55 is still the “publicly available specification” for the optimised management of physical assets and infrastructure.

Edwards (2010), on the other hand, suggests that privatisation of the rail and utility companies such as gas, water and electricity in the UK in the 1990s was a spur to asset management in the UK. After privatisation, the rail and utility entities started pursuing efficiencies through higher levels of productivity and outsourcing of various services. Edwards (2010), further argues that with time, these types of efficiency savings of increased productivity and outsourcing became harder to find. The rail and utility organisations responded by starting to challenge their asset renewal and maintenance activities to see if renewals could be deferred or planned maintenance intervals extended. In order to defer or plan maintenance, organisations needed better asset knowledge and control over their work management processes. These organisations then began to develop and implement asset

registers and work management systems. Although the initiatives led to improved asset registers, the initiative did not deliver expected efficiency gains. Risk management and cost control remained a problem. Understanding, quantifying and managing risk, therefore, became increasingly important to unlocking the efficiencies associated with the optimisation of renewal and maintenance regimes. Coupled with the demands of the regulators about controlling longer term risks associated with asset management, led to pressures to provide better guidance on the holistic management of risk. The regulatory bodies of privatised utilities made it a requirement that these companies develop strategic asset management plans which contained their investment needs. The asset management plans were audited by the regulatory bodies for respective utilities. According to Worley Ltd (2000) many of the early practices in the UK privatised utility industry were subsequently adopted by public agencies in Australia and New Zealand and also provided the basis on which subsequent guidance to UK local government was based.

Regardless of the origins of asset management, its beneficial impacts are increasingly being appreciated by organisations in both the public and private sector. These beneficial effects are echoed by Piling (2010) for instance who argues that the integrative approach associated with asset management has contributed to a situation where organisations now see asset management as a powerful tool to help them add value to a business, rather than as just a cost centre. Asset management brings about value addition to organisations because the concept applies an enterprise-wide approach through the whole asset lifecycle.

2.6.2 Internal and External Drivers of Asset Management Development

During the past two decades or so it has been noticeable that there has been an increasing international trend towards the adoption of asset management by public sector organisations, including local authorities (Kaganova, 2006; Hentschel and Utter, 2006). The increasing trend is as a result of growing realisation that asset management is beneficial to public bodies. The benefits of asset management have been stated in section 2.3.2. Various initiatives have been behind the increasing international trend, even if there are variations

both in approach and pattern of development, towards the adoption of asset management by public sector organisations (Worley Ltd, 2000, Burns, 2002).

2.6.3 Asset Management Development in the UK

The drive to embrace asset management practices in the UK has been driven by New Public Management (NPM) and various commissioned reports urging local authorities to adopt the concept. These reports and NPM initiatives are examined in this section.

2.6.3.1 New Public Management (NPM) and Asset Management Reforms

The identity and impact of NPM related initiatives on asset management development is examined in this section. The drive for asset management development in the UK has taken place as an integral element of the major externally driven changes that have affected the role of public sector organisations including local authorities. These changes, known as New Public Management (NPM), have emerged over the past three decades or so. According to Dawson and Dargie (1999) at the heart of NPM ideology is the belief that public provision of services or goods is *inefficient* and often *ineffective* and therefore leads neither to *cost containment*, nor *quality improvement*.

Externally led reforms in property asset management that have influenced local authorities to adopt asset management as a framework for managing their property assets are said to firmly belong to New Public Management (NPM) (Organisation for Economic Cooperation and Development (OECD) 1995). Some of these external influences include: (a) *budgetary pressures* and recognition of the financial payoff to better asset management; (b) *accounting reforms*; and (c) *central government policies* (Kaganova *et al.*, 2006). The impact of these influences on asset management development is examined in the remainder of this section.

(a) NPM: Budgetary Pressures and Property Management Implications

It has been a common feature in recent years that lower tiers of government, such as local authorities, have faced continued pressures on their budgets. The effect of such budgetary constraints has been to pressurise local authorities to examine better ways of managing

property assets necessary to support service delivery functions and thereby raising revenue from their property assets. These budget constraints may be as a result of lower overall public sector revenues, sometimes induced by the deliberate choice to reduce taxes. On the other hand, they may also arise as a result of the devolution of service responsibilities from central government to lower levels of government, without commensurate transfers of revenue (Massey, 2005). Regardless of the source of these pressures, local authority services have to be provided within a constrained financial regime. The consequence of these budget constraints on local authorities has been to accelerate approaches for better management of property needed for public organisations to function and raise revenues from such assets. Councils have come to realise that there is a lot of wealth tied up in operational property assets (see section 2.7.3). Various studies have quantified that through effective and efficient management of property assets can free up resources which can be ploughed back to support core services (Lyons, 2004; Male, 2006; Audit Scotland, 2009).

(b) NPM: Accounting Practices

The reform of accounting practices in the local authority has been another external force that has strongly influenced infrastructure asset management in general and property asset management in particular. A move to accrual accounting and Generally Accepted Accounting Principles (GAAP) has spread across much of the developed world. These changes, as noted by Kaganova and Nayyar-Stone (2000), have had drastic implications for the way real property assets are accounted for and the kind of information flows that are needed to comply with new adopted accounting standards. According to Kaganova (2010), accrual accounting and GAAP standards bring greater clarity to how property-related costs and property values are recognised and valued over time. Recognising and valuing public assets such as property, Grubisic, Nusinovic, and Roje (2009) argue that it provides better information about the management of public spending because it assures better management of public assets, liabilities and costs.

(c) NPM: Government Policy and Asset Management Development in the UK

The UK central government and the Scottish Executive played significant roles in promoting asset management development in English and Scottish local authorities. For instance the wholesale adoption of asset management in English local government became a requirement under the Single Capital Pot regime introduced in 2001. Under this regime each local authority was required to submit their asset management plans to central government for assessment against defined criteria in the ‘Good Practice Guidelines’ issued by the DETR in March 2000. The government sought to encourage good asset management practice by offering monetary rewards.

Contrasting the situation in Scotland to that of England, the emergence and adoption of asset management by Scottish local authorities only took hold after 1997 following devolution and the setting up of the Scottish Parliament. A number of influences have contributed to asset management development in Scotland. According to CIPFA (2008) such influences include Prudential Code; publication of school asset management guidance by the Scottish Executive; the decision by Audit Scotland to give time to councils to prepare asset management plans; publication of “Value for Money in Local authority Corporate Services” by UK audit bodies; and statutory duty imposed on councils by the Scottish Executive to achieve Best Value.

In 2004 the Scottish Executive made it a statutory requirement for local authorities to have regard to a Code of investment practice known as the Prudential Code, when determining their capital expenditure (Section 35 of the Local Government in Scotland Act, 2003). The Code emphasised the importance of asset management planning requires local authorities to evaluate affordability of investment options by assessing the whole life cycle costs.

Asset management development in Scotland was further sparked by the need to secure Best Value from the newly created education assets (CIPFA, 2008). For instance in 1998 the Scottish Executive embarked on a massive programme of schools improvement, initially costing £530 million and rising to £1.2 billion by 2002. In order to ensure that these assets

were created in a coordinated manner and the investment achieved Best Value, the Scottish Executive invested heavily in publicising best practice asset management techniques for the school estate in 2003 (Scottish Executive, 2003). According to CIPFA (2008) the Scottish Executive sought to support best practice in asset management by increasing financial resource allocation for the schools fund. This was in part used to produce asset management guidelines for the preparation of annual detailed asset management plans and an annual set of core facts. The asset management plan guidelines were aimed at ensuring that the developed school estate was effectively and efficiently managed (Scottish Executive, 2003). From 2003 local authorities were statutorily required to prepare and submit on an annual basis core facts relating to condition, suitability and sufficiency of the education property assets (Scottish Executive, 2003). Efforts to develop asset management practice in Scottish local authorities were further assisted by the decision of the statutory body, Audit Scotland. According to CIPFA (2008) Audit Scotland allowed local authorities some breathing space in the period 2005 – 2008 to put in place proper asset management and capital planning decision making frameworks. Instead of Audit Scotland undertaking an annual audit of such frameworks, the organisation came to an understanding with local authorities that a full audit of the frameworks will take place after 2008.

The development by the UK audit bodies of a publication entitled “Value for Money in Local authority Corporate Services” contributed to the development of asset management. According to CIPFA (2008) the document was intended to help local authorities and other local authorities to understand, compare and demonstrate the value for money performance of their corporate services. The publication contains a section on “Estate Management” that proposes a suite of high-level performance indicators.

The Scottish Executive took the view that it would embed Asset management practice in local authority by passing the “*The Local authority in Scotland Act 2003*” (Scottish Executive, 2004). The Act, amongst other matters, places on local authorities a duty to secure Best Value from property asset management by: keeping a considered and appropriate balance between cost, quality and price; ensure that management arrangements

must secure continuous improvement; and ensure that asset management decisions contribute to sustainable development.

2.6.3.2 Role of Commissioned Reports on Asset Management

Early reports on property management practices in local authorities and other public sector organisations provided the initial stimulus to asset management in local government. Harris (2010) argues that the early 1980s can be regarded as the period in point at which the local authorities in the UK started recognising the importance of strategic approach to management of operational property assets. Such recognition was prompted by reports such as those by Davies (1982) on the NHS estate and Lord Gowrie (1985) on central government office accommodation highlighting the ineffectiveness in the management of operational property. The reports generated interest from the Audit Commission and the National Audit Office. The two public watchdog organisations carried out studies on the subject leading to the production of reports on asset management in local authorities. One such report was that which was produced by the Audit Commission (1988b) after carrying out a study of local authority strategic management of property assets in England and Wales.

The Audit Commission study also found that in the majority of local authorities property was considered to be “owned” by the individual service committees occupying them. The implication of this was that property which was surplus to requirements or under-utilised by one service could not readily be exploited by another. This is because there was no mechanism to encourage joint occupancy such as transferring property between committees. In addition, there was no mechanism to encourage the identification of surplus property for disposal. According to the study this fundamental weakness arose because such authorities failed to recognise the corporate aspects of property portfolio management or lacked a strategic approach to property management. The general conclusion of the Audit Commission report was that property was an under-managed resource and that the strategic function was underdeveloped.

A research report commissioned by the Department of Transport, Environment and the Regions (DETR) on the state of asset management in local government reinforced the message contained in the original reports, especially that by Audit Commission. The research report, commissioned by the Department for Transport and the Regions and undertaken by DTZ Pinda Consulting (1999) identified several deficiencies in local government practice arguing that asset management was poorly developed across local authorities.

2.6.4 Asset Management Development in other parts of the World

The developments in asset management trend witnessed in the UK is not unique. The same experience is evident in other parts of the world too. The most notable trends have been in countries such as New Zealand, Australia and the United States of America. Trends in asset management development in these countries are highlighted in this section.

2.6.4.1 Asset Management Development in New Zealand, Australia

The development of asset management in New Zealand was prompted by the need to tackle the massive fiscal problems and an inefficient economy that was negatively affected by extensive local authority involvement in economic activities. In response, the country has since the 1980s undergone a period of far reaching structural reforms aimed at improving the internal efficiency of the economy while simultaneously bringing greater stability to the macro economy (Worley, 2000). With regard to the local authority, reform was aimed at both reducing the role of government in the provision of goods and services, and improving the efficiency of the local authority. These reform measures also influenced the development of asset management in local authorities. Worley (2000) states that there were a number of key influences on the development of improved asset management practices in local authority in New Zealand. These influences included legal reform in accounting practices, the need to curb local authority organisation spending, requirement on the part of local authorities to produce asset management plans, and technological changes. Regarding legal reform of accounting practices, statutes were introduced requiring public bodies including local authorities to adopt accrual accounting techniques as well as implementing

transparent and prudent financial management and long-term financial planning. These changes in accounting practices contributed to asset management development as it became a statutory requirement to recognise the depreciation and replacement of assets in the accounts. The growth in local authority spending further spurred asset management development in New Zealand. According to Worley (op cit), the government pressed local authorities to reign in the growing proportion of local authority expenditure on replacement and maintenance of ageing and decaying infrastructure assets and concerns over asset failures and associated cost implications. Rather than the focus being on cost alone, local authorities had to consider changes in management practice to achieve the same asset management objective. Adoption of asset management practices was also influenced by changes in reporting in financial statements. It became a requirement to include infrastructure assets in financial statements. Similarly, the requirement for local authorities to produce and adopt an "asset management improvement plan" aided asset management development in these organisations. Changes in information technology also played a significant part in asset management development in local authority in New Zealand. In particular, advances in information systems enabled local authorities to collect and manage asset inventory information.

Australia, on the other hand, has not implemented economic reforms to the degree that New Zealand has. However, both federal and state governments have implemented strategies aimed at securing gains in efficiency and productivity (Worley, 2000). In Australia, the asset management concept was tied into local authorities by Australian Accounting Standard (AAS27) "Financial Reporting by Local authority" which requires infrastructure assets to be accounted for and included in financial statements (Shah, Tan, and Kumar (2004). This reporting requirement also affected property assets and contributed to asset management development in local authorities. The need to regulate prices charged by local authorities was also a factor in asset management development in local authorities in Australia. Central government passed legislation which regulated the pricing of municipal services. This has

led to local authorities developing more robust asset management practices, and detailed asset management plans, to support pricing audits undertaken by government regulators. Accounting standards and local authority financial reporting requirements have been a key driver of asset management in New Zealand and Australia. A key success factor in New Zealand, and to a lesser extent in Australia, has been local authority led initiatives including guideline development, training, and asset management information systems development.

2.6.4.2 Asset Management Development in the USA

The growing public and consumer scepticism and demands for greater accountability from the government bodies responsible for major capital investments in infrastructure and service provision, amongst others, are considered to be behind the impetus for the emergence of asset management especially in the USA. In the USA this has led to a more asset-based approach to state financial reporting of facility condition and asset valuation. The poor state of infrastructure asset in the USA is considered to be a contributory factor towards the development of asset management. Cagle (2003) states that by early 2000s the USA infrastructure asset base was characterised by deteriorated condition requiring significant investment in excess of \$900 billion to renew and annually operate and maintain the assets.

As a result of the enormous expected financial burden and the consequences of asset failure, a number of forces coalesced to create the impetus for broad asset management implementation in order to address the identified problems. The forces included legal enforcements compelling local authorities to remedy asset failures rather than be penalised financially for breaches. The enforcement remedies have included local authorities being asked to develop asset registers, asset condition assessment, repair and maintenance plans, and similar asset management solutions. In addition, government regulation enabled local authorities to design and implement best practice management systems rather than be compelled to do so. Furthermore, in the late 1990s government legislation specified some form of asset management as a precondition for receiving federal funds for infrastructure

investment by local authorities. Further, the adoption of “Government Accounting Standards Board Statement (GASB) No. 34” in the 1990s by state and local authorities requiring the inclusion of all infrastructure assets in their statements of net assets has been another important contributory factor. Finally, industry and professional associations strongly advocated asset management to address problems associated with the decline in infrastructure quality and condition and the growing financial burden. At federal government level, the risk of asset failure of government assets was a spur to the development of asset management. According to Nielsen (2007) in the early 2000s the federal government of the USA became seriously concerned that its vast property asset base, extending to 3.7 billion square feet, was aging and in deteriorating conditions due to years of under-funded maintenance. The deteriorated state of property assets posed serious risk of failure. In order to manage these potential risks, in 2004 the president of the United States of America signed Presidential *Executive Order* (E.O.) 13327. The Order requires that all federal agencies develop and implement Asset Management Plans (AMPs). Through the Order federal agencies are obliged to manage their assets in the most efficient and effective manner. The results of all these efforts are that consensus is building on the meaning of asset management leading to the development of internationally accepted standard for asset management practices. The consensus has helped in the understanding that organisational management theories are the theoretical basis upon which asset management rests.

2.7 CHAPTER SUMMARY

The focus of this chapter was on two key areas. Firstly, literature was reviewed to examine the issues associated with existing property management practice and their implications prior to the adoption of asset management by English and Scottish local authorities. Secondly, the concept of asset management including its origins, development, and trends both in the UK and internationally followed in the next stage was examined.

Examination of asset management practice prior to the introduction of asset management revealed that local authorities adopted a reactive property management approach which is

narrowly focused characterised by fragmentation. The fragmented nature of property management resulted in a number of property management related problems because properties were not efficiently and effectively managed.

Local authorities then began to appreciate the importance of adopting asset management concept as a strategic framework for managing their operational property assets. The approach, considered to have originated either from privatised utilities or the oil and gas sectors, adopts a coordinated and integrative approach. Asset management development has been driven by external and internal factors. The external factors are rooted in New Public Management (NPM) and include: central government policies; budgetary pressures; recognition of the financial payoff to better asset management; and accounting reforms. The internal factors, on the other hand, are the problems associated with the existing reactive approach to property management. Apart from NPM initiatives, commissioned reports on asset management have also been instrumental in leveraging asset management development.

As a concept, asset management is strategic in nature. The strategic element ensures that the property portfolio is optimally structured and aligned with local authority corporate goals and objectives. The delivery of strategic asset management objectives is undertaken by property services through facilities and estates management function in an integrated approach. The property services *undertake the* professional, technical and management work necessary to ensure that property is in the condition, form, layout and location desired.

CHAPTER THREE

CURRENT STATUS OF ASSET MANAGEMENT PRACTICE

3.1 INTRODUCTION

The forces that have driven local authorities and other public sector organisations to adopt asset management as a best practice framework for managing their property assets are discussed in section 2.4. This chapter examines the extent to which asset management practices have been developed, adopted and implemented in order to establish the current status of asset management in English and Scottish local authorities. Literature was therefore reviewed to examine levels of asset management awareness, performance outcomes of asset and asset management practices, realisation of quantifiable gains as well as the extent to which local authorities have introduced and implemented effective asset management frameworks. The areas examined are the criterion for establishing the current status of asset management practice in local authorities.

3.2 RAISING AWARENESS ABOUT SCALE AND STRUCTURE OF OPERATIONAL PROPERTY ASSETS

In this section the awareness raising efforts to impress on local authorities as to the scale and structure of operational property assets and their significance in supporting local authority functions are highlighted. Also discussed are the arguments advanced in support of the need to adopt asset management approach. Finally, the level of awareness of the structure and scale of operational properties as well as its role in supporting local authority functions is examined.

3.2.1 Structure and Scale of Operational Property Assets in Local Authorities

The message to heighten awareness of the significance of council owned properties and the need for adopting an asset management approach was reinforced by highlighting the structure of operational properties. The structure was highlighted in terms of scale, nature and role operational properties play in supporting local authority functions. In terms of scale and nature, local authorities in Scotland and England own and control a large variety of direct and indirect operational properties as well as non-operational properties to support their principal objective of service delivery. The Audit Commission (2000) distinguishes between direct operational, indirect operational and non-operational properties and gives a

definition of each. In this distinction, direct operational properties are the land and buildings used to deliver a direct service to the public. These properties include for example education assets such as schools, assets for delivering social services such as elderly persons' homes and leisure and entertainment assets such as public parks and libraries. Indirect operational assets, on the other hand, are those assets that support service delivery in some way. As an example such assets are most notably the town hall and other local administrative offices. Finally, non-operational properties are those assets held for investment reasons. Property assets held for investment typically include for example shops and industrial properties.

The scale and nature of property assets held by local authorities in England and Scotland is very impressive. The Audit Commission (2014) reports that as at 2012, local authorities in England held operational property assets with a book value estimated at more than £170 billion (Figure 1.1). The size of the operational properties is an indication of a significant increase from the figure of £67.7 billion for 1999 (RICS and ODPM, 2005). An indication of the scale of local authority assets in Scotland is given by Audit Scotland (2009) who state that in 2007/08 Scottish local authorities held fixed assets valued at £26 billion of which property assets made up £21 billion or 81 per cent. If council housing is excluded, the figure stands at £13 billion (Table 3.1 and Figure 3.2) or 50% of the £26 billion.

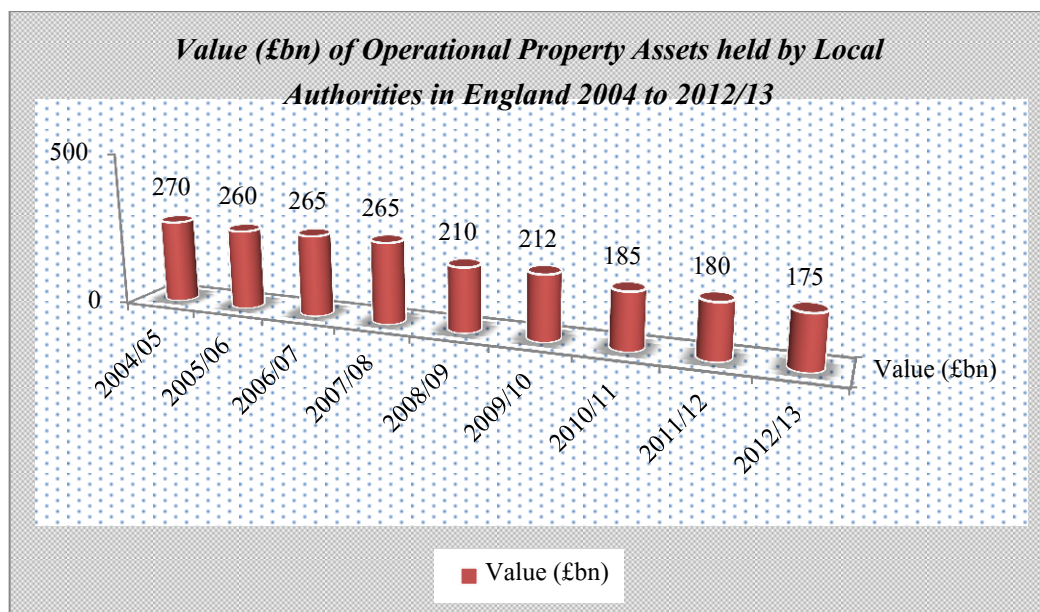


Figure 3.1: The Breakdown of the Value of Operational Properties in England
 Source: Audit Commission (2014)

Table 3.1: Value of Operational Property Assets of Local Authorities in Scotland

<i>Property Type</i>	<i>Asset Value (£bn) (2007/08)</i>
Schools	7.1
Libraries	0.3
Residential and Care homes	0.5
Depots & Workshops	0.2
Sports Centres & Pools	0.9
Office and Administrative Buildings	0.7
Museums & Galleries	0.3
Other	3.4
Total	13

Source: Audit Scotland (2009)

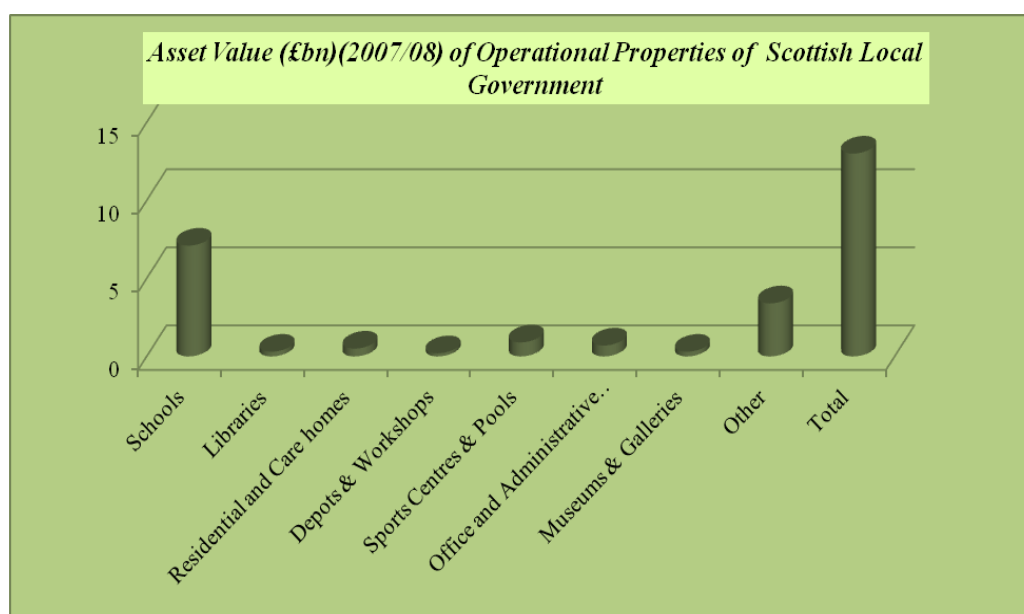


Figure 3.2: The Value of Property Assets held by Scottish Local Authorities

Source: Audit Scotland (2009)

3.2.2 Role of Property Assets

The impressive asset base that is in the hands of local authorities underlies the important role property assets perform in supporting local authority functions. According to

Kaganova, McKellar and Peterson (2006) government land and property assets can be very important for many public management objectives. For instance, operational properties are important as assets on the balance sheet which can be used to collateralise borrowing. Such funding sources are often critical to financing local government operations.

Property belonging to local authorities is also important as is often used as a physical platform on which to carry out its activities (Megan, 1999). Activities typically include service delivery and discharging of a range of crucial policies. The policies range from planning policies to facilitate spatial development of cities, regeneration and local economic development, local housing policies, as well as a variety of enforcement policies. All of these take place from land and buildings owned and controlled by local authorities (Kaganova, et al., 2006). Apart from service delivery and execution of policy, local authority operational property assets such as parks and open spaces provide recreation opportunities. Buildings provide communities with places to meet and celebrate, to obtain information and access to enjoy the arts and cultural activities (Vermiglio, 2011; IIMM, 2006).

Despite this impressive and diverse operational property asset base that local authorities in England and Scotland own and control in order to support their functions, its role has remained under-researched and underdeveloped when it comes to the identification and development of appropriate management framework to support effective and efficient asset management practices (Audit Commission, 2000; Lyons, 2004; RICS and ODPM, 2005; CIPFA, 2000; Audit Scotland, 2009). For instance, the Audit Commission (2000) carried out a follow up study to its earlier one undertaken in 1988. The study's purpose was to assess the progress local authorities had made recognising the role of operational property assets in supporting service delivery and other objectives. The study reviewed progress in England and concluded that there had been little progress made by local authorities and that property was still not perceived as a strategic resource that needed to be actively managed at both corporate and service levels.

Advancing research in the same area, 4Ps (2007) observed that there was still limited progress in addressing property as a strategic asset in local authorities. 4Ps (2007) sought to reinforce the message, stating: “*property makes a critical and very tangible contribution to the success of core business*” and that it needed to be integrated in an organisation’s overall corporate strategic planning. The study emphasised the need to integrate property when preparing service plans arguing that as local authorities continue to evolve and look for new ways of working and service delivery these changes have property implications. Such changes can only be properly addressed if the implications on property are reflected in corporate, service and asset strategy plans.

The limited appreciation of the role of operational property assets in supporting local authority objectives had been echoed by others. For instance, in a study undertaken by York Consulting (2007) it was highlighted that English local authorities still did not fully appreciate the role of operational properties especially if managed using asset management approach in supporting social objectives. Such lack of appreciation led to recognition by the government that it needed to reinforce the message that property assets had a significant role to play. The Department for Communities and Local Government (DCLG) (2008) sought to reinforce such a message by arguing that effective asset management can play a major social role in delivering better outcomes for citizens, creating a sense of place and generating efficiency gains. The limited progress of awareness on the part of local authorities prompted the Department for Communities and Local Government (DCLG) (2008) to produce a report titled: *Building on Strong Foundations: A Framework for Local authority organisation Asset Management*. One of the major intentions of the report was that the government needed to reinforce the message about the significance and need for asset management.

3.3 PROPERTY MANAGEMENT PERFORMANCE AND MONITORING

The trend in asset management development saw a shift in interest and focus from raising awareness to emphasis on embedding asset management practice especially performance

management including monitoring. The focus was on whether there were effective performance management arrangements and if there had been improvements to asset management practice in terms of processes and outcomes. This section reviews evidence regarding the implementation of asset management arrangements.

The earliest study focused on performance management arrangements was that by Oxford Brookes University and University of Reading (1993). The study concluded that up until then the whole area of monitoring operational property asset management performance was undeveloped. A year later, Gibson (1994) carried out a similar study on local authorities in England and the study findings were that while there had been significant progress made in capturing the quantity and quality information, there was nonetheless a problem in making effective management use of such information. Management could not make effective use of information because there was no performance benchmarking system with appropriate performance indicators. Performance benchmarking helps to establish if property resources are being managed in an efficient and effective manner.

This lack of progress in introducing effective performance arrangements, Audit Commission (2000) argued, was affecting the development of asset management in local authorities. The reasons for lack of progress, the Commission argued, were due to the fact that local authorities were not generating sufficient data to make informed property asset management decisions. This was because most local authorities still had not introduced effective property management information systems. Besides, there was no coordinated common approach to data collection and performance measurement which made it difficult for local authorities to not just measure performance but also to monitor how they were performing against their peers. Both Gibson (1994) and later the Audit Commission (2000) had continued to argue for the need for benchmarking.

The shift in emphasis to performance measurement was also recognised by central government through the Office of Government Commerce (OGC). The Office of

Government Commerce (OGC) (2006) produced a report titled: *“Better Measurement, Better Management”*. The purpose of the publication was to emphasise the linkage between performance measurement and better management (White, 2011). OGC (2006) emphasise the linkage by stating:

“Measuring efficiency and effectiveness of property and facilities management is a critical component of better asset management and provides opportunities for increased productivity and delivery of savings”.

The overall aim of OGC message was to promote property performance measurement and benchmarking regular asset management practice. In an effort to improve asset management performance arrangements a number of local authorities in England have come together and worked in collaboration with the Chartered Institute of Public Finance and Accounts (CIPFA), Corporation of Chief Property Officers (CORPROP) to form a benchmarking club. The club has come up with common performance indicators, National Property Performance Indicators (NaPPMI), for measuring property performance (CIPFA, 2014).

Research has also been carried out examining the extent to which local authorities used best practice processes associated with asset management. For instance the research undertaken by Gibson (1994) on behalf of the Department of the Environment Transport and the Regions (DETR) (1999) investigated the extent to which English and Welsh local authorities utilised best practices associated with asset management planning, property information management and the use and prioritisation of capital expenditure. The research findings were that local authorities showed very limited understanding let alone utilisation of the best practices associated with these processes. Particular concern was expressed with the practice processes associated with asset management planning. The study recommended that local authorities pay greater attention to improving this area *and* concluded that *“asset management was still in an embryonic state in most local authorities”*.

The importance of making progress in asset management development in local authorities continued to be emphasised by central government. For instance the Department for Communities and Local Government commissioned York Consulting (2007) to carry out a

study to evaluate the development and implementation of corporate capital strategies and asset management plans as well as assess the policy's impact on the efficiency and effectiveness with which councils in England managed their property and other capital resources. The study evaluated and synthesised a number of similar studies on asset management arrangements in English local authorities undertaken by the Department for Communities and Local authority spanning a period of six years between 2001 and 2007.

The study concluded that there remained significant improvements to be made in strategic asset management. Three areas were identified as giving special cause for concern and as being ones that lay behind the lack of progress. Firstly, the study found that there was lack of corporate culture in most local authorities. In addition, senior officials and members were found to have minimal buy-in to the importance of strategic asset management. Finally, leadership across the council to spearhead asset management implementation was found to be lacking. The study re-emphasised the need for effective utilisation and adoption of asset management processes as the policy had not resulted in local authorities making effective and efficient use of operational property assets.

The lack of progress by local authorities in adopting and implementing best practice processes to realise desired asset management outcomes continued to be a problem. A study carried out by the Department for Communities and Local Government (DCLG) (2008) evaluating asset management progress in English local authorities concluded that there were a number of asset management practice areas where local authorities showed lack of improvement. Firstly, it remained the case that most local authorities in England did not have *adequate systems in place to develop, implement and review strategic asset management* strategies. In addition, local communities were not engaged early enough when developing plans for asset management. The failure to consider all options such as disposal or joint occupancy for *under-used assets* was another area that the study considered needed improving. Furthermore, the study found that most local authorities did not have an asset management *performance framework* in place with appropriate asset management

indicators. Problems associated with performance management arrangements persisted.

The Audit Commission (2009) produced its third in a series of research reports on strategic asset management by local authorities in England. The previous ones were published in 1988 and 2000. This most recent study found that councils had made only modest progress in implementing best practice asset management processes and in realising desired asset management outcomes despite the 1988 and 2000 reports. According to the Audit Commission (2009) lack of progress was evident in a number of areas and which acted as barriers that were hindering progress on strategic asset management development in English local authorities. For instance there still remained problems in implementing effective property management information systems capable of generating data to aid informed decision making. Furthermore, benchmarking arrangements remained undeveloped in most local authorities. Furthermore, collaborative arrangements such as joint working or occupancy with other public partners remained an undeveloped practice. Audit Commission observed that stopping, in 2003, of mandatory publication and submission of asset management plans to central government acted as a disincentive to continuous improvement to asset management development in local authorities.

Crucial to hindering progress to asset management development, Audit Commission argued, was the limited leadership support. The study noted that there was lack of full engagement with asset management by both elected members and senior local authority officials. Full engagement by the local authority leadership was in terms of addressing what needed to be done to improve local authority organisation property asset management. A number of asset management performance shortcomings were identified and which required addressing by the leadership to improve asset management practice. The study suggested that the leadership needed to improve their knowledge of their property asset portfolio by collecting relevant data on size, use, occupancy, condition, running costs.

Apart from effective leadership support, there were other factors that were identified that hindered progress. For instance the study found that the majority of developed asset management plans did not sufficiently quantify the potential costs and benefits of proposals. In addition, there was failure to recognise opportunity costs of properties. The failure arose because most local authorities held on to vacant or underutilised properties or failed to realise the property's highest and best use. As a consequence most local authorities did not effectively rationalise their property portfolio holdings through the identification and disposal of surplus or under-utilised property as well as through introduction of appropriate changes to services and administration so that they occupy less space. The failure to rationalise space usage meant that achievement of efficiency gains through space usage were not realised. This whole issue of lack of property rationalisation effectiveness led to the failure to address property capacity or sufficiency. The Audit Commission noted that often local authority services did not adequately address the implications of under usage of properties. Under usage of properties was exacerbated because leadership of local authorities did not encourage collaboration with local partners to share property assets or jointly occupy them.

Furthermore, local authorities did not in most cases obtain value for money when acquiring properties as they mostly only considered freehold ownership. However, effective property asset management arrangements require that consideration should be given to leasing other than ownership where that gives demonstrably better value. Another noticeable failure captured by the Audit Commission study was that local authorities did not bring on board service managers so that they could recognise the need to use economically the properties they occupied. It is considered an effective asset management practice to seek to motivate service managers who occupy property to use it economically. An appropriate asset practice mechanism for doing so is by implementing capital charging arrangements that make service managers accountable for the cost of the capital they use and allowing them to keep a proportion of any sales proceeds. Adequate staff skilled in asset management practice

was also identified as an area where local authorities had limitations. Policies to develop the asset management capacity were needed such as through training.

While there had been a number of studies reviewing asset management performance in English local authorities, there had been a dearth of such studies covering the subject in Scotland. The one significant study was that which was carried out by Audit Scotland (2009). The overall aim of the study was to evaluate the extent to which local authorities managed their operational property assets to ensure effective service provision and to identify areas of performance shortfall where improvements were needed. Amongst the issues considered, the study addressed two key questions: what was the condition and suitability of the assets held by local authorities?; and, do councils have effective arrangements for managing the performance of their assets?

Regarding asset condition and suitability, the study found that 27 per cent were in poor or bad condition, 23 per cent were not sufficiently suitable for the services being delivered from them, and 14 per cent failed in both respects. Almost two-thirds of all local authorities reported that their property maintenance backlog was increasing. It is more economical to maintain buildings in a planned way than to wait until a problem arises. A 60:40 balance (or better) in favour of planned maintenance is accepted as an indicator of good practice.

The study examined a number of practice areas that are considered important to effective arrangements for managing the performance of assets and for ensuring that such arrangements contribute to overall organisational efficiency. An examination of councils' arrangements for property asset management revealed that there were particular weaknesses in: the practices that ensure that property asset management is implemented systematically; performance management; and joint working. Regarding asset management implementation, the study found that councils did not have effective leadership to support asset management and that they were not increasingly using whole life cycle costing and option appraisal.

Regarding leadership, the majority of Scottish local authorities had no real mechanisms for ensuring that elected members and senior council officers had transparent mechanisms for scrutinising property use and the cost of holding property. As for the failure to effectively utilise whole cycle costing, this meant that that whole-life costs were not taken into account in councils' capital and revenue planning. Furthermore, issues of sustainability, such as CO2 emissions, were not considered in their whole-life costing models for proposed capital projects. The lack of increased use of option appraisal technique to support asset management implementation, meant that the costs, benefits and risks of the different options available were not systematically considered.

A number of weaknesses were identified related to performance management. For instance, the Audit Scotland study found that the majority of local authorities lacked a consistent methodology for measuring building suitability. In addition, the collected operational data was not always used to support decision-making. The same study also found that few local authorities provided regular information to council members on property performance to enable effective scrutiny of property assets. The measurement and reporting problems were as a result of most local authorities not having in place effective benchmarking and management information systems to be able to establish robust monitoring and reporting procedures for asset performance, to assess progress against their strategies. Consequently, the available asset information was not up to date, complete, or held in a form which allowed the production of appropriate management reports (Audit Scotland, 2009).

The Audit Scotland (2009) study also reviewed the local authorities' arrangements for joint working and study found that local authorities were beginning to work with other public sector partners, especially health boards, on joint approaches to asset management but that progress had been slow. However, joint working did not appear to be widely embedded across services at a planning or operational level. There had been some well planned joint working reported between social work and primary care services. Overall though the study

found that many joint property projects were developed in an opportunistic way, rather than as part of a long-term joint strategy.

3.4 QUANTIFICATION OF GAINS

This section examines the concerted efforts made to leverage asset management development in local authorities by emphasising the quantifiable potential gains that can accrue from effective asset management. Up until the early 2000s, Harris (2010) argues that there had been very little quantification of the scale of the potential efficiency gains across the local authority that can accrue from effective asset management practices. The first attempt at this was in a report to the UK government by Gershon (2004) who recommended that annual efficiency savings of 2.5% in the local authority estate were possible. The savings, he argued, could arise from improvements in “back office” activities such as effective use of space occupied by support services which provide support to the delivery of frontline services.

The National Audit Office (2006) also carried out a study based on a series of local authority best practice case studies. The study demonstrated how asset management could improve efficiencies, arguing that annual savings of £1.5 billion to £2 billion were possible by bringing occupancy density standards into line with good practice.

Regardless, it is clear from these studies on local authorities in England and Scotland that they considered that not enough was being done to realise efficiency savings from better management of council operational estates. The studies consider that through the processes of property review and rationalisation significant efficiency savings can accrue.

3.5 ASSET MANAGEMENT FRAMEWORKS AND GUIDELINES

The development of asset management in the UK local authorities has also been aided by asset management frameworks and associated guidelines from various sources. This is probably the most important initiative that has been promoted to aid asset management development in local authorities. In this section the published guidelines are evaluated in

terms of the effectiveness with which they leverage asset management development. A number of asset management frameworks and support guidelines have been issued by central, devolved governments, and local authorities; professional bodies such as the Royal Institution of Chartered Surveyors (RICS) and Chartered Institute of Public Accounts (CIPFA); and various other bodies. The following are some of the issued asset management frameworks: Strategic Asset Management Planning Framework; The Total Asset Management Process (IIM, 2006); PASS 55 Asset Management Process Model (BSI, 2008); The Property Asset Management Process (IAM, 2006); The RICS Detailed Property Asset Management Process Model (RICS, 2005; 2008); Consortium of Local Authorities in Wales (CLAW) (2003); Chartered Institution of Public Finance and Accounts (CIPFA) (2008); Scottish Executive (2003); Audit Commission (1988b; 2000; 2009); Audit Scotland (2009); Department for Communities and Local Government (2001; 2007); RICS / office of The Deputy Prime Minister (2005); and Asset Management Excellence Model (AMEM) (AMCL, 2010).

A comprehensive list of organisations that have produced asset management guidelines is shown in appendices A and B. The appendices show a comprehensive list of sources of published asset management guidelines prepared by various bodies in the UK and elsewhere. The need to improve asset management practice in local authorities or other public organisations had been the underlying theme behind the issuing of asset management guidelines. The available different types of asset management guidelines are all based on strategic planning approach based on strategic management theory. The strategic planning approach is characterised by deliberately defined steps of strategy formulation and implementation. However, in the various types of asset management guidelines that have been prepared the steps are not uniform. Appendix C shows a sample of the guidelines produced by some of the organisations listed in Appendices A and B. Phelps (2009) has carried out an extensive review of the asset management guidelines. He states that the published guidance can be classified into four broad themes but recognising inevitable

overlaps. Guidelines can be classified in the form of a checklist, following a property lifecycle approach, with a hierarchical structure or in guidebook form.

Phelps presents the summary characteristics, including respective strengths and weaknesses, of the main types of guidance, with examples, and these are presented in Table 3.2, below acknowledging that whilst some guidance can be reasonably classified as being in more than one category he has allocated each to the category of its predominant characteristic.

Table 3.2: Summary of 'Best Practice' Guidance in Asset Management

<i>Type</i>			
Checklist	Hierarchy	Life Cycle	Guidebook
<i>Summary</i>			
Guidance given in the form of a list of things to do. Arranged in topics or sections	Guidance given as a series of levels with an implied sequence and dependency	Guidance usually presented against the natural stages in the life of property	The guidance given within the context of a wider analysis of how to manage property
<i>Strengths</i>			
Comprehensive and easy to use as arranged by topic	There is a sequence of practice implied	Has a real life logic which is easy to understand	Guidance set often against a wider context
<i>Weaknesses</i>			
No differentiation of importance. No sequence	Levels tend to be poorly developed	Not always fully comprehensive	Practice not easy to distil from text. No simple logic
<i>Examples</i>			
Consortium of Local Authority in Wales (2001)	Department of Transport, Environment & Regions (2000)	Government of Victoria (2002)	Audit Commission (2000)

Source: Phelps (2009)

3.5.1 Critical Review of Strategic Planning Model, Associated Guidelines and Asset Management Frameworks Implementation

The current status of asset management practice in local authorities in England and Scotland is one that has so far remained ineffective. Apart from the problems associated with asset management practice, the strategic planning model upon which asset management frameworks are based also has limitations. The various published asset management guidelines based on strategic planning model also have weaknesses. The problems associated with the strategic planning model relate to the assumptions of rational analysis that underlie the model. Rationality assumes that strategic planning process can be formalised, analytically detached from reality, driven by 'hard data' and can therefore be

quantified, and that the context for strategy making is stable or predictable and therefore can be predetermined. All these assumptions are not necessarily reflective of the environment in real life.

Similarly, there are inherent weaknesses associated with each of the asset management guidelines. For instance, with the checklist approach there is no sense of sequence or order to the practice. In the life-cycle approach guidance the levels tend to be poorly developed. Regarding the hierarchical form, the purported hierarchies are not always fully comprehensive. As for the guidebook form guidance, the practice is not always easy to distil from narrative or not always summarised in a clear, structured way.

An examination of the current status of asset management practice in local authorities also investigated the extent to which the frameworks have effectively been implemented. A key aspect of the effective implementation of asset management frameworks is a requirement that local authorities should have in place strategies, policies and plans for managing property assets that are up to date and coordinated. By having in place coordinated and update strategies, policies and plans makes it possible to have in place effective arrangements for managing the performance of assets. If assets are effectively and efficiently managed the likely outcome is that there will be positive impact on organisational efficiency. Audit Scotland (2009) carried out a study to examine Scottish local authorities' arrangements for property asset management revealed that there were particular weaknesses in ensuring that strategies, policies and plans were up to date and coordinated. The Audit Scotland (op cit) study found that more than half of Scottish local authorities did not have an approved corporate asset management strategy, although many were in the process of developing individual strategies and plans for their property assets. Councils' asset management plans need to support service plans, which in turn should help to deliver council objectives and corporate plans. However, the referred Audit Scotland study further found that in many types of local authorities the linkages between these plans were not robust. Besides, where plans existed, in the majority of councils the available plans

did not include set targets for assessing progress in areas such as condition and suitability of each asset as well as describing an overall plan for achieving this.

3.6 SUMMARY OF ASSET MANAGEMENT IMPLEMENTATION AND PRACTICE LIMITATIONS

In this chapter the extent to which local authorities had developed, adopted and implemented asset management practice was examined. The examination was intended to establish the current status of asset management practice in English and Scottish local authorities.

The trend in the development of asset management in local authorities is characterised by different messages at different stages designed to embed asset management development. The initial message was one where there was a concerted effort to raise awareness about asset management and its perceived benefits. The focus then shifted on to the importance of effectively carrying out asset management practices especially performance management and monitoring. This initial message was followed by the emphasis on local authorities to focus on the quantifiable gains that can be realised from effective asset management practices especially if asset review is undertaken to rationalise the property portfolio. Finally, the focus then shifted to the designing of appropriate asset management guidelines all aimed at supporting asset management implementation.

The evidence suggests that despite increased adoption of asset management by local authorities, there are still some issues which literature review has identified that are limiting effective asset management implementation and practice. A review of asset management implementation and practice has revealed that local authorities have had limited success. Table 3.3 summarises the areas of success and the kind of problems that still hinder successful asset management implementation.

Table 3.3: Limitations of Asset Management Implementation

(a)	Limited awareness about the role of property as a strategic asset
(b)	Ineffective Performance Management framework: <ul style="list-style-type: none">• Inconsistent methodology to data collection• Ineffective benchmarking arrangements• Ineffective or undeveloped property management information systems• Operational data not always used to support decision-making• Out of date or inappropriately held property data• Inappropriate / insufficient indicators
(c)	Lack of corporate culture to asset management
(d)	Inadequate corporate property management arrangements <ul style="list-style-type: none">• Lack of cross functional asset management structure• Asset management not headed by a corporate officer with property knowledge• Asset management function not at board level structure• Lack of corporate approach to property ownership
(e)	Undeveloped joint working and co-location
(f)	Ineffective leadership support from elected members and senior officers
(g)	Ineffective asset management plans <ul style="list-style-type: none">• Lack of quantification of costs and benefits on a WLCC basis• Out of date asset management plans• Weak linkages between corporate, service and asset management plans
(h)	Lack of culture of property challenge to rationalise Property portfolio resulting in: <ul style="list-style-type: none">• Rise in vacant / surplus land• Marginal improvements in space per capita
(i)	Option appraisal not robustly utilised
(j)	Inadequate staff skilled in asset management practice
(k)	Minimal improvements in property condition
(l)	Minimal improvements in property suitability
(m)	Insufficient maintenance and repair

3.7 CHAPTER SUMMARY

This chapter examined the extent to which local authorities in England and Scotland have developed, adopted and implemented asset management practices. This was in order to establish the current status of asset management in these authorities. In order to do so literature was reviewed focused on four areas against which the current status of asset management was evaluated. The areas included levels of asset management awareness, performance outcomes of asset and asset management practices, realisation of quantifiable

gains as well as the extent to which local authorities have introduced and implemented effective asset management frameworks. The evidence suggests that there remains limited awareness of asset management in terms of realisation of the crucial role of property as a strategic resource. In addition, where asset management practice has been adopted the performance outcomes both in terms of practice and asset performance remain weak. For instance there remains ineffective performance management frameworks, there is lack of corporate culture to asset management, inadequate corporate property management arrangements, undeveloped joint work and co-location, weak leadership support, ineffective asset management plans, poor asset review and audit to help rationalise assets, option appraisal remains weak, staff unskilled in asset management, minimal improvements in property condition and suitability as well as insufficient maintenance and repair. Finally, despite availability of a number of asset management frameworks these have a number of weaknesses. There is need therefore for the development of an appropriate asset management framework tailored to the needs of local authorities and targeted at operational property management.

CHAPTER FOUR

IDENTIFICATION AND DEFINITION OF ASSET MANAGEMENT CONCEPTS

4.1 INTRODUCTION

The argument advanced in this research is that the limitations associated with asset management practice in English and Scottish local authorities identified in chapters two and three can be mitigated if local authorities adopt an effective operational property asset management framework. The primary aim of this research, therefore, was to develop such a framework which could be capable of being used by all local authorities in England and Scotland. The conceptual framework for operational property asset management for this study was developed by focusing on three key areas. These areas include:

- clarification of the “conceptual framework”;
- the role the developed “framework” plays in this particular research; and
- a description of the process followed in developing the operational property asset management conceptual framework for this research.

4.2 CONCEPTUAL FRAMEWORK CLARIFICATION

A conceptual framework can both be based on a theory or conceptual model and provides the overall conceptual underpinnings of a study. The terms conceptual framework and theoretical framework are, however, frequently used interchangeably (Polit and Beck, 2003). Frameworks deal with abstractions, also known as concepts, which Ticehurst and Veal (2000), explain as being general representations of the phenomena to be studied and are building blocks of a study. A conceptual framework, therefore, indicates how the concepts involved in a study are perceived, including the relationships between them. The concepts identified, and the framework within which they are set, determine the whole course of the study (Polit and Beck, 2003).

In the development of the conceptual framework for asset management for this study the focus therefore was on identifying the concepts, and their interrelationships, associated with strategic property consideration and property services and the underpinning theory as well as the appropriate model within which they are set in order to help guide the whole course of the study. The conceptual framework that has been developed for this research therefore

draws both on theory and existing models. In terms of how theory and existing models were used to guide the development of the framework is discussed later in this chapter (see section 4.4).

4.3 ROLE OF FRAMEWORKS

A properly developed framework is assumed to be valid and can serve useful purposes. It has been argued elsewhere (section 4.2) that the purpose of a framework and its associated concepts is to guide the whole course of a study. Such guidance, Polit and Beck (2003 p130) argue, is possible since a conceptual framework provides an organising structure for the study and that the theory underpinning it is an efficient mechanism of drawing together accumulated facts. It provides an organising structure in that the framework can be used to develop data collection instruments that are allied with the model; and the framework's constructs or concepts can be used to provide a broad interpretive context of the study. The semi-structured interview questions used in the initial data collection phase of this study (Section 7.2.3, and Appendices E and F) and the development of the self administered large scale questionnaire measuring instrument used in the latter phase for this study (Section 8.2.4, and Appendix G) were all based on the developed conceptual framework definitions. Furthermore, the developed framework formed the basis for aiding the interpretation of the generated response data, from semi-structured interviews and self administered questionnaires, as to whether there had been improvements in asset management performance in local authorities.

The process involved in the development of the conceptual framework used in this study followed the following steps proposed by Ticehurst and Veal (2000):

- i) identification and definition of concepts;
- ii) exploration and examination of relationships between concepts;
- iii) description of the developed framework; and
- iv) operationalisation of the concepts.

This chapter deals with the identification and definition of concepts. The remaining three stages that include exploration and examination of relationships between concepts; description of the developed framework; and operationalisation of the concepts are dealt with in the next chapter.

Researchers such as Polit and Beck (2003); and Bassioni, Price, and Hassan (2004) have put forward the considerations that need to be relied upon to help identify and define the concepts of a study phenomena. The identification and definition of asset management concepts that guided this study were therefore based on such suggested considerations and which include: (a) articulation of theory underlying the framework; (b) examination of existing frameworks; and (c) a review of relevant literature.

4.4 STRATEGIC MANAGEMENT THEORY AND ASSET MANAGEMENT FRAMEWORK

In this section the aim was to identify the theory that underpins asset management and that aided asset management framework development. According to Polit and Beck (op cit), developing a framework based on a theory benefits the study as it ensures that there is the linkage of findings into a coherent structure making the body of generated evidence, such as that which was accumulated in this study through questionnaire and interview, more accessible and therefore more useful.

Little is reported in literature about the theoretical basis upon which asset management is founded. Of what is reported, it is suggested that the practice of asset management rests firmly within organisational management discipline (Tanfield and Denyer, 2004; Woodhouse, 2010b). For instance, Audit New Zealand (2010) argues that the notable practices of asset management processes are encompassed within organisational management issues. The organisational management issues of relevance to asset management can be identified, by relating asset management practice processes to

organisational management theory. These relationships have already been discussed in chapter 2 (see section 2.4).

Within the organisational management framework, there are various theories that seek to explain how various influences operate and how they can be channelled to positively impact on organisational performance. However, the strategic management theory is most pertinent in explaining the operation of influences affecting asset management.

Strategic management has been variously defined. For instance, Mintzberg (1994) defines strategic management as: “ *a system for producing strategies within an organisational infrastructure responding to an environmental context*”. Strategies are actions, often planned, for responding to environmental influences. The processes undertaken in formulating strategies, according to French (2009) include: (i) establishing vision and mission; (ii) objective setting; (iii) external environment scanning; (iv) internal environmental scanning; (v) formulating strategic alternatives; (vi) strategy selection; (vii) strategy implementation; and (viii) control.

It is widely reported in literature that asset management adopts such a strategic approach with deliberately designed processes based on strategic management theory. For instance Tanfield and Denyer (2004) state that there is now widespread recognition and acceptance by organisations that the management of infrastructure assets, such as operational buildings, is an essential component of an overall organisational strategy. Thus, regarding asset management as a component of an overall organisational strategy entails adopting a strategic approach. According to Yiu (2008) a strategic management approach is concerned with formulating, implementing and evaluating cross-functional decisions that will enable an organisation to achieve its objective. The recognition and acceptance that operational property assets should be managed on a strategic approach has been driven by cost implications and the important support role of operational properties. As observed by Martin and Black (2006) who state that owner occupied properties are a major cost item for the organisation. They report that corporate assets occupancy costs represent 40-50 per cent of

net operating incomes and are often the third most expensive item behind labour costs and IT. Additionally organisations have to appreciate that the primary task of owner-operated real properties is to support the organisation's core objectives. Consequently, Too (2008) states that those charged with the responsibility of managing such assets have come to view them as an important organisational resource. Perceiving assets as important resource entails managing them as a total enterprise rather than from a traditional functional approach since they are strategic resources at par with other important assets such as finance, ICT and people. The argument that asset management has a strategic focus has been advocated by other commentators. For instance the Audit Commission (1988b; 2000) argued that best practice property asset management arrangement has a strategic focus.

4.5 RELATIONSHIP BETWEEN ASSET MANAGEMENT AND ORGANISATIONAL MANAGEMENT THEORY

In this section the relationship between asset management and the specific elements associated with strategic management theory is demonstrated. It has been argued above (section 2.4) that asset management is based on strategic management theory which itself is an aspect of organisational management theory. There are, however, other specific theories and practices within organisational theory that play a crucial role in supporting effective implementation of asset management strategies. As emphasised by Woodhouse (2010b) who states that there is now general recognition and acceptance that asset management is not primarily a technical subject. Instead getting the human factors right is even more important than the tools, processes and technical 'solutions' that are adopted in asset management. The human factors relate to aspects such as workforce motivation, education or capacity building, communication, leadership, team-working and sense of ownership. These human factors are the critical enablers to the establishment of a joined up, sustainable approach to asset management. The specific organisational theories that underpin these human factors are change management (Tanfield and Denyer, 2004; Male, 2010), team and project management (Woodhouse, 2010b; Lloyd, 2010; Fisher, 2009), motivational management, organisational structure (Male, 2006; Ali *et al*, 2008), leadership

skills (Edwards, 2010; Male 2004), capacity building (Edwards (2010), motivation (Martin and Black (2006), stakeholder management (Kerley, 1994; Too, 2008; and Too and Too, 2010), and value theory (Ma, 199).

The inter-relationship between asset management and these organisational theories has already been covered in chapter 2 (see section 2.4).

4.6 EXAMINATION OF EXISTING FRAMEWORKS

Apart from articulation of theory, existing asset management frameworks were also examined to help define and identify asset management concepts. The identified and examined frameworks that were examined for the purpose are those highlighted in section 1.2 and Table 1.1. However, Bassioni (2008), states that the selection of the frameworks be based on their popularity and establishment in practice and research, in order to enhance the initial validity of the formulated framework. On the basis of popularity and establishment in practice, *The Total Asset Management Process* framework was selected as the most suitable for this study.

4.6.1 The Total Asset Management Process

The Total Asset Management Process (TAM) (figure 4.1) was developed by National Asset Management Steering Group (NAMS) (2006b). The model conceptualises asset management as comprising strategic planning, asset management planning and asset data and information systems. These three elements relate to the corporate element, operational entity and the supporting tools and techniques respectively of strategic management theory especially the strategic planning model. The strategic planning is concerned with formulation of the strategic plan for the management of the asset base taking the cue from the organisation's overall strategic plan.

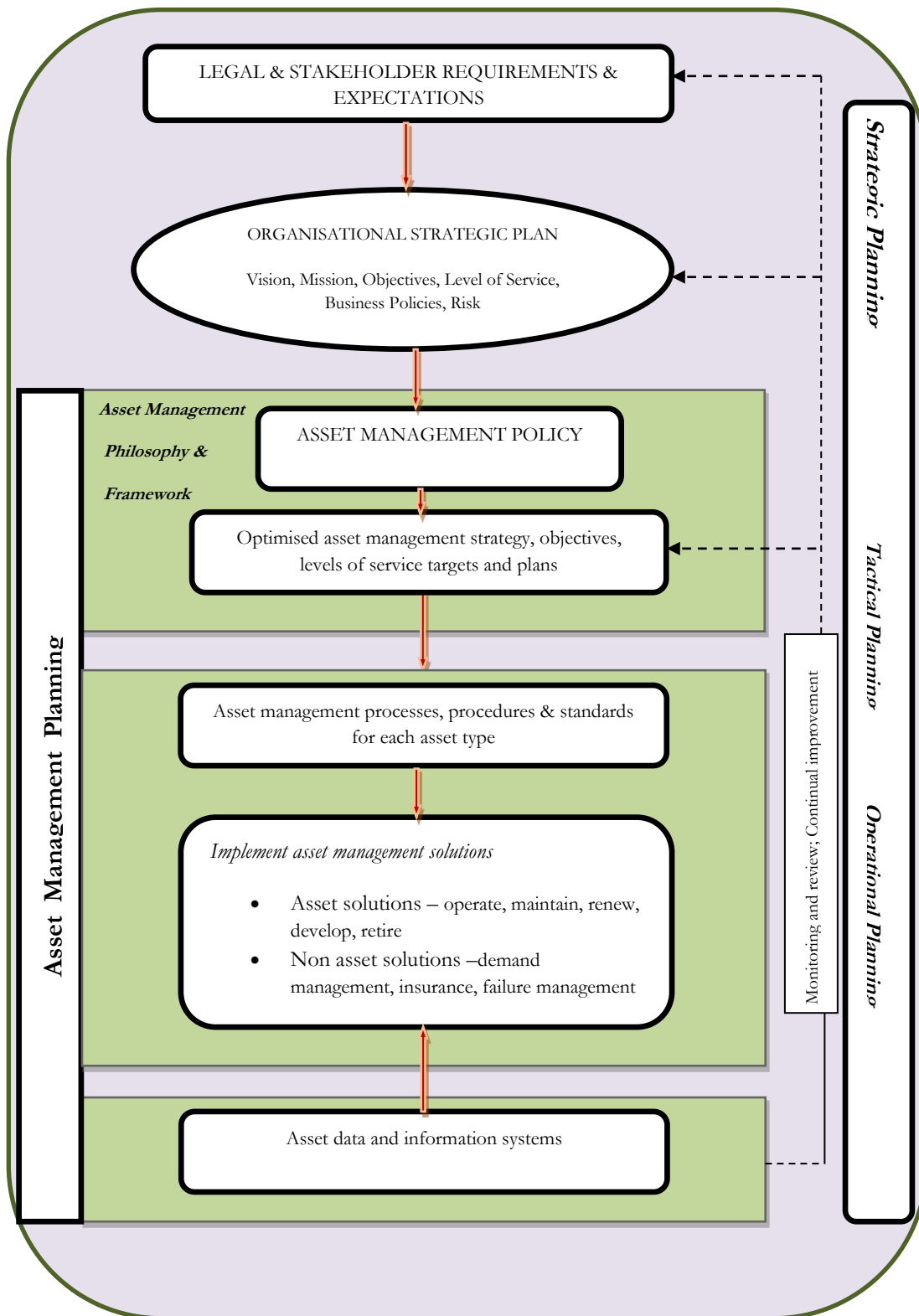


Figure 4.1 The Total Asset Management Process

Source: International Infrastructure Management Manual (2006)

The TAMP provides significant details in terms of the activities involved in the three elements, namely strategic, tactical and operational, and the inter-relationships between

them. Besides, the TAMP framework sufficiently represents the asset management process as suggested by strategic management theory. It identifies very clearly the three stages of corporate, operational and tools and techniques as suggested by the strategic planning model upon which asset management rests. The developed framework used for this study therefore is based on modification of the TAMP model. The TAMP model had to be modified to be able to be applicable to circumstances related to operational property asset management in English and Scottish local authorities. The modification of the TAMP is necessary because the model relates to all infrastructure types.

These modifications were complemented by the evidence about the identity and definition of asset management concepts obtained from strategic management theory, existing frameworks and reviewed literature.

In this section a number of asset management frameworks were examined. However, the TAMP model was selected as capable of modification and applicable to this study based on its popularity and establishment in practice. Since the TAMP model is not asset infrastructure specific, it had to be adapted so it could be applied to specific circumstances as they relate to operational property management in English and Scottish local authorities. The next section (4.7) is a review of literature as part of process of identifying and defining asset management concepts.

4.7 REVIEW OF LITERATURE

Apart from relying on the theory that underpins asset management and existing asset management frameworks, the identification and definition of asset management concepts was also made possible by reviewing relevant literature. The review of literature, covered in this section, was intended to identify and define the concepts associated with strategic planning, asset management planning and tools and techniques. These three components are those identified in the TAMP framework (section 4.6.1) as representing the strategic

property considerations and property services which together comprise asset management (section 2.3.1).

The concepts are the processes associated with asset management practice. According to the IAM (2006) there are two interlinked processes that together make up the structured process of strategic asset management. The two processes are *strategic planning* and *asset management planning* (IAM, 2006). Each of these two processes consists of specific process activities which are the concepts or variables (IAM, 2006). A number of tools and techniques are available that support the activities involved in strategic planning and asset management planning process. This chapter section reviews literature to identify the processes associated with the strategic planning and asset management planning elements of asset management as well as the tools and techniques that support the processes.

4.7.1 Strategic Planning

According to IAM (2006) the strategic planning process comprises a number of recognised sequences of activities taken in a very mechanistic fashion. The activities include, putting in place enablers for asset management, formulation of strategic plan and identifying the gap or levels of service to be realised.

4.7.1.1 Enablers of Asset Management

Enablers to asset management are those things that need to be done early in the asset management process as well as the critical success factors that are needed to support the process (DPLG, 2010). The essential initial activities include:

- securing senior management buy-in;
- establishing an asset management team with representation across the council to steer the overall asset management program; and
- awareness-raising and training in asset management practice.

The factors that are critical (“Critical success factors” or CSFs) to becoming an effective asset management organisation include:

- having an organisational champion at the highest level;

- the existence of a formally adopted asset management plan;
- existence in the organisation of a continuous improvement process; and
- having a strong change management culture that ensures that processes and data, once developed, become embedded as ‘business-as-usual’ rather than a one-off compliance exercise to produce an asset management plan.

4.7.1.2 Formulation of Strategic Plan or Corporate Asset Strategy

Formulation of strategic plan is the process of understanding the overall local authority organisation objectives in order to derive property objectives (Royal Institution of Chartered Surveyors (RICS) & Office of the Deputy Prime Minister (ODPM), 2005). Understanding of the overall local authority organisation’s objectives requires establishment of its vision, mission and corporate objectives it has for its property assets. In addition, the local authority also requires to carry out a review of both its internal and external operating environment in order to understand how they impact on the organisation and implications for property assets. Finally, knowledge about a local authority’s asset base whether it fully supports its overall objectives is critical in assisting with the derivation of property objectives.

The derived property objective is in essence the strategic task or asset gap that needs addressing by implementing an appropriate asset management solution which could be asset or non asset based (RICS & ODPM, 2005).

(i) Development of Vision, Mission Goals and Objectives

The role of the **vision** statement is, according to the Scottish Executive (2003), to articulate the need for developing a property asset strategy. Local authority organisation’s goals, according to the RICS and ODPM (2005), may be varied but it is essential, however, that they must be understood, together with their property implications. Understanding council objectives, Consortium of Local Authorities in Wales (CLAW) (CLAW, 2003 p24) argues, should naturally lead to the development of specific objectives for the management of assets which satisfy broader corporate objectives.

(ii) Review of the Organisation's Internal and External Operating Environment

In order to gain a clearer picture of the potential future performance of the asset, it is also essential to review the internal and external environmental factors impacting on the local authority organisation and the implications of these factors on property. Reviewing the operating environment, both external and internal, is meant to ensure that all elements such as corporate, community, environmental, financial, legislative, institutional and regulatory factors that affect the organisation's activities have been considered (IIM, 2006; RICS / ODPM (2005).

The present and expected future state of the external environment affecting the organisation, and the suitability of an organisation's internal competences are brought together in strengths, weaknesses, opportunities and threats (SWOT) analysis (figure 4.2.). Strengths and weaknesses are internal to the organisation while opportunities and threats are external and outside the organisation's control (Bryson, 2004; Pfeffer and Salancik, 1978). It is upon the analysis of internal and external environments that a local authority's future strategies may be formulated (Bryson, 2004).

The exploration of the external environment involves monitoring political, economic, social, technological, legal and environmental (PESTLE) categories ((Nutt and Backoff, 1992; Johnson and Scholes, 2002). Recent years have witnessed a number of external environmental forces that have impacted on local authorities. The forces have had significant property implications and have been instrumental in driving asset management development. The forces range from political ones, for example, new public management; best value regime and devolution policies, for instance localism agenda. There have also been economic influences, typically budgetary pressures and economic recession. As regards socially driven forces, these include rising public expectations in terms of services being delivered by local authorities. At the same time there is growing concerns by the public of environmental and sustainability issues. The rapid advances in technology and the

implications on service levels delivered by local authorities has also been an important factor. Legal influences have ranged from accounting reforms, prudential code; various asset management related statutes, Disability Discrimination Act (DDA) legislation as well as asset management guidelines. The impact of all these PESTLE issues and their property implications including asset management development has been extensively dealt with in Chapter 2 (section 2.4).

Issues considered during the analysis of the internal environment relate to the identification and addressing of internal strengths and weaknesses of an organisation. Such an analysis involves the organisation monitoring its resources, processes, performance, distinctive competencies, and culture (Poister, 2003). Resources monitoring would typically relate to the adequacy of the right people and support to carry out asset management practices, the availability of other resources, especially funding; information and communication technology (ICT); and relevant information systems.

The building of capacity in asset management is an important asset management practice. The staff skill and knowledge in asset management is enhanced through training programmes which should be embedded in an organisation's capacity building programme (Edwards, 2010). Furthermore, the organisation should have a strong change management culture place as an enabler to asset management process. A strong change management culture ensures that there exists a continuous asset management improvement process (Tanfield and Denyer, 2004). The existence of a continuous improvement process makes it possible that processes and data, once developed, become embedded as 'business-as-usual' rather than a one-off compliance exercise to produce an asset management strategy (Male, 2010).

An organisation can be analysed for its internal competences and for the external forces affecting it using SWOT Analysis model (figure 4.2).

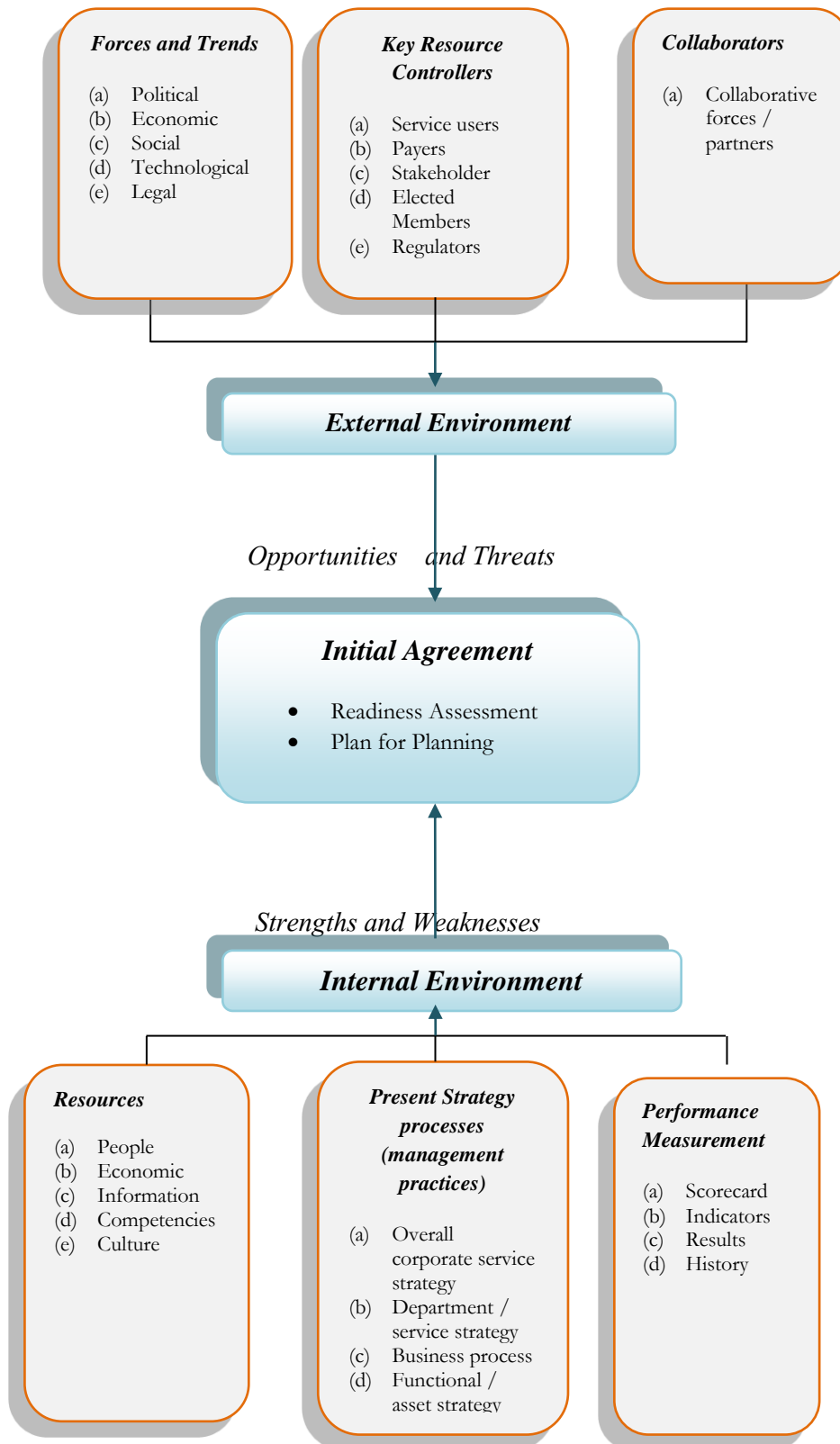


Figure 4.2: SWOT Analysis
Source: Adapted from Bryson (2004) p33

Strengths, weaknesses, opportunities and threats (SWOT) analysis model is a strategic planning model for analysing and bringing together the internal appraisal of an organisation's Strengths and Weaknesses and the external appraisal of the opportunities and threats facing it. The aim of SWOT analysis is to bring together those strengths and weaknesses that are believed to underpin the particular local authority's unique circumstances and assess to what extent they 'fit' the environmental opportunities and threats as the basis for formulating a plan of action or strategy.

(iii) Asset Information, Data Collection and Asset Knowledge

It is necessary to make an assessment of the existing property assets and accommodation for their suitability to support the local authority's existing business, and any future demand. An assessment of existing property assets and accommodation is possible only if the local authority develops knowledge about its assets. Asset knowledge development requires the collection of appropriate data in order to generate information needed to support and inform asset management decision making (DPLG, 2010). The collection and conversion of data into meaningful information requires that a local authority should have in place a properly designed Asset Management Information System (AMIS). Such a system has appropriate modules capable of summarising the collected information and data to inform asset management decision making.

By interrogating the appropriate modules of the AMIS data can be reported in a way that is easily understood, with summaries for asset types. In addition, interrogation of appropriate AMIS data provides the ability to drill down to specific assets and prepare appropriate reports. Such reports will enable the local authority to have better knowledge about the performance of property assets in terms of key data sets (figure 4.3) that comprise condition, suitability, sufficiency, accessibility and operating costs (DPLG, 2010; CIPFA, 2008).

CIPFA (2008) provide the following explanation in respect of key data set elements.

- **Asset Condition:** relates to the physical condition and the extent to which a property performs and operates efficiently.
- **Asset Suitability:** concerns a property's "fitness for purpose". This relates to how well the asset is suited to its current purpose and supports efficient and effective service delivery both now and in the future. Suitability focuses on such factors as appropriateness of asset location; internal environment; safety and security; image; facilities; as well as space and layout.
- **Asset Sufficiency:** The issues relating to asset Sufficiency are ones about demand and sustainability of the asset. Sufficiency is concerned with asset use in terms of whether there is under or over utilisation of the asset now or in the future.
- **Revenue Costs:** include the costs of operating or running an asset. Some of operating property costs include water and sewerage; heat and light; repairs and maintenance; facilities management; rent; rates; premises insurance; security; furniture and fittings.
- **Asset accessibility:** Asset accessibility can be on two levels. First, asset accessibility is linked to how much the asset is accessible to people with disabilities. The second level is concerned with how well located is the asset for accessing by service users or by those who operate from it.
- **Asset Value:** Asset Value relates to the capturing of various types of values of assets. The values can act as a reliable inventory check. They also ensure that an accurate and appropriate valuation type is listed.

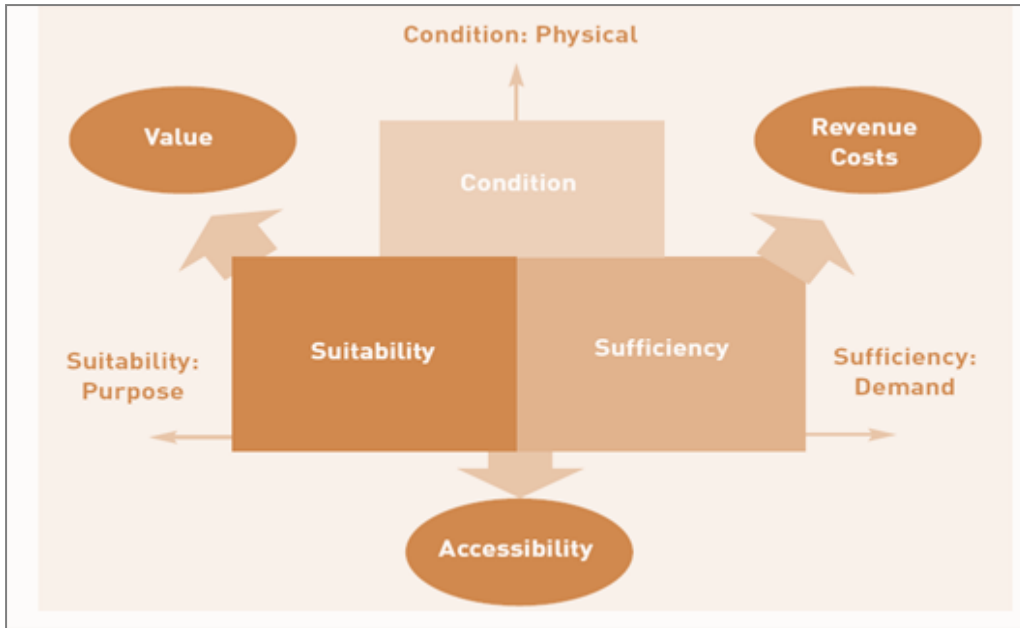


Figure 4.3: Key Drivers of Asset Management
Source: CIPFA (2008)

CIPFA (2008) states that besides capturing key *data sets of asset management* there are additional support data that need to be captured. The additional support data is on environmental performance and sustainability of assets and includes: carbon dioxide (CO₂) emissions; asset usage in hours; energy usage; water usage; asbestos content; health and safety surveys; water hygiene information; fire risks; and energy performance (e.g. BREAM, Energy Certification, Sustainability Code; as well as Whole life costing information (CIPFA, 2008; RICS and ODPM, 2005).

iv Identification of Size Of Strategic Task or Service Level Gap

Through SWOT analysis and knowledge about assets it becomes possible to identify current performance status. From property performance assessment and analysis of management capabilities, through asset knowledge and SWOT analysis, it then becomes possible to establish whether there are any shortfalls with regard to asset performance or management capabilities. The asset performance shortfalls could be in terms of an asset being of poor condition, not fit for purpose, of insufficient capacity, having accessibility issues, and expensive to operate and run. Management capability shortfalls relate to ineffective processes, inadequate resources, ineffective performance system or lack of asset

management culture. The identified shortfalls are the ones that need to be quantified as they then become the strategic tasks or service level gaps that need to be met. The process of identification and quantification of service level gaps (figure 4.4) initially involves understanding of users' needs and wants. As the Department of Provincial and Local authority (DPLG) (2010) explains, that: *“understanding users' needs and wants entails understanding the service level gap, that is, the gap between the service that is currently being provided by the property asset and the service that is desired by users”*.

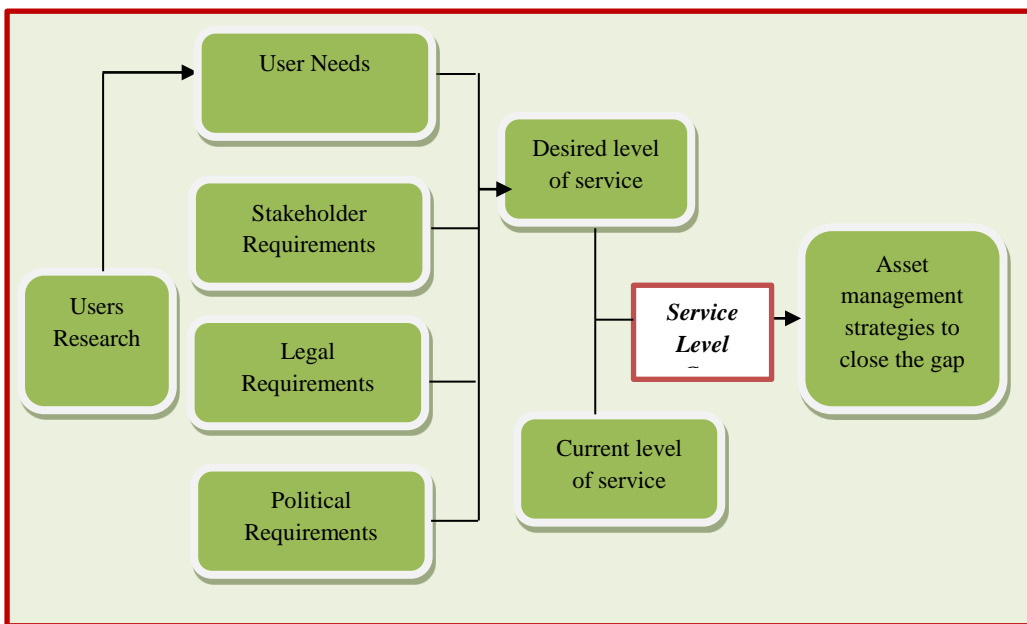


Figure 4.4: The Process for Establishing Levels of Service

Source: Adapted from DPLG (2010)

Secondly, the process involves undertaking a meaningful consultation process with both internal and external stakeholders, such as service users, elected members, and those who deliver services. The consultation is aimed at understanding users' needs and how they are likely to influence future demand for property and accommodation (IIM, 2006). The next stage involves understanding the political and legal requirements as they impact on service provision that also need to be established and evaluated.

Having undertaken the consultation process and evaluated the legal and political impacts on service provision, the next step is to establish desired performance target or benchmark based on performance indicators (Male, 2006). Targets help set appropriate expectations

with service users and other key stakeholders. The importance of establishing levels of service targets or benchmarks has been emphasised by Nielsen (2007). Nielsen argues that defining standard “Levels of Service” is an essential element of effective asset management planning. Service level targets are essentially performance goals which provide a basis for implementing a clear and effective asset management strategy that optimise organisation objectives. The defined levels of service targets are a commitment to deliver service that meets specified and clearly understood standards which are presented as targets.

Having established the desired level of service target, the penultimate step is measuring the current performance in order to determine the “current level of service”. The process concludes by recording any level of service gap as the difference between the current and target performance. The process for establishing service level gap is shown in Figure 4.4. The corporate asset strategy process culminates in the identification and quantification of the service level shortfall.

In this section the concepts associated with corporate strategy formulation are identified and the linkages between them are explained. The clear understanding of an organisation’s vision and its corporate goals and objectives inform the development of asset management objectives. Asset management objectives are the performance shortfalls needing addressed by asset management activities. Performance shortfalls are identified through the process of SWOT analysis and Asset Knowledge. SWOT analysis reveals any internal capability shortfalls and / or opportunities and threats presented and needing addressed. Knowledge about assets reveals the fitness for purpose of assets to support service delivery functions.

4.7.2 *Asset Management Planning*

The definition and identification of the processes that comprise asset management planning concepts are explained in this section. In terms of definition, the National Asset Management Steering (NAMS) Group, defines property asset management planning as being concerned with having the right property, in the right place, maintained in the right

state, performing in the right way, at the right time and delivering the right benefits (NAMS, 2006a).

In effect asset management planning is about developing asset or non asset strategies or plans. The developed integrated plans or strategies are the mechanisms through which derived objectives or needs or gaps are intended to be achieved. These mechanisms either involve asset solutions (planned capital investment) or non asset solutions (demand management intervention decisions) and how improvements will be made to on-going property management. The asset management planning process is crystallised into a formal documented plan called *property asset management plan*. Property Asset Management Plan (AMP) is defined as: “a document which sets out the Asset Strategy in order to help determine which assets should be acquired, renewed, improved, maintained or disposed of, once alternatives to investing in property assets have been explored”. It involves developing integrated plans or strategies for:

- Capital Investment (acquisition / development);
- Asset Maintenance;
- Asset Disposal; and
- Workspace and Accommodation plans (Local Government in Scotland Act (2003):Asset Management under Best Value Advisory Note).

The key stages involved in the preparation of an *asset management strategy* include:

- putting in place an asset management team;
- formulation of asset and non asset strategies to close the service level gap;
- evaluation and selection of strategy options;
- implementation of selected strategy;
- monitoring and control of implemented strategy; and
- audit and review

4.7.2.1 The Asset Management Team

IIM (2006) argues that the successful implementation of Asset Management (AM) requires a concerted and coordinated team effort across all sections of an organisation. An effective asset management team is one that is multi-disciplined and drawn from across the local authority organisation functional departments (IIM, 2006; Woodhouse, 2010b; Lloyd, 2010; and Fisher 2009). The setting up of such cross functional teams enable appropriate assignment of roles and responsibilities.

The AM team undertakes strategy development and implementation following needs analysis; and the development and implementation of the plan. Once the plan has been implemented, the team's post implementation main activities relate to data collection, level of service review, and systems or plan development. During the asset operational planning phase, the team's principal tasks involve evaluation and monitoring of asset management outputs.

4.7.2.2 Strategy Formulation

The identification of service level gap or strategic task is followed by identification of improvement projects or tasks that will "close the gap" between current and appropriate practice (DCLG, 2010). These tasks or projects either involve asset solutions (planned capital investment) or non-asset solutions (demand management intervention decisions) and how improvements will be made to on-going property management. Asset solutions involve planned capital investment while non-asset solutions are about the introduction of demand management intervention measures.

Non asset based strategies, also called demand management, are about active interventions to limit usage of property asset services in response to the identified service level gap. The objective of demand management is to actively seek to modify user demands for services (NAMS, 2006a; DPLG, 2010). User demand can be modified either through asset use regulation, cooperating with asset users, or by charging for the use of an asset. These non asset solutions are graphically explained in figure 4.5.

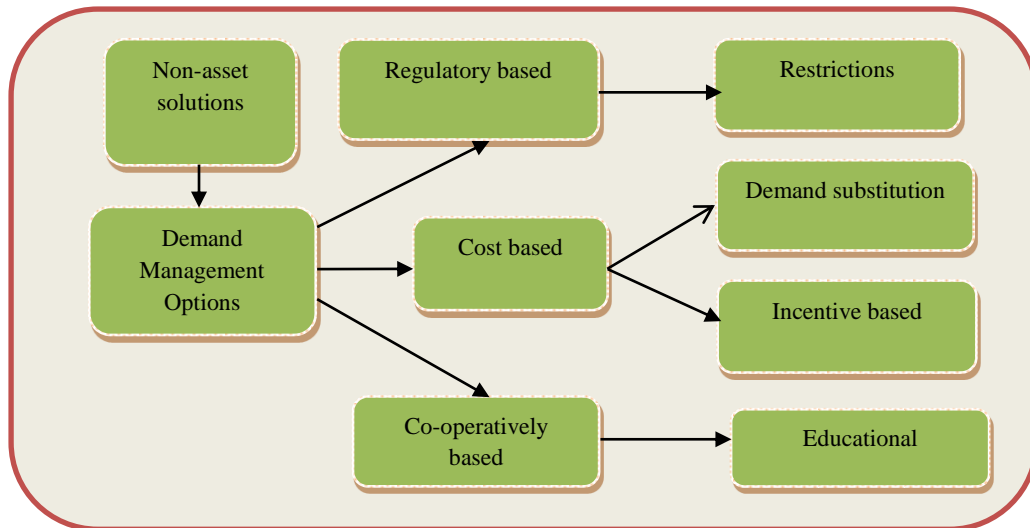


Figure 4.5: Demand Management options

Source: Adapted from DPLG (2010)

The asset based strategies to meet the identified service gap can include constructing a new asset, asset upgrade, asset renewal, designing strategies for operating and maintenance, as well as the option to dispose the asset.

4.7.2.3 Option Appraisal

The identified projects or tasks, which could be asset or non-asset based, form an improvement programme which needs to be optimised by an option appraisal process (NAMS, 2006a). The ultimate aim of an options appraisal process is to optimise strategy selection. An optimal option is one that maximises value for money in terms of having the least whole life cycle cost and maximum benefit (OGC, 2003). Assessment of benefits and costs is based on multiple criteria. The criterion includes financial, legal, cultural and social considerations. Optimised Decision making (ODM) is the tool for supporting the option appraisal process (HM Treasury, 2003). Optimised Decision Making is defined in the NAMS guidelines as “a formal process to identify and prioritise all potential solutions with consideration to financial viability, social and environmental responsibility and cultural outcomes”. The NAMS (2006a) ODM Guidelines propose that there are two broad methods of carrying out ODM, namely:

- a financial assessment which assesses the benefits and costs in monetary terms .

- a multi-criteria analysis (MCA) whereby each project is scored against a number of non-financial criteria, each with different weightings, to come up with an overall ranking.

The optimised decision making process results in the identification of optimal solutions which could be non-asset or asset based.

4.7.2.4 Strategy Implementation

The prepared asset management improvement plan needs to be implemented. According to the RICS & ODPM (2005) the implementation of asset management improvement strategy concerns setting out the organisational arrangements for asset management. This relates to setting up arrangements at *corporate; property management; and project management levels* (DCLG and York Consulting, 2008). The appropriate arrangements at corporate level are about developing corporate property management groups in order to respond to the corporate capital and asset planning initiative. In effect this is about having an effectively positioned asset management organisational structure, led by senior manager at corporate level and supported by senior management. DCLG and York Consulting (2008) identified the following good practice arrangements (Table 4.1) that need to be put in place in order to develop effective corporate management groups.

Table 4.1: Good Practice Arrangements at Corporate Level

▪ That there should be a clear link between corporate objectives and priorities and those of capital and asset planning
▪ Ensuring that the implementation of the property strategy is fully integrated with the organisation's corporate and service plans
▪ There is a committed senior management involvement in the asset management process of all key service areas in the authority represented by officers at an appropriate level
▪ There is a culture of challenge in relation to new capital expenditure and use of existing assets
▪ There exists at senior management level an officer to champion a corporate and strategic approach to capital and asset planning
▪ There exists a property officer at corporate level to manage the implementation of the asset plan
▪ The local authority organisation structures its governance arrangements so that it is better able to focus on strategic property issues to improve decision making capability
▪ Elected members are engaged with property asset management
▪ That asset performance is regularly reviewed by members
▪ Decisions on capital projects are based on a clear business case, including options appraisal and whole-life costing

Source: DCLG (2008)

The organisational arrangements for asset management at property management level concern having appropriate management practices. According to DCLG and York Consulting (2008) such practices include developing an effective organisation of property management services; clearly setting out property management responsibilities at a corporate and service level; and adequately resourcing property management activity to carry out property management functions.

The setting up of project management arrangements, on the other hand, concerns the adoption of a project management approach in the implementation of asset based strategies.

The arrangements, according to York Consulting (2007), include:

- there is identification of the person with understanding of project management to be responsible and accountable for delivery capital programmes;
- setting up a subgroup responsible for capital projects;
- setting up a common project and programme management methodology and that it is consistently applied across the organisation;
- developed internal project management capacity by establishing specialist teams with appropriate project management training;
- existence of a formal Corporate Project Management Approach to project management, based on the PRINCE2 gateway process or similar; and
- there is an identifiable project manager or coordinator (DCLG and York Consulting, 2008)

4.7.2.5 Asset Monitoring and Control

Asset monitoring and control determines the asset management monitoring process. An effective asset management monitoring process requires that the local authority organisation should benchmark its asset management practices (see section 4.4.3 for fuller discussion).

The DCLG (2010) states that benchmarking is about learning from other organisations and understanding what best practices about asset management are being undertaken. Learning from other organisations can be a useful input to establishing a realistic appropriate practice target. The key prerequisites to benchmarking is the establishment of a reasonably

standardised basis for comparison which in itself is dependent upon establishment of a comprehensive and relevant performance measurement and management system. An effective performance management relies on the specification of two sets of performance measures, those for property and those for management of property. The performance measures are intended to review the performance of the operational properties and property asset management practices (CIPFA, 2008). A review of such performance is undertaken by comparing the performance of these two aspects against Key Performance Indicators (KPIs) and the KPI targets.

4.7.2.6 Asset Management Audit and Review

The process of asset management audit and review is directed at the implemented programme or strategy. The process encompasses three inter-related elements. The first element is about reviewing and evaluating the performance of the estate and of property asset management practices in the organisation against Key Performance Indicators (KPIs) and the KPI targets. The second element is concerned with making sure that there is a clear statement of current performance levels against KPI targets. The statement should also include any relevant historic performance data and action to be taken to improve performance (OGC, 2003). The final element in the process of audit and review is to ensure that the targets and review cover improved use of property and workspace (Scottish Government, 2003).

The good practice review process of property management practices involves reviewing operational management practices and workspace or accommodation.

4.8 TOOLS AND TECHNIQUES

The commonly used tools and techniques that support both strategic planning and asset management planning are identified in this section. According to NAMS (2006), these include: demand forecasting and management; and optimised decision making which includes benefit cost analysis, multi-criteria analysis and whole life cycle costing (NAMS, 2006a).

4.9 ASSET MANAGEMENT OUTCOMES

The impact of the activities and actions of strategic planning and asset management planning are evidenced through outcomes. If the asset management process is supported by effective property management practices this is likely to result in positive asset management outcomes. Positive asset management outcomes include the efficient and effective use of property assets as well as improved service delivery (DCLG & York Consulting, 2007). Property rationalisation is the management practice that ensures that there is efficient and effective use of property assets. Property rationalisation process involves challenging the need for holding property resulting in decisions to consolidate or dispose of assets. The process results in reduced property operating costs and increased staff efficiency (OGC, 2003). According to DCLG (2010), effective asset management practices can result in improved service delivery. These asset management practices include:

- introduction of new work practices,
- increased cross-service working,
- increased compliance with legislation,
- improved accessibility of services,
- co-location and partnership working,
- increased usage of services, and
- enhanced sustainability of property holdings

The introduction of new working practices such as flexible working and hot desking, for example, can reduce office space requirements. These working practices mean that staff do not require as much office space as they had been utilising. The practices in effect mean that the efficiency of office space use is increased. The reduction in office space requirements due to increased efficiency can lead to minimisation of operating costs as the requirement to spend so much money meeting office running expenses such as energy costs is reduced. The structure and nature of the well managed property portfolio can be an important factor that can encourage cross-service working. This is essential as local authorities need to operate in a joined up way in order to provide modern and flexible services. Well managed

properties encourage co-location with partners/ stakeholders thereby providing an effective basis for this partnership working. Collaborative working is essential in meeting the emerging trend of local authorities increasingly working with a wide range of partners and stakeholders in order to deliver services.

Properties that are well looked after are likely to comply with statutes. Statutes could, for example, include Disability Discrimination Act, Health and Safety legislation and Energy performance legislation. Compliance with these pieces of legislations could mean that the property becomes easily accessible by all service users. Service delivery can also be enhanced if a property is suitably located. A suitably located property, just like one that complies with legislation, is easily accessed by service users. Suitably located properties from which services are delivered is a key driver of the accessibility of services to all groups of residents. The ease with which service users access services is important as it helps to realise objectives of equity or social inclusion objective which is important for local authorities. In addition to their location, the quality of the facilities from which services are delivered has a significant impact on the usage of services by residents. Buildings that are rundown and not fit for purpose in relation to the delivery of modern services are unlikely to attract high usage (Audit Commission 2009).

The environmental performance of the property portfolio of local authorities, for example the energy efficiency of buildings, is a significant issue. Buildings that are well managed will perform well environmentally. Buildings that perform well environmentally help to address the wider concerns about climate change and global warming. Efforts by local authorities to improve workspace and accommodation arrangements such as physical condition, location, adequacy of accommodation, will result in improved asset management processes. Improved asset management processes are likely to lead to positively impacting on those using and working in the building. As a consequence, efficiency and effectiveness will improve translating into improved productivity of asset users. The inter-relationship

between workplace and productivity is, according to Thompson (2008), founded on the premise that a satisfied employee will, through the mechanism of being motivated to act, be more productive. In a research by van der Voordt (2003) it is reported that the physical workplace environment that has appropriate temperature, task lighting, noise levels, air quality, ability to control working environment, good workstation design and properly configured work space such as open plan that fosters communication and interaction is likely to enhance staff satisfaction and well being. Clements-Croome (2000) states that productivity can increase by as much as 15% when workers are satisfied with their environment. The function of a building, therefore, is to ensure that it enables people in it and the processes that take place function as efficiently and effectively as possible. If a building is able, through better design and management, to increase the productivity and wellbeing of staff, visitors and other users, then it is reaping reward for the organisation by increasing the operational efficiency and effectiveness (CIC, 2001). Apart from air, sound and quality the indoor environmental quality is also influenced by the building space also known as spatial quality in terms of size and shape of a property. CIC cite the work by Leaman and Bordass (1998; 2000; 2001) who identified “building depth” and “work groups” as the two most important variables that affect spatial quality of a building. The management and maintenance of the spatial quality of the building has a significant impact on the productivity levels of occupants. There is a relationship of 1:5:200 between construction costs; maintenance and running costs; and business operating costs respectively (Evans et al., 1988). The ratio shows that the costs incurred in constructing, maintaining and running the building are insignificant in financial terms compared to the costs of running the business in the building. The challenge therefore is to ensure that the building can be run and maintained so as to enhance operational performance.

Buildings that are well managed will have better quality indoor environment and better quality of the indoor workspace. This results in greater productivity and quality of life which in time ‘will translate into value for building owners, occupiers and investors’ (RICS,

2008; UK Green Building Council, 2011). It is clear therefore that the functions a building performs and the benefits arising from it as well as the cost of performing such functions are important determinants of value to owners or users. The effective utilisation of accommodation and workspace practices is evidenced by a number of property performance indicators at asset level. The indicators are evidence of efficient and effective use of property and workspace. The indicators according to DCLG and York Consulting (2008) include:

- property being in the right physical condition;
- property is fit for purpose;
- property is accessible; and
- property is not expensive to operate and maintain.

Evidence of reduction in the level of required maintenance as a result of properties being in good condition is an important indicator for local authorities. According to Audit Commission (2009), the level of required maintenance is a major issue for many local authorities. This is generally not an issue that can be addressed solely through increased expenditure on repair and maintenance, but requires a significant change in the structure and scale of the property portfolio. Furthermore, assets that are well managed will have reduced annual revenue costs. This is significant as operating cost reduction is a central element of achieving a more efficient use of property assets. Reduction in the annual operating costs of the property portfolio include, for example reduced management costs, energy costs, water costs, and sewerage costs. In addition, well managed properties are likely to be of sufficient capacity or size to meet current and any future demand as well as be fit for purpose.

4.10 CONSOLIDATION OF IDENTIFIED AND DEFINED CONCEPTS

The focus of this section was to bring together the identified and defined asset management concepts. Thus far asset management concepts have been identified and defined based on theory, existing frameworks and a review of literature. It has been shown that strategic

management theory is the appropriate theory upon which asset management is based but specifically modelled on strategic planning model. Also demonstrated is the fact that asset management is supported by other organisational management theories. An examination of existing asset management frameworks identified TAMP as the most suitable framework based on its popularity and establishment in practice. Literature review revealed that asset management is a strategic concept that integrates strategic planning and asset management planning elements. Each of the elements consists of a number of concepts or processes supported by tools and techniques. Table 4.2 shows consolidated asset management concepts appropriately identified and defined.

Table 4.2: Identified and Defined Asset Management Concepts

1. STRATEGIC PLANNING Is about understanding the overall organisational objectives and from these property objectives are derived.	2. ASSET MANAGEMENT PLANNING Determines how the derived objectives can be achieved and includes planning for capital investment, and intervention decisions and on-going property management	3. ASSET MANAGEMENT OUTCOMES
<p>Vision, Mission and Objectives</p> <ul style="list-style-type: none"> Corporate Goals - Overall organisational objectives and from these property objectives derive <p>Enablers of Asset Management (Asset Management Capabilities)</p> <ul style="list-style-type: none"> Resources Adequacy - adequacy of support and right people to undertake asset management; availability of funding; availability of ICT; availability of MIS Leadership and Elected Member Support Organisational and leadership commitment (senior management buy-in; asset management champion at highest level; continuous asset management improvement process Asset management culture embedding Capacity Building (CB)- building capacity of staff through setting up training programmes <p>Opportunities and Threats</p> <ul style="list-style-type: none"> Political; economic; Social; Technological; legal; environmental forces <p>Asset Knowledge</p> <ul style="list-style-type: none"> Capture relevant data which drives asset management - condition, suitability, sufficiency, accessibility, revenue costs, value, environmental performance and sustainability Availability of a Management Information System (MIS) that supports decision making <p>Information is used to assess existing property assets and accommodation for their suitability to support (a) property management function; and (b) monitor asset performance.</p> <p>Service Level Gap</p> <ul style="list-style-type: none"> Stakeholder Consultation - external and internal stakeholder consultations to understand service users' needs Current Performance Measurement -Measure current performance <p>Future Performance Target- desired performance or future levels of service target</p>	<p>Strategy Formulation</p> <ul style="list-style-type: none"> Planned Capital Investment -Formulation of asset solutions Demand Management - Formulation of non asset solutions <p>Option Appraisal</p> <ul style="list-style-type: none"> Benefit Cost Analysis - Financial Planning Multi-criteria Analysis - Non financial analysis Whole Life Cycle Costing <p>Strategy Implementation</p> <ul style="list-style-type: none"> Integration of asset strategy with service and corporate plan Fully developed Asset Management Plans that articulate medium / long term Property Strategy Corporate Level Officer manages asset management plan implementation Culture of Asset management challenge Adequate Resourcing of Property function Asset management structure resides at board level Accountable Project Manager delivers capital programmes Trained Cross functional Project Management Team Consistently applied common project management methodology <p>Monitoring and Control</p> <ul style="list-style-type: none"> Existence of a suite of KPIs based on benchmarking club (KPIs) Property asset performance and management practice are benchmarked against KPIs Property portfolio is reviewed and evaluated against KPIs for current performance and KPI targets Asset management practices are reviewed and evaluated against KPIs for current performance and KPI targets Workplace and accommodation are reviewed and evaluated against KPIs for current performance and KPI targets <p>TOOLS AND TECHNIQUES</p> <p>The techniques that support asset management planning and strategic planning processes</p> <ul style="list-style-type: none"> Optimised Decision Making - Whole Life costing; Multi-criteria Analysis; Benefit Cost Analysis Demand forecasting and management SWOT Analysis 	<p>Efficient and Effective Use of Property Assets</p> <ul style="list-style-type: none"> Rationalisation of property holdings Reduction in the level of required maintenance Reduction in annual operating costs Increased space utilisation to minimise operating costs Improved asset condition Improved asset suitability Improved Asset accessibility <p>Improvements in service delivery</p> <ul style="list-style-type: none"> Introduction of new working practices Increased cross-service working Increased co-location and/or partnership working Increased compliance with legislation Improved accessibility of services Increased usage of services by having good quality properties Enhanced environmental sustainability of property holdings

4.11 CHAPTER SUMMARY

This chapter dealt with some of the aspects that needed to be taken into consideration when developing the conceptual operational property asset management framework for this study. The aspects covered were clarification of the term conceptual framework, role of a framework and part of the stages involved in the development of the conceptual framework.

A conceptual framework for operational asset management was developed as it indicates how those involved in operational property asset management practice perceive the concepts associated with asset management practice and relationships between them. Literature indicated that concepts are abstracts typically processes associated with asset management. A framework along with its concepts guided the whole course of the study.

The developed framework guided the course of the study into asset management practice in local authorities in a number of ways. Literature suggests that it does so by providing an organising structure for the study and, therefore, was used to develop questions and questionnaire for generating data from interviews and self administered questionnaire. Also it aided the interpretation of collected responses from questionnaire and interviews.

Even though there are four stages in the process of framework development, this chapter focused on the initial stage involving the identification and definition of concepts. Asset management concepts had been identified and defined based on theory, existing frameworks and a review of literature. Strategic management theory is the appropriate theory upon which asset management is based but specifically modelled on strategic planning model. It is supported by other organisational management theories. An examination of existing asset management frameworks identified Total Asset Management process (TAMP) as the most suitable framework for this study based on its popularity and establishment in practice. Literature review revealed that asset management is a strategic concept that integrates strategic planning and asset management planning elements supported by tools and techniques. Each of the elements consists of a number of concepts

or processes. The implementation of these processes results in outcomes such as efficient and effective asset management performance which then feed through to improved service delivery.

The identified and defined concepts, based on the strategic management and organisational management theories, review of literature as well as examination of existing frameworks were then consolidated. These comprise the strategic planning component which is the policy element, the asset management planning which comprises the operational element of asset management, as well as the tools and techniques supporting the two elements.

CHAPTER FIVE

CONCEPTUAL FRAMEWORK DEVELOPMENT: *OPERATIONALISATION AND EXAMINATION OF RELATIONSHIPS BETWEEN ASSET MANAGEMENT CONCEPTS*

5.1 INTRODUCTION

It was stated in chapter four (section 4.1) that four steps were involved in the process of conceptual framework development used in this study. The initial step which is the identification and definition of concepts was covered in chapter four. In this chapter, the remainder of the three steps are dealt with and these are exploration and examination of relationships between concepts; description of the developed framework; and operationalisation of the concepts.

5.2 EXPLORATION AND EXAMINATION OF RELATIONSHIPS BETWEEN CONCEPTS

The exploration and examination of concepts is done, according to Ticehurst and Veal (2000), in order to prepare a causal or concept map and to identify the causal logic of a framework. The underlying logic in the previously identified TAMP framework, as well as literature review, and the strategic management theory and supporting organisational management theories upon which asset management rests, were used to identify the causal logic of the prepared framework, thus converting it from a set of performance factors into a causal map (Bassioni., Price., and Hassan 2004).The perceived relationships between groups of concepts and individual concepts are then indicated in a series of lines and arrows. The boxes are used to represent the concepts. The following section shows the causal map of asset management concepts for the developed conceptual asset management framework.

It was established in chapter two (section 2.3) that asset management is a strategic concept that integrates strategic planning and asset management planning elements supported by tools and techniques. Each of the elements consists of a number of concepts or processes which if effectively applied will result in improved asset management performance. The following section explains how the strategic planning and asset management planning processes as well as asset management outcomes are inter-related and the logic of the relationship.

5.2.1 Strategic Planning

The group of concepts surrounding strategic planning concept are the policy actions and are about understanding the overall organisational objectives, and from these deriving property objectives. The identity of the concepts, their logical inter-relationships involved in the derivation of property objectives is represented in figure 5.1. The key concepts that make up strategic planning are: mission, vision and objectives; asset knowledge; external and internal environmental factors acting on the organisation. For these factors to be fully effective they need to operate in an enabling environment. The factors that permit an enabling environment are generally known as enablers of asset management. All these concepts act to highlight asset management capability shortfalls and asset performance shortfall. The shortfalls are the derived property objectives also known as service level gap or strategic task.

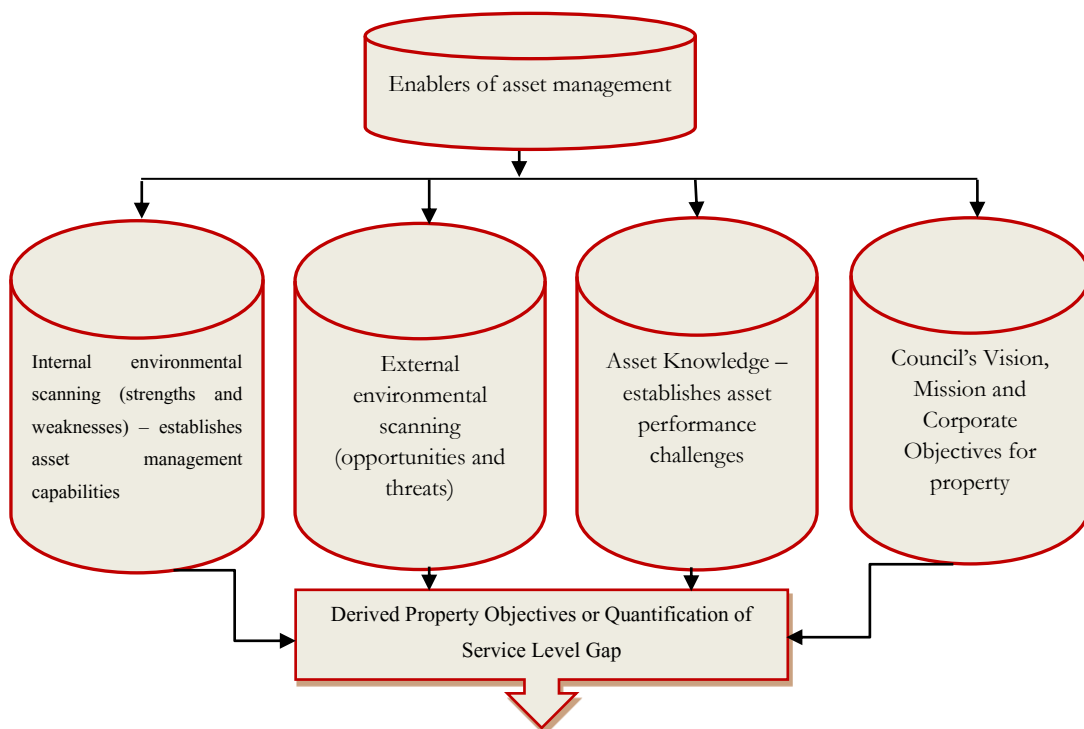


Figure 5.1: Strategic Planning and Derivation of Strategic Task

5.2.2 Asset Management Planning

The Asset Management Planning concept is about planning for closing the identified service level gap. The planning is through development of an asset management plan. An

asset management plan involves developing integrated capital plans or strategies for closing the asset performance gap through asset solutions (capital investment; asset maintenance; asset disposal; and workspace and accommodation plans) or non-asset solutions (demand management options). Asset management plan is then operationalised through the processes of strategy formulation, option appraisal, development of life cycle asset strategies, strategy implementation, and monitoring and controlling of the implemented strategy.

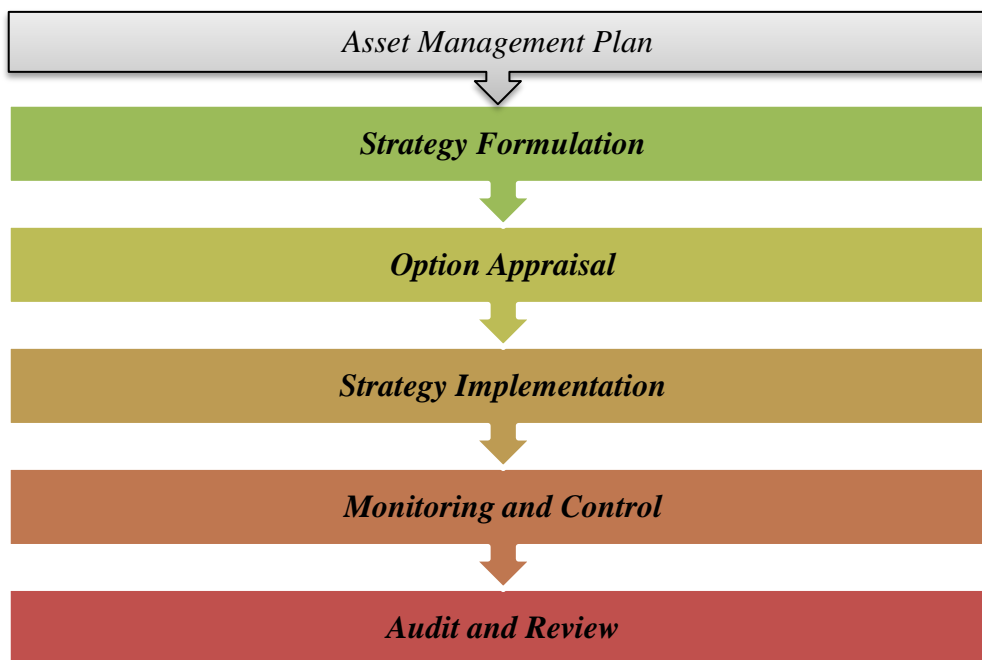


Figure 5.2: Asset Management Planning Process Elements and their inter-relationship

The logical connection and inter-relationship amongst concepts starts by the formulation of asset or non asset strategies to close the identified service level gap (Figure 5.2). Optimised decision techniques are then used to appraise and select an optimal option. The selected option is then implemented supported by having in place corporate, management and project management arrangements. The implemented strategy is monitored and controlled for performance by specifying performance measures. The process of audit and review involves setting up of performance targets and comparing with current performance to set targets for performance improvements and that the improvements are continuous.

5.2.3 *Asset Management Outcomes*

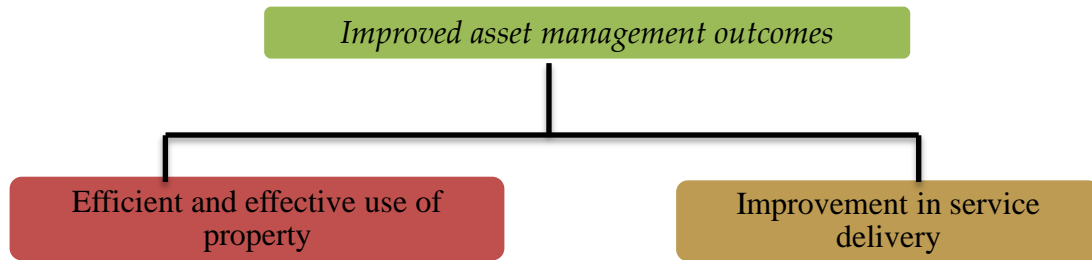


Figure 5.3: Asset Management Outcomes

The impacts of the activities and actions of strategic planning and asset management planning are evidenced through outcomes (figure 5.3). Asset management outcomes are about efficient and effective use of property; and improvement in service delivery

5.2.4 *Tools and Techniques*

The commonly used tools and techniques that support both strategic planning and asset management planning include: demand forecasting and management; and optimised decision making which includes benefit cost analysis, multi-criteria analysis and whole life cycle costing, SWOT Analysis.

5.3 **OPERATIONALISATION THE FRAMEWORK CONCEPTS**

Operationalisation involves deciding how the identified and defined concepts might be measured (Ticehurst and Veal, 2000). This necessitates development of a system for measuring performance of these concepts that indicate asset management improvement. The need for an adaptable and flexible operational property asset management framework that reflects a local authority's unique circumstances in terms of size, social and economic settings as well as leadership landscape, has been emphasised before (see section 1.3). If local authorities develop such a management system, the associated performance measurement system is one that will enable them to interpret and secure any operational property asset management improvements.

In this section of the chapter, therefore, initially a number of terms are defined. Definitions are provided to the following terms: performance measurement, performance, performance measures / indicators, and the terms efficiency and effectiveness. Thereafter, the need for local authorities to secure operational property asset management improvements is provided. This is followed by highlighting available performance measurement systems. In addition, an appropriate choice of a robust and dynamic performance measurement methodology capable of being uniquely applied to a particular local authority is explained. Finally, the selected performance measurement method together with associated relevant operational asset management performance indicators for benchmarking outcomes and processes is explained.

5.3.1 Definitions Terms

Performance measurement is necessary for organisations to be able to determine whether they are achieving their strategic goals, as well as to evaluate, control and improve asset management processes (Ghalayini and Noble, 1996 as cited by Lindholm, 2006). The term performance measurement is described by Lindholm (2006) as being the process of translating the strategy of an organisation into concrete objectives and how the achievement of those objectives is evaluated. The performance measurement process quantifies an action. Performance, on the other hand, is defined as the efficiency and effectiveness of an action. A performance measure is defined as a metric used to quantify the efficiency and / or effectiveness of an action. A performance measurement system (PMS), therefore, is the set of metrics used to quantify the efficiency and effectiveness of an action (Lindholm, 2006).

Regarding local authority operational property asset management performance measurement, therefore, is about having a property asset management framework which ensures that operational properties align with the organisations' objectives. In addition such a framework should have appropriate performance indicators to enable performance measurement and securing of any improvements being made. Performance is defined by

Lindholm (2006) as the efficiency and effectiveness of action. Efficiency is a measure of productivity while effectiveness, on the other hand, measures the impact achieved and can be quantitative or qualitative (RICS, 2009).

The inter-relationship between efficiency and effectiveness is shown in figure 5.4, below.

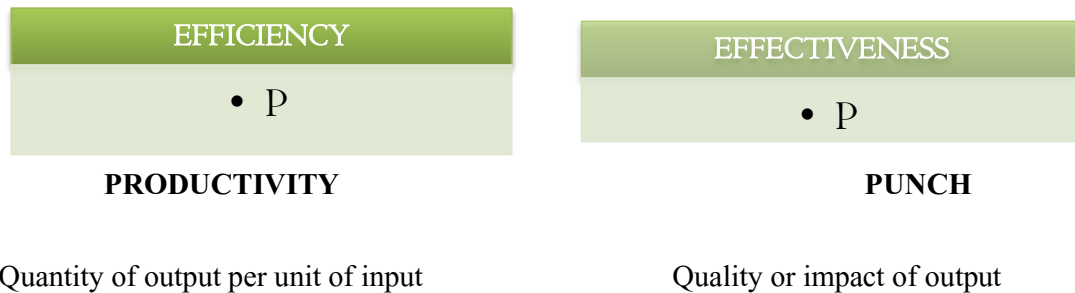


Figure 5.4: Efficiency and Effectiveness

Source: RICS (2009), Local Authority Best Practice: Value for Money p3

Since performance is defined in terms of efficiency and effectiveness of action, the asset management processes and outcomes have to be evaluated on that basis. A performance measure, often termed key performance indicators (KPIs), is defined as a metric used to quantify the efficiency and / or effectiveness of an action (Lindholm, 2006). These performance indicators (KPIs) are the means for determining the status of a success factor. Researchers such as Stoy (2007); Tucker and Pitt (2008); and Fryer, Antony and Ogden (2009) for instance, emphasise the fact that within the property asset management sector, the identification and development of appropriate key performance indicators within an appropriate asset management framework is widely regarded as the most viable option for providing evaluative criteria, against which asset management performance improvement can be validated. The final definition is that of performance measurement system. Performance measurement system (PMS) is defined as the set of metrics used to quantify the efficiency and effectiveness of action.

5.3.2 Robust And Dynamic Performance Measurement Methodology

Since performance itself is defined in terms of efficiency and effectiveness of action, the asset management processes and outcomes have to be evaluated on that basis (OGC) (2006). A number of performance measurement systems exist. However, two considerations guided the choice of the measurement system appropriate for this study. It was necessary that the chosen performance measurement system would be able to align with any particular local authority's strategy and that it was dynamic. A performance measurement system that aligns with *strategy* is one that ensures that the computed performance measures derive from strategy. Measures that derive from strategy make it possible to demonstrate, for instance, how asset management contributes to the core business of the organisation and thus help the organisation achieve its strategic goals (Lindholm, 2006; Amaratunga and Baldry, 2003). In order to ensure that a suitably chosen performance measurement system aligned with a local authority's corporate strategy, it was necessary that the performance measures were computed from strategic planning and asset management planning. The measures derived from strategic planning made sure that the following strategic asset management questions: *where should the property be located?; why should the property be sited in a particular location?; and what size of property is needed to support a service?* were addressed by the study (Audit Commission, 1988b; 2000).

Another set of performance measures / indicators are those derived from asset management planning. These measures make sure that the operational element of asset management delivered the strategic asset management objectives by undertaking the facilities and estates management work necessary to ensure that property is in the condition, form, layout and location desired. The facilities management services performance measures in particular sought to establish whether there was proper coordination of the needs of people, equipment, and operational activities into the building workplace (Brown et al, 1993; Then, 2005; Ali, 2007). Estates management measures sought to determine whether the care of buildings met occupier's satisfaction.

A dynamic performance measurement system is sensitive and responsive to changes in the external and internal environment of the organisation and their implications for asset management. Furthermore, such a performance measurement system ensures that gains achieved through improvement programmes, such as asset management improvements are maintained (Bititci, Turner, and Begemann, 2000: cited by Amaratunga and Baldry, 2003). The need for a dynamic performance measurement system was considered crucial if the aim of the study was to be fulfilled. This was especially important in view of the fact that each English and Scottish local authority organisation is unique in some sense. As has been pointed out by Lindholm (2006), different organisations have different strategic objectives to reflect social, cultural, size and geographical variances. Given these local authority differences, the developed performance measurement system needed to be dynamic by being flexible and adaptable to be able to reflect these different circumstances.

Lindholm (2006) suggests that it is desirable that an adopted measurement system should have separate measures for both strategic performance and tactical performance (Lindholm, 2006). The strategic and tactical performance measures are used to measure strategic planning and asset management planning performances respectively. Strategic performance measurement assesses the effectiveness of the process for translating strategy into concrete objectives and evaluation of the achievement of those objectives. In the context of asset management, strategic measurement systems are for the continuous controlling of asset management processes. Tactical Tools are internal tools which are used for analysing the current situation. In the case of asset management practice such analysis concerns identifying property performance or asset management capability shortfalls that need improving.

However, the distinction between tactical tools and strategic measurement systems is not always clear cut. As is pointed out by Lindholm (2006), who states that some of the available tactical tools can be used for both internal analysis and strategic performance measurement. Such dual purpose developed tools are therefore used for measuring the

progress being made with asset management practice, asset management processes as well as for measuring the outcome of asset management practice. The outcome of asset management practice are the outcomes associated with facilities management and physical real estate services as well as the asset management capabilities. Table 5.1 summarises the strategic measurement systems and tactical tools. The tools are presented by their purpose of use, by the object of the measurement and by the user of the result of measurement.

Table 5.1: Summary of the Strategic Measurement Systems and Tactical Tools used in CREM

	Purpose of the Use		Object of the measurement	
	<i>For continuous follow up</i>	<i>For identifying the development areas (strategic gap identification)</i>	<i>CREM Processes</i>	<i>CREM results / Outcome (physical real estate or workplace i.e. space)</i>
<i>Strategic Measurement System</i>				
Balanced Score Card (BSC)	√		√	√
Performance Pyramid	√		√	√
PMSSI	√		√	
Navigator	√		√	
Intangible Assets Monitor	√		√	
<i>Tactical Tools</i>				
Benchmarking	√	√	√	√
POE		√	√	√
Building-in-use		√		√
Performance Map				√
MicroscanFM		√	√	√
Apgar's Method		√		√

Source: Adapted from Lindholm (2006)

Most of the presented systems were developed for corporate real estate management (CREM) which is the strategic management of operational properties of private sector organisations. Extreme care had to be exercised, therefore, when choosing private sector customer-oriented measurement models to measure asset management performance in local authorities. According to Brackertz and Kenley (2002), the need for such caution is

because private sector models treat the community as the user or customer of the service thereby ignoring the fact that they are in actual fact both, citizens and customers. Such private sector oriented approaches are unlikely to adequately address issues of governance, political management and responsiveness to the community's service needs especially at the user interface.

The most well known and used strategic measurement system is, according to Lindholm (2006), the Balanced Score Card (BSC) developed by Robert Kaplan and David Norton in 1992. The BSC is a measurement system that enables organisations to clarify their vision and strategy and translate them into action (Lindholm, 2006). Besides BSC, there are other strategic measurement systems such as: performance pyramid, performance measurement system for service (PMSSI), navigator and intangible assets monitor. The basic idea of these systems is more or less similar than in the BSC framework (Table 5.1). The BSC was rejected for use in this study as it is only widely used in private sector real estate. Despite the similarities with BSC, these other strategic performance measurement systems are not as popular and widely used. According to Lindholm (2006) none of these systems are used in asset management performance or its private sector operational property management equivalent, corporate real estate management (CREM) performance measurement. Due to their private sector orientation and also as a result of lack of popularity, these other systems too were rejected for use in this study.

Of the available tactical tools, Lindholm (2006) suggests that Benchmarking is one of the most popular ways to use corporate real estate management (CREM) performance measures for analysis of current situation as well as for strategic measurement. The other commonly identified tactical performance measurement tools are Post Occupancy Evaluation (POE); Building In Use (BIU); Performance Map models; MicroscanFM; and Apgar's Method. These other tactical tools, apart from benchmarking, were also considered unsuitable for use in this study. The tools either are not widely used in real estate measurement or are limited in their application. They only focus on tactical performance and do not address strategic

performance issues (Table 5.1). Brackertz and Kenley (2002) argue, therefore, that the appropriate model for the evaluation of property asset management performance applicable in the local government context is one that uses a balanced approach that incorporates: service, community (stakeholders), financial, and building related measurements. Benchmarking was therefore adopted as the most suitable performance measurement system for use in this study as it is balanced in its approach and focuses on both strategic as well as tactical performance measurement.

5.3.3 *Benchmarking*

Benchmarking is defined as a technique for identifying best practice in a specified key business process, in order to improve performance. It involves selection of key processes critical to success, measurement of performance in those processes, and comparison of performance against other organisations in order to discover the comparative level of performance (CEM, 2007).

In the context of asset management, the purpose of such comparison is in finding and implementing better practice and performance wherever it is found. Due to the uniqueness of every local authority organisation, it is important that local authorities should not copy asset management approaches. A local authority should, instead, seek to understand what makes asset management arrangements in other organisations “better” than it in terms of service delivery impact or in carrying out specific asset management activities. Such an approach enables the local authority organisation to assess how to improve its own asset management performance so that it could also provide best practice service.

In order for a local authority to be able to assess improvement of its own asset management performance it requires that benchmarking does not operate as a once and for all activity. Instead, it should form part of the programme of continuous improvement with the aim of increasing efficiency and effectiveness. A programme of continuous improvement involves comparing and challenging existing asset management performance levels, practices and methods of carrying out activities and their impact on service delivery (Accounts

Commission for Scotland, 1999). According to Accounts Commission for Scotland (1999) practices and processes of activities, such as asset management, are commonly benchmarked through *data benchmarking* and *process benchmarking* respectively.

5.3.3.1 Data / Metrics (KPIs) Benchmarking

Data benchmarking involves numerical comparison of performance in key areas such as *cost, quality, office space per employee, and service user satisfaction* against some benchmark (CIPFA, 2014). The benchmark is a standard target or a key performance indicator (KPI). In the local authority, data benchmarking is often based on published performance indicators prepared by a benchmarking body or club. This could be a group of local authorities for instance or a professional body.

While a number of benchmarking schemes exist, in practice, numerical comparison of performance for English and Scottish local authorities are based on two sets of indicators. The indicators are those prepared by Audit Scotland / FPS Scotland Performance and ones by National Property Performance Management Initiative (NAPPMI) (CIPFA, 2014).

The National Property Performance Management Initiative (NaPPMI) is made up of representatives from Association of Chief Estates Surveyors (ACES) in local authorities, Consortium of Local Authorities in Wales (CLAW), Core Cities, Association of Chief Corporate Property Officers (COPROP) in local authorities, Chartered Institute of Public Finance and Accounts (CIPFA), Federation of Property Services (FPS). NaPPMI indicators were first published in 2005/06 and these were endorsed by all the participating organisations and Central Government in the form of Department for Education and Science (DfES) and Department for Communities and Local Government (DCLG) (formerly Office of Deputy Prime Minister abbreviated ODPM). The developed numerical indicators cover the areas of: *Condition; Environmental; Suitability; Accessibility; Sufficiency; Spend; and Time and Cost*. The National Property Performance Management Initiative (NaPPMI) Performance Indicators are now accepted as 'industry standard' for Asset Management in both England and Wales.

The Federation of Property Societies (FPS) Scotland / Audit Scotland indicators were developed as the basis of benchmarking property performance in Scotland. The indicators cover the areas of: *Suitability; Sufficiency; Spend; Sustainability (environmental, accessibility); and Stock (condition; cost; time)*. The Federation of Property Societies (FPS) Scotland comprises property representatives of 28 of the 32 Scottish councils.

Apart from terminology, both sets of indicators, NAPPMI and FPS/Audit Scotland indicators, are for all practical purposes the same. The only difference is how the indicators are described. For instance FPS/Audit Scotland indicators have environmental and accessibility grouped under Sustainability while NAPPMI indicators show these separately. Similarly NAPPMI show property condition separately from Time and Cost. On the other hand, FPS/Audit Scotland indicators group these under Stock. For the purposes of this study both the NAPPMI indicators and those by FPS/Audit Scotland measures along with those others suggested by literature were distilled to come up with numerical measures. The adopted numerical indicators included maintenance, operating cost, sufficiency, suitability, and accessibility. Numerical indicators, however, only deal with asset performance outcomes and not asset management processes nor asset management capability shortfalls.

As stated by Audit Commission for Scotland (1999), data benchmarking is useful in comparing performance with other local authorities. It can be particularly helpful as a diagnostic tool to highlight areas where the organisation appears to do better or worse than others. Data benchmarks are just the start of benchmarking for performance improvement. While the data will help to identify performance gaps, they do not in themselves help identify the causes of differences in performance or indicate how to improve performance.

5.3.3.2 Process Benchmarking (CSFs)

Process benchmarking involves the comparison and measurement of a specific asset management process against a similar process in another local authority organisation. The purpose behind this is to help decide how a particular local authority's asset management processes might be improved. Process benchmarking involves developing a detailed

understanding of how a particular, specified process is completed and comparing what is done, how it is done, and what performance levels are achieved in that process with another local authority. Again, the purpose of process benchmarking is to see, by learning from others, how a particular local authority can improve their own processes (Audit Commission for Scotland, 1999).

The identified and defined asset management processes and how these are expected to be executed was highlighted in Table 4.2. Process benchmarking for this study, therefore, involved comparing how local authorities carried out asset management processes associated with strategic planning and asset management planning and the extent to which they were successfully undertaken. There was therefore inter-local authority comparison of asset management processes as well as comparison with the ideal as suggested by literature review.

5.4 DESCRIPTION OF THE DEVELOPED CONCEPTUAL FRAMEWORK

The resulting asset management conceptual framework is illustrated in figure 5.5. The development of the framework is based on the logical connection between identified and defined asset management concepts (Table 4.2). The developed framework represents asset management concepts symbolically in form of a schematic model and depicts the concept of asset management graphically which helps to express abstract ideas about asset management practice and performance outcomes in a concise and readily understandable form (Polit and Beck, 2003).

The developed framework is divided into *four sections* namely *strategic planning, asset management planning, Tools and Techniques, and asset management outcomes*. Strategic planning activities are the policy actions while asset management planning relates to practices and processes for implementing asset management. Strategic planning and asset management planning are the activities for enabling asset management performance and therefore provide the enabling criteria. Asset management outcomes on the other hand are

the end results of asset management practice and therefore provide results criteria. The enabling and results criteria are the variables that provide an explanation of attainment of improvement in asset management performance. The variables are a series of logic statements.

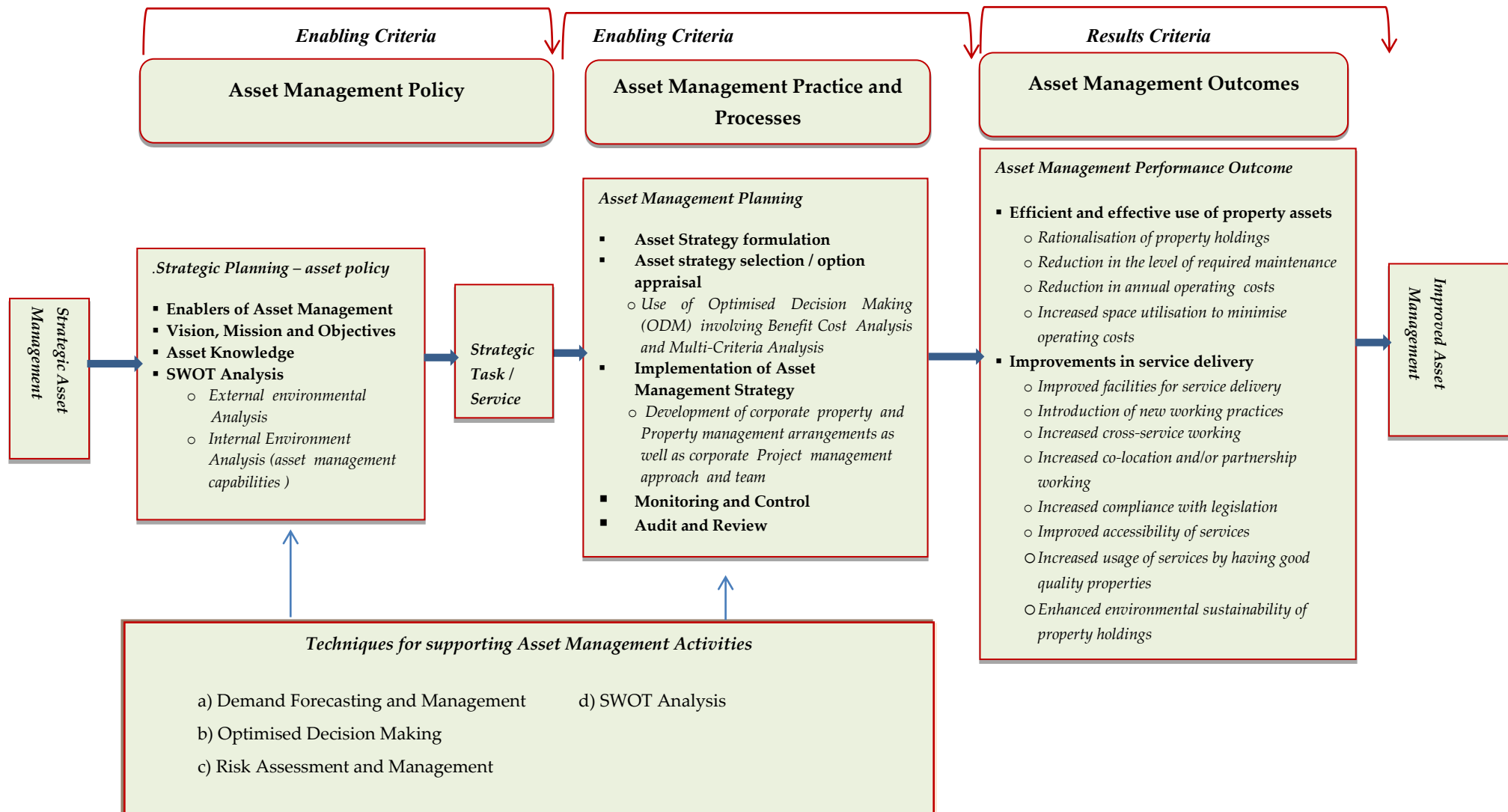


Figure 5.5: Asset Management Conceptual Framework

The logic of the model starts with Strategic Asset Management as the main driver for change and improvement in asset management practice and asset management performance. Strategic Asset Management should guide the focus on Strategic Planning and Asset Management Planning. The Strategic Planning and Asset Management Planning are translated into asset management processes covering asset management policy and asset management practice. Once asset management processes are properly undertaken on property assets and throughout the local authority organisation, this will reflect on asset and organisational performance results or outcomes.

Improved asset management results should affect service users, practitioners and other stakeholders' satisfaction on the organisational level, which would, in the case of local authorities, finally reap improved service provision results.

5.4.1 Developed Conceptual Framework

The developed framework (figure 5.5) is a representation of the ideal situation how asset management practice needs to be undertaken. The reality, however, from examination of current asset management status is that there are a number of limitations (Table 3.3 in chapter three) associated with asset management practice in English and Scottish local authorities. Also pointed out in section 3.5.1 above, is that there are problems associated with the existing frameworks. The below conceptual framework (figure 5.6) identifies the limitations or shortfalls experienced by local authorities in implementing the ideal asset management framework.

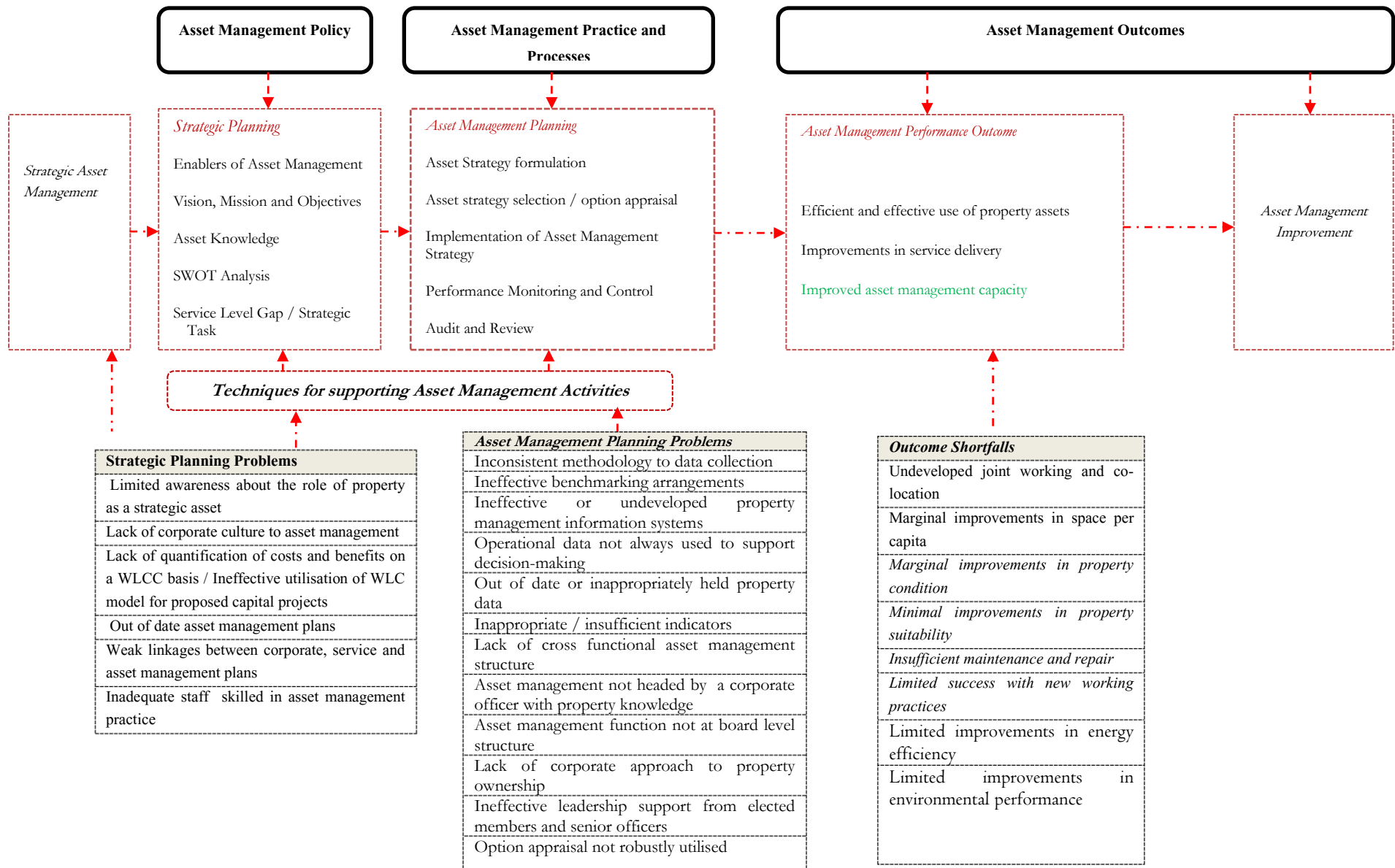


Figure 5.6: Conceptual Asset Management Framework showing Limitations

5.5 CHAPTER SUMMARY

In this chapter three of the four steps involved in conceptual framework development have been covered. The three steps are exploration and examination of relationships between concepts; description of the developed framework; and operationalisation of the concepts associated with the framework. Exploration and examination of relationships between concepts involved the preparation of a causal or concept map and to identify the causal logic of the operational property asset management framework. The logic of the developed framework starts with Strategic Asset Management as the main driver for change and improvement in asset management practice and asset performance. Strategic Asset Management should guide the focus on Strategic Planning and Asset Management Planning. The Strategic Planning and Asset Management Planning are translated into asset management processes covering asset management policy and asset management practice. Once asset management processes are properly undertaken on property assets and throughout the local authority organisation, this will reflect on asset and organisational performance results or outcomes in terms of efficient and effective use of property and eventual improved service delivery.

The operationalisation of the identified and defined concepts involved development of a system for measuring asset management performance in terms of processes and outcomes. In order to reflect different circumstances individual local authorities experience, the measurement system needed to be robust and dynamic. Benchmarking was adopted as the most suitable performance measurement system. Besides being capable of applied to any particular local authority, the system is sufficiently robust as it is balanced in its approach and focuses on both strategic as well as tactical performance measurement. However, recognising the problems associated with existing frameworks, including asset management guidelines and the underlying strategic planning model, the developed framework was amended to show the asset management practice shortfalls.

CHAPTER SIX

RESEARCH DESIGN AND METHODOLOGY

6.1 INTRODUCTION

This chapter sets out the methodological aspects that were followed in conducting the research investigation. Initially, philosophical stances that generally underpin research were explored in order to identify the paradigm appropriate for the study. Thereafter, the identification of the research paradigm informed the selection of the appropriate research approach amongst those commonly available namely quantitative, qualitative and mixed methods. The research method(s) that suited the study was then selected to match the adopted research approach. Issues pertaining to survey instrument design, ethical consideration and piloting of the research instrument were dealt with as part of the research method.

Having settled on the appropriate research method, the chapter then discusses data collection techniques. Issues dealt with under data collection include identification of the source and nature of data and the methods for capturing data. Issues about sampling and the approach, processes and justifications for analysing qualitative and quantitative data are dealt with in chapters seven and eight respectively.

6.2 RESEARCH PHILOSOPHY

Research methodology encompasses the rationale and the philosophical assumptions that underlie a particular study. These, in turn, influence the actual research approach and method that are used to investigate a problem and to collect, analyse and interpret data (Dainty, 2008). In effect, as stated by Creswell (2003) the processes of research are guided by philosophical assumptions, also known as paradigms or claims. This section reviews the available paradigms and the justification for the adoption of an appropriate paradigm for this study.

6.2.1 Introducing Positivist, Naturalistic and Pragmatic Paradigms

A paradigm is defined by Polit and Beck (2003) as a world view, a general perspective on the complexities of the real world. Paradigms are often characterised in terms of the ways in which they respond to the following basic philosophical questions:

- *Ontology*: what is the nature of reality?
- *Epistemology*: What is the relationship between the enquirer and that being studied?
- *Axiology*: What is the role of value in the inquiry?
- *Methodology*: How should the inquirer obtain knowledge?

Research inquiry is conducted mainly within three broad paradigms namely Positivist, Naturalistic and Pragmatic (Creswell, 2003). **Table 6.1** compares the major assumptions of the positivist, naturalistic and pragmatic paradigms. **Positivist Paradigm** is rooted in 19th century thought, guided by such philosophers as Comte, Mill, Newton, and Locke. Positivism emphasises the rational and the scientific. The fundamental ontological assumption of positivists is that there is a reality *out there* that can be studied and known. Positivists assume that nature is basically ordered and regular and that objective reality exists independent of human observation (Polit and Beck. 2003). *Objective ontology* sees social phenomena and their meanings as existing independently of social actions (Dainty, 2008). This ontological perspective assumes that as a result of the separation of phenomena and their meanings on the one hand and social actions on the other, observers should as a result discover the same meaning, the same truth about things. Therefore careful scientific research can attain that objective truth and meaning (Bryman, 2007; Crotty, 1998; and Blaikie, 2010). The positivists' scientific approach involves the use of orderly, disciplined procedures that are designed to test researchers' hunches about the nature of phenomena being studied and relationships among them. Research that is approached from a positivist paradigm is directed at understanding the underlying causes of natural phenomena.

Epistemologically, positivists seek to be as objective as possible in their pursuit of knowledge. Positivists attempt, from an axiological perspective, to hold their personal beliefs and biases in check insofar as possible during their research to avoid contaminating the phenomena under investigation. The fundamental belief is to ensure that the inquirer is

independent from those being researched and the researcher setting out not to influence the findings.

The Naturalistic paradigm began as a countermovement to positivism with writers such as Weber and Kant. The paradigm emphasises the value of *deconstruction* – that is, of taking apart old ideas and structures – and *reconstruction* – that is, putting ideas and structures together in new ways. For the naturalistic inquirer, fundamental ontological assumption is that reality is not a fixed entity but rather a construction of the individuals participating in the research; reality exists within a context, and many constructions are possible. This is referred to as constructivist ontology (Robson, 2002; Crotty, 1998).

Constructivist ontology infers that social phenomena are produced through social interaction and are therefore in a constant state of revision (Dainty, 2008). In effect the perspective posits that (social) phenomena and their meanings are continually being accomplished by the (social) actors. Researchers who hold a constructivist perspective, therefore, adopt a relativist stance perceiving the task of the researcher as being able to understand the multiple social constructs of meaning and knowledge (Bryman, 2007; Lincoln and Guba, 1985; Blaikie, 2007).

Naturalists thus take the position of relativism: if there are always multiple interpretations of reality that exist in people's minds, then there is no process by which the ultimate truth or falsity of the constructions can be determined. Epistemologically, the naturalistic paradigm assumes that knowledge is maximised when the distance between the inquirer and the participants in the study is minimised. The voices and interpretations of those under study are crucial to understanding the phenomenon of interest, and subjective interactions are the primary way to access them (Polit and Beck, 2003). Espousal of subjective interaction requires that the researcher should collaborate or spend time in the field with participants in order to become an insider (Bryman, 2007). Adherents of positivist and naturalistic paradigms hold in common the belief that the two paradigms embody such fundamentally

different understandings of the world and what constitutes legitimate truth or knowledge claims that they should not be mixed within a single study (Creswell, 2007 pp19-27). **Pragmatic paradigm**, however, rejects claims made by positivist and naturalistic paradigms as extreme finding it advantageous to mix methods (Rocco, Bliss, Gallagher, and Perez-Prado, 2003).

The pragmatic paradigm has been advanced by, amongst others, Patton (1990); Reichardt and Cook (1979); Tashakkori and Teddlie (1998). The paradigm justifies the use of more than one method either on the basis of practical value or for dialectical reasons. In terms of practical value pragmatists advocate use of “whatever philosophical and / or methodological approach that works for the particular research problem under study”. To practical pragmatists, the research design and implementation decisions should be made according to which methods best meet the practical demands of a particular inquiry (Patton, 1990). The dialectical pragmatic perspective is advanced by, amongst others, Greene and Caracelli (1997); Kidder and Fine (1987); and Maxwell and Loomis (2003). The perspective explicitly seeks a synergistic benefit from integrating both the positivist and naturalistic paradigms. The underlying assumption behind the dialectic pragmatic philosophical perspective is that research is stronger when it mixes research paradigms, because a fuller understanding of human phenomena is gained. Dialectical researchers believe it is more ethical to mix methods “in order to represent a plurality of interests, voices, and perspectives (Greene and Caracelli, 1997 p14). There is a philosophically grounded commitment to using mixed methods to reach the same utility and accuracy goals held by the pragmatists, but through complementarity rather than compatibility.

Pragmatists hold a realist ontological perspective. A realist ontology assumes that knowledge claims come from actions, situations, and consequences rather than pre-existing conditions (Creswell, 2003 p11). Pragmatists are not committed to any one system of philosophy and reality. They are concerned with “what works” and solutions to problems. To pragmatists the problem rather than methods are most important and researchers use all

approaches to understand the problem. Pragmatic researchers believe that knowledge can be uncovered from a mixture of research methods. Thus, in mixed methods research, investigators use both qualitative and quantitative data because they work to provide the best understanding of a research problem (Patton, 1990; Reichardt and Cook, 1979; and Tashakkori and Teddlie, 1998). Epistemologically, pragmatists believe that the researcher can generate knowledge by being both independent from research subjects as well as by interacting with those being researched. Pragmatists believe that knowledge can be obtained from a mixture of methods.

Table 6.1: Major Assumptions of the Positivist and Naturalistic Paradigms

Assumption	Positivist Paradigm	Naturalistic Paradigm	Pragmatic Paradigm
Ontology (What is the nature of reality?)	<ul style="list-style-type: none"> ● Reality exists; there is a real world driven by real natural causes 	<ul style="list-style-type: none"> ● Reality is multiple and subjective, mentally constructed by individuals 	Reality exists or it can be constructed from actions, situations, and consequences.
Epistemology (How is the inquirer related to those being researched?)	<ul style="list-style-type: none"> ● The inquirer is independent from those being researched; findings are not influenced by the researcher 	<ul style="list-style-type: none"> ● The inquirer interacts with those being researched; findings are the creation of the interactive process 	The inquirer can generate knowledge by being independent from research subjects as well as by interacting with those being researched.
Axiology (What is the role of values in the inquiry?)	<ul style="list-style-type: none"> ● Values and biases are to be held in check; objectivity is sought 	<ul style="list-style-type: none"> ● Subjectivity and values are inevitable and desirable 	Both subjectivity and objectivity are applicable
Methodology (How is knowledge obtained?)	<ul style="list-style-type: none"> ● Deductive processes. ● Emphasis on discrete, specific concepts. ● Verification of researchers' hunches. ● Fixed design. ● Tight controls over context. ● Emphasis on measured, quantitative information; statistical analysis. ● Seeks generalisations 	<ul style="list-style-type: none"> ● Inductive processes. ● Emphasis on entirety of some phenomenon, holistic. ● Emerging interpretations grounded in participants' experiences. ● Flexible design. ● Context-bound. ● Emphasis on narrative information; qualitative analysis. ● Seeks patterns 	Knowledge can be uncovered from a mixture of methods

Source: Polit and Beck (2003 p14; Creswell, 2003)

6.2.2 Philosophical Paradigm Adopted

The study adopted a pragmatic dialectical philosophical position. There was acceptance that the reality about asset management practice in local authorities in England and Scotland could be understood from both objective and realist ontological perspectives.

The existence of theory about asset management meant that the study could uncover the realities of asset management practice by following the objective ontological perspective. There was acceptance that since there existed theory about asset management, the theory therefore encapsulated the concepts needed to examine asset management practice. The theoretical concepts were used to test against observations. Observations in the context of this research related to evidence of asset management performance.

There was an acceptance that the study was also informed by existence of an element of constructivist ontological perspective. The constructivist ontological claim for the study was that the reality of asset management practice performance could be understood by interacting with individual asset management practitioners in the various local authorities under investigation. The different perspectives about asset management performance put forth by various practitioners, experienced and closely involved in asset management practice, could be constructed to make sense of the true realities of asset management practice in the local authorities under investigation.

The fact that a pragmatic philosophical stance was considered appropriate for the study meant that epistemologically there was acceptance that the relationship with the study subjects had to be both independent and interactive. The adoption of self-administered questionnaires through the survey method meant that independence with study subjects was ensured. The interactions were through adoption of face to face interviews with a sample of relevant individual asset management practitioners and local-authorities.

Axiologically, there was acceptance that there had to be both objectivity and subjectivity as regards the introduction of the researcher's values and biases into the research processes.

The acceptance of use of the positivist scientific approach meant that control had to be exercised to the research process. The controls such as use of appropriate sampling approaches were meant to ensure that objectivity was maintained. However, the acceptance also of the applicability of naturalistic paradigm based methods meant that there had to be interaction with the study subjects. Through such interaction, subjectivity became inevitable as it was necessary to interpret the study subject's views in order to construct meanings.

Methodologically, the study accepted that the dialectical pragmatic perspective was most appropriate on the basis that the mixing of paradigms is complementary. Consequently, methods applicable to positivist and naturalistic paradigms were mixed in the study.

6.3 RESEARCH APPROACH

Researcher's paradigmic beliefs influence the kind of research approaches they adopt. As Greene and Caracelli (1997, p6) state: "researchers' beliefs about reality, and knowledge guide and frame researchers' beliefs about research methods". Such beliefs help them to find answers to the following fundamental research questions. Do they turn to quantitative or qualitative methods of data collection or data analysis exclusively? Do they only ask questions that can be answered in one way, or do they ask questions best investigated using multiple methods? When and why does it make sense to mix methods?

The philosophical assumptions held by researchers, whether *positivism constructivism* or *pragmatic / realistic ontological positions*; as well as *objectivism interpretivism stances*, will often lead to embracing qualitative, quantitative and mixed methods research approach. The distinction between the three approaches has major influence on data collection and analysis. This section, therefore, discusses the research approaches and the justification for their selection for this study.

6.3.1 Qualitative, Quantitative and Mixed Method Approaches

Quantitative study is an enquiry into social and human problems, based on testing of theory composed of variables, measured with numbers and analysed with statistical procedures in

order to determine whether the predictive generalisations of the theory holds true. Quantitative research uses a linear approach to a research problem with a focus on deductive verification (figure 6.1) (Cresswell, 1994).

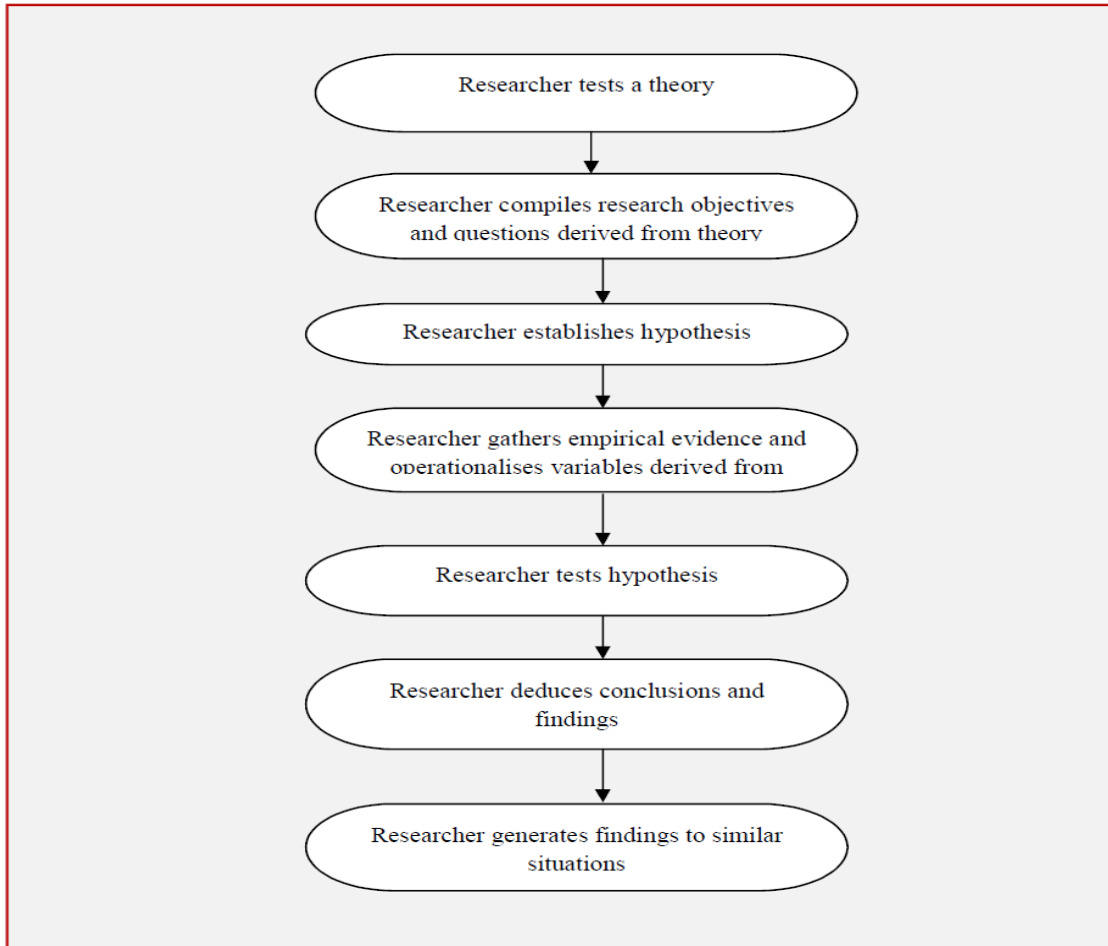


Figure 6.1: Deductive Process
Source: Adapted from Chalmers (1976)

Qualitative research on the other hand uses a recursive approach to a research problem with a focus on inductive discovery (figure 6.2). The researcher collects data and reports findings by describing the reality from the understanding or viewpoint of the participants. The researcher provides understanding of the processes involved during data analysis (Cresswell, 1994).

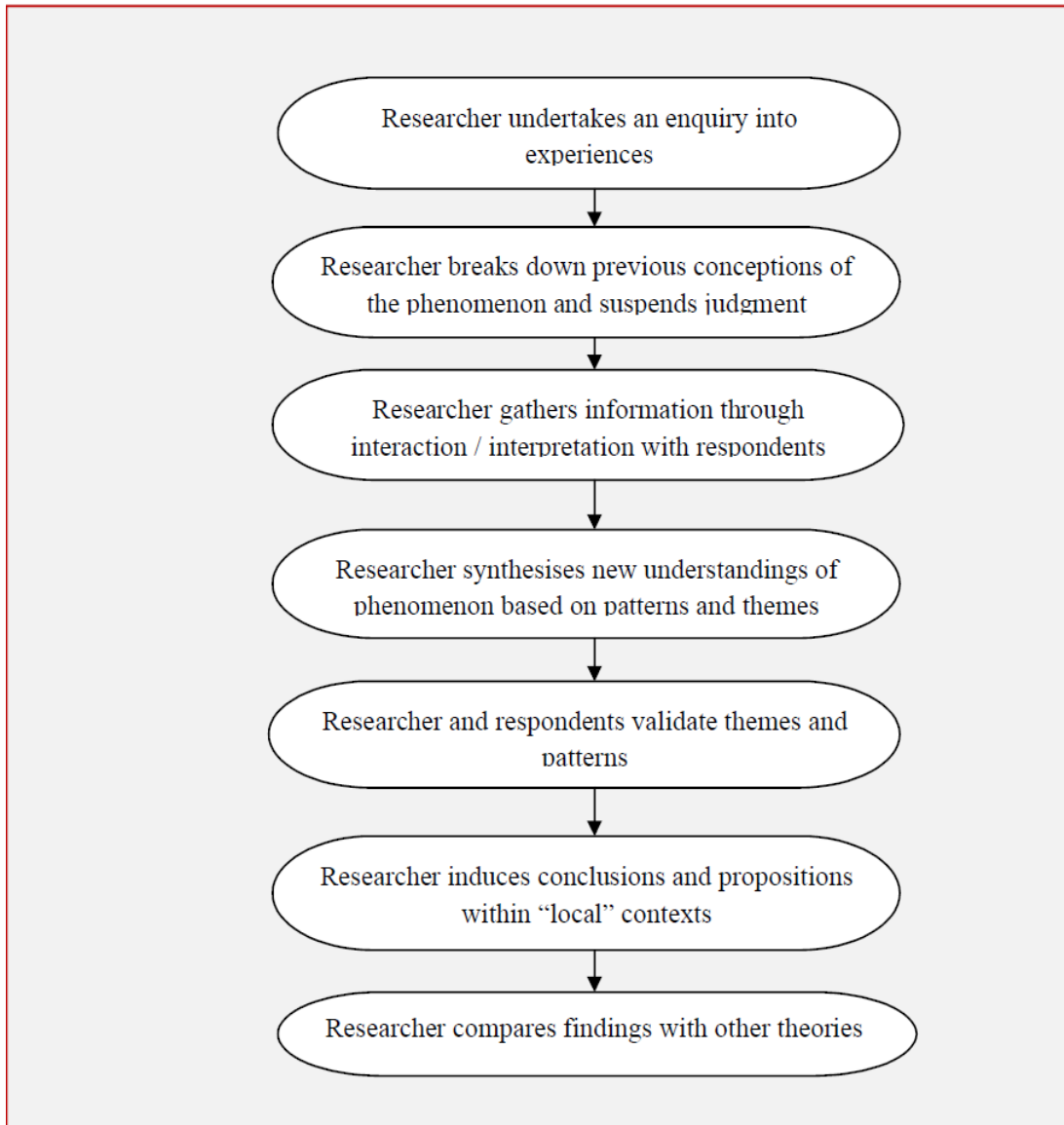


Figure 6.2: The Inductive Process
 Source: Adapted from Chalmers (1976)

Mixed methods research design combine the qualitative and quantitative approaches into the research methodology, including data collection and analysis, within a single study (Greene, Caracelli and Graham, 1989; and Tashakkori and Teddlie, 1998).

6.3.2 Choice of Research Approach

The pragmatic philosophical stance guided this investigation as there is an acknowledgement that elements of positivism and constructivism exist. The research employed a Mixed Method approach with both quantitative and qualitative approaches

utilised. The adoption of a mixed methods approach overcomes the weaknesses associated with mono methods while at the same time takes advantage of the benefits arising from combining methods.

There are inherent weaknesses associated with mono methods in research, such as the use of purely qualitative or purely quantitative methods which necessitates the need to integrate the approaches. As argued by Rocco et al., (2003) purely quantitative research tends to be less helpful through its oversimplification of causal relationships; purely qualitative research tends to be less helpful through its selectivity in reporting. Besides, there are inherent biases in any one method of data collection or analysis and these can be attenuated by mixing methods (Azorin and Cameron, 2010; Greene, Cracelli and Graham; 1989; O’Cathain, 2009).

By adopting a mixed methods approach the study sought to benefit from the advantages associated with this approach. Mixed methods allow the expansion of the statistical data interpretation because qualitative findings help to elicit rich and deeper findings which can be generalised by a follow-on quantitative approach. Additionally, qualitative findings significantly clarify the real issues as perceived and experienced by respondents. Furthermore, mixing the methods allow deeper examination of the research problem. This is because qualitative methods, in particular the cases studied by phenomenology approach, were used to closely examine research questions and research objectives proposed in the study. Also triangulation was achieved through the convergence and corroboration of phenomenology and survey approaches to achieve consistency. The triangulation process enhanced the validity of inferences that were made from the results of the study. In effect, by mixing the methods the study secured the research goal of generation of new knowledge (Creswell, 2003; Tashakkori and Teddlie, 1998). Different types of mixed methods designs are available. The following four namely; Sequential Explanatory, Triangulation, Embedded and Exploratory (figure 6.3), are the main ones (Creswell, 2005; Creswell and Plano Clark, 2007; Mertens, 2010; Tashakkori and Teddlie, 2009).

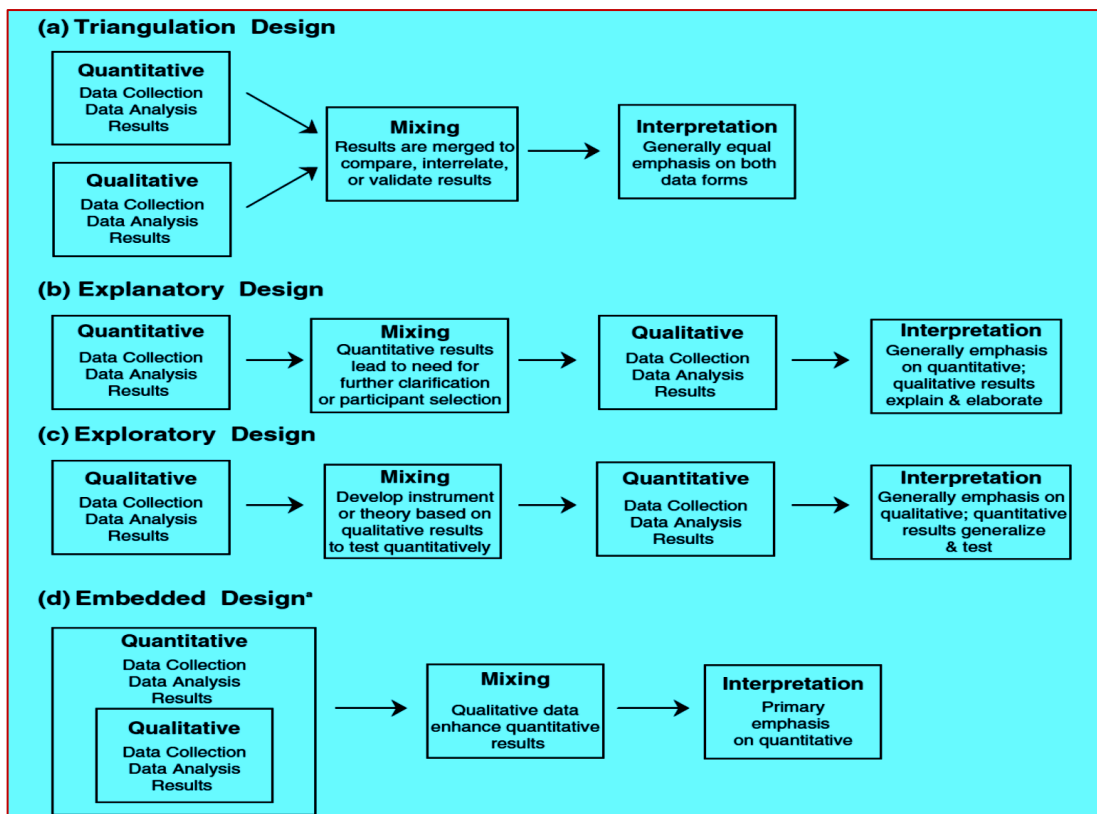


Figure 6.3: Four Major Mixed Methods Designs

Source: Plano Clark, Huddleston-Casas, Churchill, O'Neil Green and Garrett (2008)

While different types of mixed methods designs are available, the study adopted the sequential exploratory design. The Exploratory design is a two phase mixed methods design where the qualitative method is followed by the quantitative approach. The intention of this design approach is that the results of the qualitative method can help inform the quantitative method. The design approach is suitable where an exploration is needed for reasons such as unavailable measures or instruments, unknown variables, or due to lack of guiding framework (Creswell, 2003; Creswell and Plano Clark, 2007; Mertens, 2010; Tashakkori and Teddlie, 2009).

This research's approach is that the reactive management approach adopted by local authorities is behind the operational property management problems. This reactive framework to property management has been found to be ineffective (section 3.5 and 3.6). Attempts to develop frameworks supported by various asset management guidelines have

not improved the status of asset management practice in different local authorities. Besides, such frameworks are aimed at all local authorities regardless of their unique circumstances and nature of properties involved. This study is focused in designing a flexible and adaptable framework aimed specifically at operational properties in English and Scottish local authorities. Therefore, the lack of a suitable framework guiding operational property asset management practice in local authorities was the principal reason for adopting a sequential exploratory design. The Triangulation, Explanatory, and Embedded designs were rejected as they are all unsuited to this study. The Triangulation Design is a concurrent one phase design and therefore not appropriate for the research investigation. The Embedded Design was rejected as the approach considers that a single data set is not sufficient. The approach proceeds on the premise that for each type of research question for answering research objectives requires different sets of data. Finally, the Sequential Explanatory design was equally rejected as the approach is useful where qualitative data helps explain or build upon initial quantitative results. Unfortunately this is not the principal focus of this study. In this study the intention is for the findings emerging from the qualitative analysis to be generalised to the wider population. There is an acceptance that the qualitative approach is unsuited for that purpose hence the need to utilise the quantitative approach in the follow up phase of the study. The initial qualitative phase help inform the quantitative phase.

The initial qualitative phase utilised the semi-structured interview data collection method followed by a self-administered large scale questionnaire in the final quantitative phase. Because of their narrow focus on a few local authorities, semi-structured interviews are limited in their representativeness. They do not allow valid generalisations to the population from which the study units came (Isaac and Michael, 1995). The follow-up large scale survey questionnaire, based on the initial interview findings, was issued to a representative sample of local authorities in England and Scotland. The results were statistically tested and analysed and appropriate inferences drawn and conclusions reached. The findings were then generalised to the entire population of local authorities in England and Scotland.

Despite commencing the study qualitatively and then moving to quantitative phase, equal emphasis is placed on both the quantitative and the qualitative methods. The study design therefore is characterised as a equivalent status/ sequential design, $QUAL \rightarrow QUAN$, where the qualitative and quantitative methods play an equal role with the qualitative approach helping to inform the quantitative method (figure 6.4) (Jougulu and Pansiri, 2011). The equivalent status / sequential design, $QUAL \rightarrow QUAN$, used for this study is one of a number of variants of mixed methods (figure 6.5). The variants depend on whether priority is quantitative or qualitative or both and if the methods are to be implemented sequentially or concurrently. The following four groups and nine types of mixed methods designs can exist using these two dimensions (Johnson and Onwuegbuzie 2004):

- a) *Equivalent status/simultaneous design: $QUAL+QUAN$.*
- b) *Equivalent status/sequential designs: $QUAL \rightarrow QUAN$; $QUAN \rightarrow QUAL$.*
- c) *Dominant/simultaneous designs: $QUAL+quan$; $QUAN+qual$.*
- d) *Dominant/sequential designs: $qual \rightarrow QUAN$; $QUAL \rightarrow quan$; $quan \rightarrow QUAL$; $QUAN \rightarrow qual$.*

Figure 6.4 shows different types of mixed methods design matrices using quantitative and qualitative dichotomies.

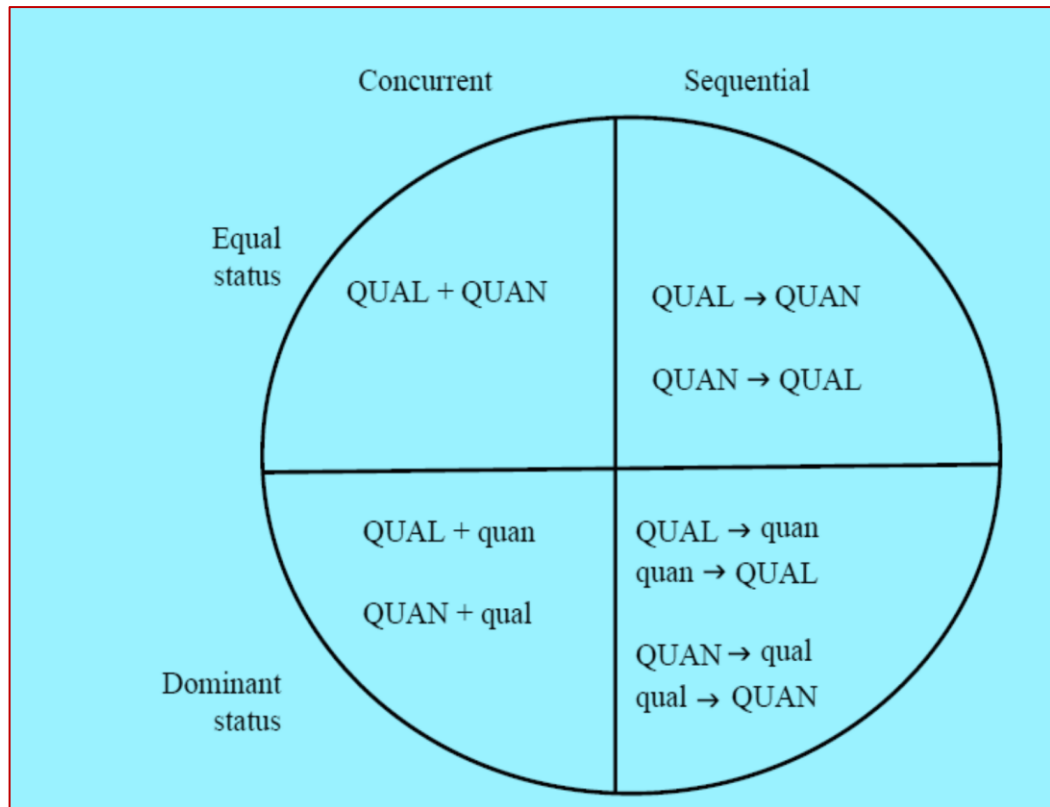


Figure 6.5: Mixed methods design matrix

Notes: “Qual” stands for qualitative; “quan” stands for quantitative; “+” stands for concurrent; “→” stands for sequential; capital letters – “QUAL” and “QUAN” denote high priority or weight; lower case letters – “qual” and “quan” denote lower priority or weight.

Sources: Joguru and Pansiri (2011).

6.4 THE RESEARCH METHOD

A number of research methods exist for satisfying various research requirements. Nonetheless, some methods are most appropriate for dealing with specific issues than others. In this section, the commonly available research methods are discussed and the basis for choosing the strategy used in this study explained. In addition, an overview of the survey method is provided. Finally, an explanation regarding the development of the survey instrument is provided.

6.4.1 Available Research Methods

Different research methods are applicable to qualitative and quantitative research. The methods commonly identified with qualitative research include Case Study; Phenomenology; Grounded theory; Narrative research; Action research; and Ethnography,

while those associated with quantitative research include experiment; quasi-experiment; and non-experimental or surveys (Creswell, 1998; 2007; Polit and Beck, 2003; Denscombe, 2007; Blaxter, Hughes and Tight, 2010; and Robson, 2002).

The contrasting characteristics of the qualitative methods are summarised in Table 6.2, below.

Table 6.2: Contrasting Characteristics of the Qualitative Approaches

	Narrative Research	Phenomenology	Grounded Theory	Ethnography	Case Study	Action Research
Focus	Exploring the life of an individual	Understanding the essence of the experience	Developing a theory grounded in data from the field	Describing and interpreting a culture-sharing group	Developing an in-depth description and analysis of a case or multiple cases	Collaboration between researchers and study subject
Type of problem Best Suited for Design	Needing to tell stories of individual experiences	Needing to describe the essence of a lived phenomenon	Grounding a theory in the views of participants	Describing and interpreting the shared patterns of culture of a group	Providing an in-depth understanding of a case or cases	Promotion of change or improvement
Unit of Analysis	Studying one or more individuals	Studying several individuals that have shared the experience	Studying a process, action, or interaction involving many individuals	Studying a group that shares the same culture	Studying an event, a program, an activity, more than one individual	Studying the situation alongside practitioners

Source: Creswell (2007, pp78-79)

Experimental, quasi-experimental and non-experimental or survey are the main research methods associated with quantitative research. Experimental research is normally used within scientific, often laboratory-based research, in which strong control can be exercised over the research environment, variables manipulated and causal or correlational models tested (Kock, Ordys., and Gordana (2015) *al.*). The purpose for conducting experimental research, according to Denscombe (2007), is to discover new relationships or properties.

Quasi-experimental designs have some, but not all, of the properties of true experiments. Time series analysis to see whether a variable changes over time is the most commonly identifiable example of this type of quantitative method. A time series analysis examines changes in the dependent variable over time, (where time functions as the independent variable), and the unit of analysis functions as the dependent variable. The change over time is referred to as "trend", and the interest is in finding the one true trend. The commonly identified non-experimental research method is Surveys. Polit and Beck (2003) state that surveys are usually done as non-experimental studies. In describing survey research, Robson (2002) states that such research studies involve the collection of standardised information from a specific population, or some sample, usually by means of questionnaire or interview. The collected information forms the basis for investigating a particular issue as it relates to one small sample of a group. According to Polit and Beck (2004 p234) the issues for which information require to be undertaken could be about investigating *prevalence, distribution, and interrelations of variables* within a population. The investigations are intended to uncover patterns that can be analysed, comparisons made and the results applied to the whole population. However, in order to generalise results to the whole population there is need to validate models, test research questions or hypotheses (Kock, 2015 *et al.*).

6.4.2 Choice of Research Strategy / Method

For various reasons ethnography, grounded theory, experimental, quasi-experimental, narrative and action research were not considered appropriate choices for use in this

particular research study and were therefore rejected. Ethnography was considered an inappropriate choice because the method involves the researcher studying an intact cultural group in a natural setting over a prolonged period of time (Creswell, 2009 p13; Ellis, 2011; Polit and Beck, 2003). Given the nature of investigation associated with this research, ethnography was excluded as a suitable method applicable to this research.

Similarly the grounded theory was regarded as an unsuitable choice because the method attempts to derive a general, abstract theory of a process, action or interaction grounded in the views of participants in a study (Creswell, 2007 p14). As this investigation proceeds on the basis that a theory about asset management already exists, grounded theory was discounted as an appropriate method for this research.

The limitations inherent in the case studies method also led to the disregard of this approach for utilisation in this study. The case study method involves the development of detailed, intensive knowledge about a single case, or a small number of related cases (Robson, 1996, p40; Blaxter, Hughes and Tight, 2010). Good research must demonstrate objectivity. It should also have a broad focus and be representative of the population being investigated. This can be achieved through random sampling (Locke, Spirduso, and Silverman, 2007). Research should also allow valid generalisations to be made from samples to populations (Babbie, 2010). The choice of variables relevant to samples, that will reflect population characteristics must be based on their typical attributes. Unfortunately, case studies (as well as ethnography, grounded theory, action research, Phenomenology, Narrative analysis) based on qualitative paradigm are fundamentally flawed.

Because of their narrow focus on a few units, case studies (and indeed the rest of the qualitative methods) are limited in their representativeness. They do not allow valid generalisations to the population from which their units came until the appropriate follow up research is accomplished, focusing on specific hypotheses and using proper sampling methods. Case studies are particularly vulnerable to subjective biases. The case itself may be selected because of its dramatic, rather than typical attributes; or because it neatly fits the

researchers perceptions. To the extent selective judgements rule certain data in or out, or assign a high or low value to their significance, or place them in one context rather than another, subjective interpretation is influencing the outcome (Isaac and Michael, 1995). The narrative research is focused on studying one or more individuals to explore their lives in order to tell their life experience story. As this particular research study is concerned with asset management performance at organisational level and not concerned with individuals' life stories, the narrative research approach was therefore also disregarded.

The action research was equally found to be unsuited to this study. Action research is a study of social setting involving the participants themselves as researchers collaborating with the primary researcher. The collaborative participation between primary researcher and participants in the research process associated with the phenomenon being studied is seen as central to action research. The purpose of action research, according to Robson (2011 p188), is to influence or change some aspect of whatever is the focus of the research. While one of the objectives of this research is to come up with a flexible and adaptable asset management framework that can be adopted by local authorities to improve asset management practice, the approach for realising this objective is not to engage study subjects as researchers and for the researcher to participate in the practice of asset management alongside practitioners. This makes action research not suitable for this study.

Like the qualitative methods of narrative research, case study, action research, grounded theory and ethnography, the quantitative methods of experimental and quasi-experimental were also been deemed unsuitable for this study. The experimental method is not an appropriate choice because it is normally used within scientific, often laboratory-based research, in which strong control can be exercised over the research environment and variables manipulated (Manstead and Semin, 1988; as cited by Robson, 1996). Similarly, quasi-experimental method has been excluded as it is not the aim of this research to undertake a longitudinal study of asset management performance.

The experimental and quasi-experimental (quantitative methods) and the ethnography, grounded theory, experimental, quasi-experimental, narrative and action research (qualitative methods) are excluded as they are deemed unsuited to the study. As previously stated (section 5.3.2), the mixed methods approach has been adopted for use in this particular research study. In terms of the choice of research methods appropriate for the study, the survey (non-experimental) approach is the most appropriate quantitative method while the phenomenology methods is the most suitable qualitative option.

According to Yin (2009) the choice of research method is largely guided by two criterion namely the *purpose of the research*; and *the research question*. The decision to settle on these two research methods (surveys and phenomenology study), was informed by these two parameters, namely *purpose of the research* and *research questions*. The *purpose of the research* and *research questions* provided the basis for alignment to the choice of potential research method (Saunders, Lewis and Thornhill, 2009). A tripartite classification is commonly used to distinguish between *exploratory*, *descriptive* and *explanatory* research purposes (Robson, 2011). An *exploratory* approach seeks to find out what is happening and asks questions. Exploratory study intends to clarify an understanding of a problem, such as if the researcher is unsure of the precise nature of the problem (Saunders, Lewis and Thornhill, 2009). This study is not exploratory in nature as the research problem has been clearly identified. On the other hand a *descriptive* approach aims to portray an accurate profile of events or situations. Such portrayal of events or situations is achieved by observing, counting, delineating or classifying them. According to Polit and Beck (2003), description can be a major purpose for both qualitative and quantitative researchers. Quantitative description focuses on the prevalence, incidence, size and measurable attributes of phenomena. Qualitative researchers, on the other hand, use in-depth methods to describe phenomena.

This research can appropriately be stated to be descriptive in nature as it focuses on establishing asset management practice in local authorities in England and Scotland. Both

the quantitative survey method and Phenomenology methods are therefore appropriate for this study. Inherent in the survey method is the development of the instrument for measuring asset management performance. According to Saunders, Lewis and Thornhill (2009) descriptive research may be an extension of a piece of explanatory research. This study design is sequential in nature starting with the quantitative approach and ending with the qualitative study. The sequential approach acknowledges the need for an in-depth follow study of the issues arising from the initial phenomenology method. In this study the phenomenology approach is therefore best suited for carrying out the in-depth initial qualitative study to describe in a clearer manner the asset management practice issues uncovered to be generalised during the follow on survey approach.

As for an *explanatory* approach, this seeks an explanation of a situation or problem, usually in the form of causal relationships or association.. Explanatory research is often linked to theories, which represent a method of deriving, organising, and integrating ideas about the manner in which phenomena are inter-related. In quantitative research, theories or body of evidence are used deductively as the basis for generalising explanations that are then tested empirically. Researchers make specific predictions that, if upheld by the findings, add credibility to the explanation (Polit and Beck, 2003).

This study is explanatory in nature as the purpose is to explain asset management performance in local authorities in England and Scotland. In particular, the study seeks to provide an explanation of the barriers that hinder asset management performance and how by applying an appropriately designed asset management framework, asset management practice can be improved. This study is guided by appropriate theory on which asset management is anchored and which formed the basis for developing the asset management framework. The framework explains the key constructs associated with asset management and the relationships amongst them. However, critical is understanding the association between these factors in order to offer generalised understanding of the underlying causes or full nature of the factors influencing asset management performance. Since theory guides

the study and there is need to understand the issues behind asset management performance and for best practice to be generalised, the survey method is the most appropriate method to utilise. The approach is appropriate as it can measure underlying causes or association amongst factors and allows for empirical testing of the explanation. Both the survey and phenomenology methods are appropriate for assessing whether the way the property assets are managed portray an accurate profile of property management processes (descriptive). The survey method in particular is most suited for explaining any causal relationship between asset management performance and those factors affecting it (explanatory).

According to Yin (2009) the type of research questions posed is of greater assistance in helping to select a research method. A survey research is best suited to dealing with Who? What? Where? How many? How much?, type of questions. The research investigation established who were the research subjects? What was the role of research participants in the organisation? Where were the subjects of study located? How many local authorities or individual participants would take part in the study? How much asset management performance progress had been made? Ellis (2011) cites Yin (2003), who stated that a Phenomenology study approach best addresses questions about how?, and why? questions. The research investigation sought to establish how asset management process was undertaken and why there were differences in asset management performance in local authorities, where those existed. On the basis of both, the *purpose of the research* and key *research questions* involved in the study, suggested that both surveys and phenomenology methods were appropriate as research methods. A sequential exploratory mixed method design was adopted for this research investigation, commencing with phenomenology for intensive analysis followed by survey investigation to provide extensive analysis of issues (Polit and Beck, 2003).

6.4.3 Survey Method

This section provides an overview of the survey method including an explanation of the process followed in the development of the survey instrument used in this study. A survey

method involves investigating, usually by means of questionnaire, a particular issue as it relates to a sample of a group (Robson, 2002). The method also involves the development and validation of models or hypotheses in order to generalise results to the whole population.

There are a number of salient features of the survey method as described by Tharenou, Donohue, and Cooper (2007). The method's principal feature is using questionnaires to gather data to test a research question. In addition, the survey method's aim is to measure the relationship between variables. This particular study sought to identify those factors perceived to be the most important and effective in influencing asset management performance in English and Scottish local authorities. The study therefore, assessed the relationship between variables associated with asset management outcome, asset strategic planning and asset management planning. Strategic planning and asset management planning are the processes and practices of asset management. Asset management outcome on the other hand are the improvements in the efficiency and effectiveness of property asset usage as well as improvements in organisational performance arising from improved service delivery. The relationships between variables were examined using statistical techniques including factor analysis (Tharenou, et al., (2007). These techniques and their application are further explained in chapter seven.

The additional feature of the survey method is that it involves selecting variables to help answer the research questions. However, the choice of variables is made based on a theory or theories that underlie the explanation proposed for the phenomenon being examined (Tharenou, et al., 2007). In this study variables were selected based on asset management theories that informed the conceptual asset management framework from which variables derived.

6.4.3.1 The Survey Instrument

The survey instrument has four main parts to it. These include:

(a) Background and Perception of Asset Management Performance

The first part of the survey instrument contains background information related to the classification of local authorities and asset management practitioners; as well as the extent of their involvement with asset management implementation. This background information was needed in order to determine the potential credibility of the data. Descriptive statistics were used to elicit meaning out of the data collected in this part of the survey instrument as the data is descriptive in nature.

Apart from the background data, information was also collected from those involved in asset management practice (asset managers, facilities managers, estates surveyors) on their perception of the importance of asset management performance factors and their contribution to asset management improvements (Table 6.3). This exploratory information was required to help give some insight into how asset management practitioners view the contribution of those factors that affect asset management performance to realisation of improvements in asset management practice in local authorities. This information was not intended to be generalised. Instead, this standardised data was analysed using descriptive statistics.

Table 6.3: Perception of Importance of Factors Influencing Asset Management Performance

Asset Management Factors	
1	Enablers of Asset Management
2	Vision, Mission, and Setting of Objectives
3	Asset Knowledge (Data Collection and Asset Information)
4	SWOT Analysis (Internal and External Environmental Scanning)
5	Strategic Task or Service Level Gap
6	Formulation of Asset Strategy
7	Selection of Asset Strategy / Option Appraisal
8	Asset Management Strategy Implementation
9	Performance Monitoring and Control
10	Efficient and effective use of property assets
11	Improvements in service delivery

(b) Strategic Planning

The second section of the survey instrument sought to elicit information on the strategic planning performance. These independent variables are operationalised from the constructs *enablers of asset management; vision, mission, and setting of objectives; asset knowledge; SWOT analysis; and strategic task or service level gap*. A total of 18 variables are operationalized. Two operational measures are identified under enablers of asset management; two under vision, mission, and setting of objectives; five under asset knowledge; four under SWOT analysis; and three operational measures are identified under strategic task (Table 6.4). These strategic planning performance measures helped to elicit the appropriate policy framework and enablers of asset management performance that are important towards creating the necessary environment in which the practices relating to asset management are implemented.

These strategic planning variables (asset management policy variables) were ranked on the five point Likert scale on how important they have assisted the organisation realise improvements in asset management performance. The Likert scale rating is important in generating questions and response formats for attitudinal measures (Tharenou, et al., (2007 p166). The usual five point rating scales was used as this is the most commonly used response format (Hinkin, 1995 as cited by Tharenou, et al., 2007 p166).

Table 6.4: Strategic Planning

1 Enablers of Asset Management
(a) There exists organisational and leadership commitment to asset management
(b) There exists capacity building arrangements to support asset management
2 Vision, Mission and Objectives
(a) Leadership clearly articulates the need for developing a property asset strategy
(b) There is clear understanding of goals and objectives and their property asset implications
3 Asset Knowledge
(a) There exists a Property Management Information System (PMIS)
(b) A PMIS collects and generates information needed to support and inform asset management decision
(c) Assets condition, sufficiency, suitability, and accessibility regularly assessed and graded
(d) Asset register contains regularly tracked costs of asset creation, revenue and refurbishment
(e) Asset register captures data on environmental performance and sustainability of assets
5 SWOT Analysis
<i>Monitoring External Environment</i>
(a) The organisation monitors and assesses the present and expected future state of forces and trends (political, economic, social, environmental, technological and sustainability issues) and the potential to affect performance of the asset.
(b) The organisation monitors and assesses the actual and potential collaborators and forces affecting collaboration as regards to co-location and joint service delivery and the potential to affect performance of the asset
<i>Monitoring Internal Environment / Internal Environment Analysis</i>
a) The organisation has adequate resources (right people; adequate funding; availability of Information and communication technology (ICT).
b) Availability of asset management performance system
6 Service Level Gap / Strategic Task
a) Asset performance is established by evaluating asset condition, suitability, sufficiency, accessibility and whole life cost of asset
b) Asset management capabilities is determined by evaluating asset management processes, adequacy of resources, asset management performance system, and asset management culture.
c) Easy to measure and understand service statements are available for quantifying asset and management capability shortfalls

(c) Asset Management Planning (processes and practices)

The third section of the instrument comprises the processes and practices. The processes and practices that are part of asset management planning represented another dimension of the variables. In this dimension, the operational measures were operationalised from the following constructs: *asset strategy formulation; selection of asset strategy / option appraisal; and asset management strategy implementation; and performance monitoring and control*. Five operational measures are identified under asset strategy formulation, two under

selection of asset strategy / option appraisal, 15 under strategy implementation, and 7 under performance monitoring and control (Table 6.5). In effect a total of 28 variables are identified to represent asset management planning dimension.

Asset strategy formulation is concerned with the development of improvement tasks or projects through which the identified needs or gaps are intended to be closed. It was anticipated that asset management practitioners would be able to identify appropriate asset or non-asset based strategies to modify demand of property usage, create new or upgrade existing assets, make improvements to ongoing property management or dispose of redundant assets. Option appraisal involves the selection of an appropriate asset or non-asset based strategy by assessing a range of options in terms of their ability to optimise benefits and costs based on multiple criteria. It was expected that asset management practitioners would utilise an option appraisal process to select an optimal option that maximises value for money in terms of having the least whole life cycle cost and maximum financial and non financial benefit.

The implementation of an identified asset management improvement strategy concerns setting out of *corporate, property* and *project management* arrangements for asset management. It was expected that local authorities would set out an appropriate organisational structure for managing property. Similarly, at operational or property management level the anticipation was that roles and responsibilities for carrying out asset management practices would be appropriately identified. Finally, it was envisaged that there was going to be in place an appropriate project management structure for project managing the strategy, programme and / or transactions. The final variable is performance monitoring and control which has seven variables. It was expected that local authorities would put in place performance management arrangements for reviewing and monitoring performance. Just like the strategic planning variables, these asset management planning variables were also ranked on the five point Likert scale on their level of importance in influencing asset management performance for a local authority organisation.

Table 6.5: Asset Management Planning – processes and practices

1	Asset Strategy formulation
	a) Forecasting techniques are used to establish asset demand
	b) Demand management strategies (e.g. maintenance practice; regulating use of an asset; incentives; education; and demand substitution) are set
	c) Asset Based Strategies (creation of a new asset; asset upgrade; asset renewal; strategies for operating and maintenance; and asset disposal) are identified to address strategic task
	d) A documented asset management plan is prepared.
2	Asset strategy selection / option appraisal
	(a) Financial and non financial analysis of options
	(b) Strategy appraisal undertaken using ODM involving Benefit Cost Analysis and Multi-Criteria
3	Implementation of Asset Management Strategy
	i) Corporate property management arrangements include:
	(a) Asset strategy implementation is fully integrated with the organisation's corporate and service plans
	(b) There is a fully developed medium / long term Property Strategy (asset management plan)
	(c) Senior management of all service areas and their respective services are committed and involved in asset management process
	(d) A property officer at corporate level manages the implementation of the asset management plan
	(e) Elected members are engaged with property asset management and regularly review performance
	(f) Decisions on capital projects are based on a clear business case, including options appraisal and whole-life costing
	(g) The prioritisation of capital projects is based on a corporate approach, in line with corporate objective
	ii) Property management arrangements at property level
	(a) Property management responsibilities are clearly set out at a corporate and service level
	(b) Cross functional asset management team led by a property professional
	iii) Project management level arrangements
	(a) An identifiable person is responsible and accountable for delivery of capital programmes
	(b) A common project and programme management methodology is set up and is consistently applied across the organisation
	(c) The organisation has developed internal project management capacity by establishing specialist teams with appropriate project management training
4	Performance Monitoring and Control
	(a) Utilisation of KPIS to measure performance
	(b) Benchmarking of KPIS
	(c) Continuous asset management performance review
	(d) Performance Review Based on KPIS
	(e) Awareness by services of costs of property they occupy
	(f) Existence of a Strategic approach to office utilisation
	(g) Existence of a Comprehensive property review programme

(d) Criteria for Performance Outcome

The final part of the survey instrument intended to draw out information on the criteria (see Table 6.6) the research participants regard as important for assessing the success of asset management performance and therefore realisation of asset management improvement. The variables are operationalised from two constructs: *efficient and effective use of property assets; and improvement in service delivery*. A total of thirteen variables that represent the potential success criteria identified in the asset management framework for asset management performance in chapter 4 (section 4.10) are used for this purpose.

Table 6.6: Asset Management Outcomes

1	Efficient and effective use of property assets
	a) Rationalisation of property holdings
	b) Reduction in the level of required maintenance
	c) Reduction in annual operating costs (management costs; energy costs; water costs; sewerage costs)
	d) Increased space utilisation to minimise operating costs
	e) Receipts are ‘recycled’ within capital schemes, or used to fund the capital programme
2	Improvements in service delivery
	a) Improved facilities for service delivery in terms of condition, suitability, sufficiency, accessibility
	b) Introduction of new working practices (e.g. open space, flexible working, hot desking)
	c) Increased cross-service working
	d) Increased co-location and/or partnership working
	e) Increased compliance with legislation such as the Disability Discrimination Act, Health and Safety Acts
	f) Improved accessibility of services
	g) Increased usage of services by having good quality properties
	h) Environmental Sustainability of property holdings enhanced (reduced energy usage, recycling of solid waste, reducing water usage)

6.5 ETHICAL CONSIDERATIONS

Burke (1995) distinguishes ethics from common behaviour, stating that: *it is the ideal conduct people hope to find in the best of people*. Researchers are ethical if they do the right things in the conduct of their research starting from the collection of data, in the process of analysing the data and through to the dissemination of findings. According to Denscombe

(2007) the three key ethical principles that researchers need to adhere to in these processes are the need to protect the interest of participants; avoidance of deception or misrepresentation; and ensuring that participants give informed consent. In adhering to the need for ethical approach to research, the University of Salford has put in place a rigorous ethical approval process to help researchers adhere to a reasonably accepted standard. Amongst other considerations, the University's code of research ethics is designed to ensure that:

- *participants' interests are safeguarded by protecting them from any physical, psychological or personal harm arising from inappropriate use of information;*
- *the research procedure is designed not likely be stressful or traumatic;*
- *the research materials are not intrusive, insensitive, and discriminatory or threaten the beliefs of participants; and*
 - *the research design is robust to avoid wasting research participants' time during data collection.*

The research instruments used for this research study were subjected to University of Salford's Ethical Approval Committee. The process entailed explaining and justifying the following aspects about the instrument: the study focus and rationale as well as the expected study outcome; the research strategy including details of research methodology, the methods for collecting data, procedure for recruiting participants; approach for data analysis; details of how information would be kept and disposed; and details for providing results feedback to participants.

After addressing and satisfying these criteria in a formal application, the University of Salford's Ethical Approval Committee granted approval that field work could commence.

6.6 PILOT STUDY

The piloting was done in two stages involving face to face semi-structured interviews and then a survey involving the issuing of a questionnaire. The Stratified and Convenient sampling was adopted to pilot the survey. Ten local authorities representing rural, semi-

rural and urban authorities were selected and a questionnaire was issued to relevant individuals in each local authority. The descriptive representation of local authorities in terms of rural, semi-rural and urban is also discussed in chapter eight (section 8.2.1). Six local authorities responded. A questionnaire was also piloted to 4 academicians. Of these, two were subject experts, one a statistician and another is an expert on factor analysis.

The non-probability Snow Ball sampling technique was adopted for semi-structured face to face interviews. Four local authorities were conveniently selected. Of these, two single authorities representing both rural and semi-rural and two urban authorities were selected. The piloting was done for three main aims. Firstly, it was done in order to allow survey respondents to comment on whether the questions aligned with the conceptualisations in the developed scale. The piloting also sought to capture data to establish whether there were differences in the issues that emerged, in terms of asset management performance shortfalls, amongst the 6 different types of local authorities and the three broad groups (rural, semi-rural and urban). Finally, the follow up pilot interviews were intended to elicit the reasons behind any asset management shortfalls that would have been uncovered from surveys.

A number of findings emerged focusing on the pilot aims. The responses from academics and practitioners indicated that the questions captured asset management conceptualisations. However, there was concern that the questionnaire was rather long and also that the scales needed modification. Both the statistician and factor analysis expert were satisfied with the proposed quantitative approach and associated statistical and factor analysis techniques. It was suggested however, that there was a lot of unnecessary detail describing the techniques but which could be reduced. The analysis of the survey results indicated that the developed scale was both reliable and valid with Crobach's alpha value of 0.96 way above the value of 0.60 which is considered acceptable for a new scale.

The captured data also sought to establish whether there were any differences amongst the different local authority types in any issues pertaining to asset management performance

shortfalls. The limited findings from analysis of the questionnaire suggested that local authorities still have limitations in fully realising the gains that can arise from best practice asset management. Difficulties seem to be experienced in designing asset management plans, formulation of benchmarking systems and utilisation of appropriate life cycle asset strategy techniques such as option appraisal. There were no discernible differences as to the nature of limitations between the three different types of local authorities. In the follow up interviews it was clear that the lack of a push by central government to have mandatory benchmarking systems has led to a number of local authorities not seriously pursuing and embedding a culture of asset management performance improvement.

6.7 DATA COLLECTION

Issues pertaining to data collection are covered in this section and are arranged into seven sub-sections. Section 6.7.1 deals with how the respondents for the survey and phenomenology interviews were identified. This is followed by a description of the nature of data that was collected (section 6.7.2); and data collection methods (6.7.3). The choice of data collection methods is dealt with in section 6.7.4. Section 6.7.4.1 deals with the design of semi-structured interview questions and following on from this, and in section 6.7.4.2 questionnaires are dealt with. A description of the sampling frame and the method for choosing the appropriate sample size are dealt with in chapters seven and eight.

6.7.1 Sources of Data

Data was collected from the research subjects, English and Scottish local authorities, specifically from the professionals responsible for development of asset management policy and practitioners. The targeted practitioners were those responsible for implementing asset management practices pertaining to operational property assets. Typically these included those at senior management level responsible for policy formulation and practitioners in asset management; estates; and facilities management departments. Data was gathered through semi-structured interviews with a select number of individuals at corporate and operational management levels. Similarly, data was also

gathered through questionnaires which were sent to identified relevant individuals at these same levels.

6.7.2 Nature and Type of Data Collected

Primary data was captured. The data relates to hard data such as financial and physical property performance indicators. Also data was collected to learn about the feelings of interviewees relating to how property assets are enabling the business objectives of the councils. Four types of primary data sets were collected for the investigation. The first set of primary data was background and demographic data. The second set of primary data was on asset performance outcome. In addition, the collected data sought to establish whether efficient and effective property use led to improvements in organisational performance in terms of improvement in service delivery.

6.7.3 Available Data Collection Methods

It was stated in section 4.4 that both the survey and phenomenology were suitable for these research investigations. Various data collection methods are associated with these two methods. This section gives a description of the techniques / procedures used to gather data. Also the basis for choosing a particular technique is given. In addition a copy of the designed data collection instrument is also provided (Robson, 1996, pp66-72). The data collection methods identified with qualitative research such as Phenomenology include observations; interviews; audiovisual materials; as well as documents or content analysis. On the other hand questionnaire is the data collection method associated with quantitative methods especially surveys. Table 6.7 summarises the common qualitative and quantitative data collection types, options, advantages and limitations. Observations involve watching people and then try to work out what is going on. With interviews the researcher interviews the participants. These can be face-to-face, by telephone, or through focus group interviews. Data can also be collected using questionnaires which involves *asking* people to obtain a breadth of standardized information. Documents or content analysis relates to utilising documents such as written or printed sources such as

newspapers, plans, journals, diaries, and correspondence such as letters, e-mail discussions, minutes, reports, and project files as sources of data. Audiovisual include materials such as photographs, films, videotapes and slides, as well as art objects (Creswell, 2009 p181; Robson, 1996, pp66-72).

Table 6.7: Qualitative and Quantitative Data Collection Types, Options, Advantages and Limitations

<i>Qualitative Data Collection Types</i>	<i>Options Within Types</i>	<i>Advantages of the Type</i>	<i>Limitations of the Type</i>
Observations	<ul style="list-style-type: none"> • <i>Complete participant</i>: researcher conceals role • <i>Observer as participant</i>: role of researcher is known • <i>Participant as observer</i>: Observation role secondary to participation role • <i>Complete observer</i>: researcher observes without participating 	<ul style="list-style-type: none"> • Researcher has a first hand experience with participants • Researcher can record information as it is revealed • Unusual aspects can be noticed during observation • Useful in exploring topics that may be uncomfortable for participants to discuss 	<ul style="list-style-type: none"> • Researcher may be seen as intrusive • “Private” information may be observed that the researcher can not report • Researcher may not have good attending and observing skills • Certain participants (e.g. children) may present special problems in gaining rapport
Interviews	<ul style="list-style-type: none"> • <i>Face-to-face</i>: one on one, in-person interview • <i>Telephone</i>: researcher interviews by phone • <i>Group</i>: researcher interviews participants in a group 	<ul style="list-style-type: none"> • Useful when participants cannot be observed directly • Participants can provide historical information • Allows researcher “control” over the line of questioning 	<ul style="list-style-type: none"> • Provides “indirect” information filtered through the views of interviewees • Provides information in a designated “place” rather than the natural field setting • Researcher’s presence may bias responses • People are not equally articulate and perceptive
Documents	<ul style="list-style-type: none"> • Public documents such as minutes of meetings and newspapers • Private documents such as journals, diaries, and letters • E-mail discussions 	<ul style="list-style-type: none"> • Enables a researcher to obtain the language and words of participants • Can be accessed at a time convenient to the researcher – an unobtrusive source of information • Represents data that are thoughtful, in that participants have given attention to compiling • As written evidence, it saves a researcher the time and expense of transcribing. 	<ul style="list-style-type: none"> • May be protected information unavailable to public or private access • Requires the researcher to search out the information in hard-to-find places • Requires transcribing or optically scanning for computer entry

			<ul style="list-style-type: none"> • Materials may be incomplete • The documents may not be authentic or accurate
Audiovisual materials	<ul style="list-style-type: none"> • Photographs • Videotapes • Art objects • Computer software • Film 	<ul style="list-style-type: none"> • May be an unobtrusive method of collecting data • Provides an opportunity for participants to directly share their “reality” • Creative in that it captures attention visually. 	<ul style="list-style-type: none"> • May be difficult to interpret • May not be accessible publicly or privately • The presence of an observer (e.g. photographer) may be disruptive and affect responses
<i>Quantitative Data Collection Types</i>			
<i>Questionnaire</i>	<ul style="list-style-type: none"> • self administered by the respondent • administered by an interviewer who asks the questions 	<ul style="list-style-type: none"> • cheap method of data collection • reduce bias error • allow for greater anonymity • allow easy coding • good for obtaining a breadth of standardised information from a large number of people • extremely useful as a means of collecting relatively straightforward data from a large number of people 	<ul style="list-style-type: none"> • less successful in finding out about the details • take time to design in order to be effective • obtaining a lot of responses has the disadvantage in that more time is needed to analyse the data • lack of depth of responses and the opportunity to probe further

Source: Creswell (2003 pp 186-187; Sheatsley, 1983, pp198-199; Nachmias and Nachmias, 1982; Bryman, 1989; and Robson, 1996)

The selection of a method or methods is based on what kind of information is sought, from whom and under what circumstances. The rational approach is to ask – given the research problem and questions, and a decision research strategy, what methods are most suitable? (Robson,1996, p187).

6.7.4 Choice of Data Collection Methods

The study utilised both interviews and questionnaires. No use was made of diaries because they can disrupt the flow of a working pattern for the respondent. Since observation as a method of data collection involves watching people, this method was equally inappropriate for the study. It would not have been possible to observe at all times all those who were involved in asset management work.

The philosophical argument underlying this investigation is that a mixed method sequential exploratory design is the most ideal as a research approach (section 6.3.2). The approach starts with phenomenological approach where a few individuals with close involvement in asset management practice were studied followed by the survey investigation. The self administered questionnaire, designed on the specialist software called *SurveyMonkey*, was used in the survey investigation while interviews were used to gather data in the selected local authorities chosen as study sites. The questionnaire was emailed to respondents and responses captured electronically. According to Tharenou, et al., (2007 p161), Polit and Beck (2003, p235); and Sheatsley (1983 pp198-199) self administered questionnaires are ideally suited in survey research. They are extremely useful as a means of collecting relatively straightforward data from a large number of people and for measuring complex unobservable constructs (latent variables) such as attitudes, values and beliefs (Nachmias and Nachmias, 1982; Bailey, 1987; Fink and Kosecoff, 1985; Bryman, 1989; and Robson, 1996). The study measures the respondents' views, beliefs and attitudes especially those about asset management performance (Tharenou, et al., (2007 p161).

6.7.4.1 *Semi-structured Interviews*

Questionnaires are good for obtaining a breadth of standardised information from a large number of people but are less successful in finding out about the details. For this reason, interviews were used in the second part of the study where a few local authority cases were investigated. This was in order to explore in depth the issues that arose from questionnaire surveys. Different types of interviews exist with some suited to specific types of study approaches. There are three main forms of interview: structured, semi-structured and unstructured (Bryman, p41; Nachmias and Nachmias 1982, pp224-225). The semi-structured interview was used for this investigation and both the structured and unstructured interview types were rejected as they were inappropriate choices for this study.

The structured interviews would not be appropriate for this study as they are very similar with questionnaires as such they do not really offer any more insight than a questionnaire. This type of interview the questions, their wording, and their sequence are fixed and are identical for every respondent. In addition, structured interviews require a lot of time, effort and expense to organise. The unstructured interview was also unsuited to this research investigation and therefore was rejected on the basis that with this form of interview no prespecified set of questions is employed, nor are the questions asked in a specified order, and neither is a schedule used (Nachmias and Nachmias, 1982, pp224-225). This type of interview therefore requires a great deal of expertise to control and a great deal of time to analyse.

The use of semi-structured interview meant that the respondents were given considerable liberty in answering questions. Interviewees were asked questions from a prespecified list. However, flexibility was built into the interview process in terms of the order in which questions were put, their wording, and in following up any answer with additional relevant questions. In addition, interviewees were allowed to develop ideas, add other issues which had not been anticipated in advance, and respondents generally were allowed to provide more detail, depth and breadth on points of interest.

The use of semi-structured interviews to carry out in-depth studies of a select number of local authorities was meant to use the qualitative findings to inform the follow on the questionnaire stage. The adoption of sequential approach, commencing with phenomenology and then survey study, was intended to provide an opportunity to verify and explain the interpretation of the deductive content analysis. Furthermore, the survey questionnaire gave an opportunity to integrate statistics with thematic data to answer the research question with validity, reliability and credibility thereby enhance the generalisability of the study (Jogulu and Pansiri, 2011).

A number of issues relating to good preparation, use of effective interview skills and progress monitoring need to be undertaken to ensure that maximum benefit is derived from the interview process (White, 2000; Denscombe, 2003, pp177-179). Table 6.8, provides a summary of the key issues that were taken into account to ensure good preparation, effective utilisation of interview skills and effective monitoring of progress during the interview process.

Table 6.8: Interview Preparation, Skills and Progress Monitoring

<i>Good preparation</i>	<i>Appropriate interview skills</i>	<i>Effective monitoring of interview progress</i>
<ul style="list-style-type: none"> ● Proper justification of choice of interviewees ● Questions were appropriately devised, structured and ordered ● There was clarity and proper reasoning about the required information ● Piloting of the questions both for their quality and to time the future interviews ● Predetermination of the decision how the information was to be analysed ● The interview location was 	<ul style="list-style-type: none"> ● Attentiveness ● Sensitivity to the feelings of the informants. ● Tolerance of silences during the talk. ● Being adept at using prompts, including non-verbal language – to encourage interviewees to speak. ● Being adept at using probes – to delve deeper into a topic. ● Being adept at using 	<ul style="list-style-type: none"> ● Identified the main points being made by the interviewee ● Reading between the lines to identify what was really being said (or not being said) ● Looked for inconsistencies in replies ● Spotting where answers were boasting or simply trying to please and so were not accurate ● Looked for answers that tried to divert attention on to other issues ● Got a feel for the context in

<p>non-threatening environment and free of distractions and interruptions</p> <ul style="list-style-type: none"> • Access to interviewees was sorted in advance • The list of questions was sent to the interviewee in advance • Adherence to the time agreed with the interviewee for the interview • The decision as to how information was to be recorded was decided in advance 	<p>checks – to ensure that the information had been understood fully.</p> <ul style="list-style-type: none"> • Non-judgemental 	<p>which answers were given</p> <ul style="list-style-type: none"> • Noted non-verbal cues (body language, lack of eye contact) that helped interpretation and analysis later • Checked the timing of the whole process
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Sources: White (1999 pp30–33); Denscombe (2003, pp177–179; 181)

6.7.4.2 Questionnaire Design

According to Tharenou et al., (2007 p164) a well-constructed and applied questionnaire should be able to gather data to enable the measurement of the relationship between variables. Three fundamental considerations need to be taken into account to have a properly designed and applied questionnaire. First, it should be clear what the scale (questionnaire) should measure. Secondly, the designing of the measuring instrument should be informed by the application of a theoretical basis to develop the items. Finally, the designed questionnaire should measure the developed model's criteria as the mechanism for eliciting respondents' views, beliefs and attitudes (Tharenou, et al., 2007).

An examination of the existing theory relating to the construct to be measured helps to establish what should be measured by a scale. In effect theories explain how and why variables provide an explanation of a phenomenon and are often a series of logical statements (Creswell, 2003). The development of the asset management conceptual framework (figure 5.4) described in section 5.3, is based on the logical connection between organisational management theory and asset management (sections 4.5), examination of

existing frameworks (section 4.6) as well as review of literature on asset management practice (sections 4.7).

The concepts and definitions (section 4.10) of the developed asset management framework formed the basis for the construction of the asset management improvement scales and their assembly into a measurement instrument (section 6.4.3.1). The survey questionnaires and semi-structured interview questions were developed based on the dimensions that comprise the processes behind asset management policy, and practice as well as asset management outcomes.

The scales with a number of questions had been targeted at various respondents within a local authority. The target respondents were asset managers, estate managers and facilities managers. Table 6.9 lists the proposed assignment of scales to questionnaires and how they were distributed within each local authority.

Table 6.9: Distribution of Scales within Each Local Authority

SECTION	SCALE	<i>Targeted Research Cases</i>		
		Asset Manager	Estate Manager	Facilities Manager
A	Background	√	√	√
B	Strategic Planning (Asset Management Policy)	√	√	√
C	Asset Management Planning (Asset Management Practice)	√	√	√
D	Asset Management Outcome	√	√	√

The purposes of the questionnaire including its various parts are discussed in section 6.4.3.1. In order to verify and improve the questionnaire design, a pilot survey of

questionnaires and semi-structured interview questions were sent to professionals and academicians for a review (section 6.6). The objective of the questionnaire survey and semi-structured interview questions was to evaluate and analyse the criteria.

The fundamental considerations for a proper design and application of a questionnaire need to be supported by factors that actually guide the development of questions. The following factors, as proposed by Dillman (1983, pp359-378); Fowler, (1995, p.80); Rea and Parker (1997, p27); Schwartz et al., (1998, p152); Tourangeau (2000); and Synodinos (2003, p227) amongst others, guided the development of the specific questions that comprised the questionnaire used in this research investigation

- (i) Questions asked information that respondents could access readily
- (ii) Questions that requested confidential information and therefore lead to high item nonresponse were avoided
- (iii) Questions were limited to those that the selected persons would be able to answer
- (iv) The questions were as clear and precise as possible so that all respondents could interpret them as intended
- (v) Specific questions were used rather than general ones
- (vi) Closed questions were preferred to open questions
- (vii) Respondents were offered a 'no-opinion' option
- (viii) Questions were written to ensure that they reflected asset management theory
- (ix) Forced choice statements were used rather than 'agree / disagree' statements
- (x) In terms of question order, general questions preceded specific ones
- (xi) Questions were clear and unambiguous
- (xii) Wherever possible simple language was used
- (xiii) Double-barrelled questions were avoided

Having decided on the criterion variables, Likert rating scales were adopted to help draw out appropriate ratings. The variables were ranked per their level of importance by the

respondents (i.e. asset managers, estate managers, facilities managers) on a five point Likert rating scale with 1 = “Not Very Important”, 2 = Not Important, 3 = Average Importance, 4 Important, and 5 “Extremely Important”.

According to Tharenou, et al., (2007 p166) this is a most commonly used scale with this type of response format. Tharenou, et al., (2007 p166) cite Hinkin (1995) who states that the use of the Likert scale in generating questions is an important component of developing sound measures. Measures that are soundly developed will have content validity. If a measure has acceptable content validity it gives certainty that the measure will reflect the theoretical definition of the construct the scale purports to assess.

6.8 DESCRIPTION OF STUDY SUBJECTS

The local authorities manage a large number of properties at any given time. These are either operational or non-operational subjects. This has implications in terms of access to appropriate data. In terms of the nature of data to be collected this is covered more extensively in section 6.7.2. The investigation was limited to operational properties where data could be readily obtained. In some cases property types have been ruled out because of ethical considerations or for reasons of confidentiality. All three hundred and eighty four local authorities, thirty two in Scotland and the remainder in England, were studied.

6.9 CHAPTER SUMMARY

This chapter set out the methodology that was followed in the research study. Initially, philosophical stances that generally underpin research were explored. The pragmatic ontological position and the interpretivist epistemological stances were the philosophical paradigms identified to be appropriate for the study. This meant that there was acceptance that knowledge could be uncovered both by conceptualising asset management theory as well as by associating with those practitioners who were involved in asset management work in order to learn from their experiences. On the basis that a pragmatic approach guided the study, mixed methods was adopted for the study. Since theory played a major part in the study but accepting its limitations a sequential exploratory design approach was

adopted. The study commenced with the phenomenology approach. The approach was the most appropriate qualitative method which suited the intention of explaining in detail the findings of the semi-structured interviews. This was followed by a survey approach as the appropriate quantitative method for generalising the findings. A questionnaire and semi-structured interview were used to gather quantitative and qualitative data respectively.

CHAPTER SEVEN

QUALITATIVE DATA ANALYSIS

7.1 INTRODUCTION

The review of literature in chapters two, three, four and five revealed that the main problem in operational property asset management in English and Scottish Local Authorities is the adoption of a reactive management approach in their practice. The main aim of this chapter is to explore the factors that contribute to the effectiveness of an adaptable and flexible operational property asset management framework to improve asset management performance in Local Authorities. It achieves this aim by examining, from the perspectives of strategy and operations, organizational insights concerning the factors noted in section 3.6 and 4.10 (definition of asset management concepts). From these sections, information is gathered on:

- a. Understanding local authority corporate goals in terms of vision, mission and objectives and how these inform the derivation of property objectives.
- b. The practitioners' experiences about asset management capabilities relating to resources adequacy including: human resources, funding, suitable management information systems (MIS); organisational and leadership commitment and support, an embedded asset management culture, a cross-functional multi-disciplined team; and staff capacity building initiatives, as well as information on how these have influenced asset management performance.
- c. The extent to which political, economic, social, technological, legal, and environmental have impacted Local Authorities, and their asset management implications
- d. The experiences of practitioners: How Local Authorities have improved knowledge about their assets by capturing relevant data, utilising management information systems (MIS) to support decision making, assess existing property assets, and monitor asset performance.

- e. The difference between current and desired asset and management performance, through a consultative process that is user friendly and is supported by established benchmarked Key Performance Indicators (KPIs).
- f. Understanding Local Authorities' approach, through practitioners' experiences, if strategies for meeting short falls in asset management performance involve capital investment, or require management input.
- g. The extent to which business cases are prepared in support of business strategy , and their financial and non-financial viability based on Whole Life Costing and multi-criteria analysis.
- h. Thoughts and experience regarding the effective implementation of asset and non-asset strategy.
- i. Thoughts and experiences regarding what authority a benchmarking club has to benchmark property asset management and practice.
- j. The extent to which a performance management system is used to secure continuous improvement in current and future performance, by reviewing and evaluating property portfolio, asset management practice, the workplace and accommodation based on KPIs.
- k. The extent to which asset management implementation has been successful and has led to efficient and effective use of property assets
- l. The extent to which asset management implementation has been successful in service delivery.

Overall the interviews were undertaken for two main purposes:

- to investigate the current operational property asset management practices; and
- to collect data to inform the development of operational property asset management framework.

A variation of Local Authority administration systems exists in England and Scotland. A detailed account of these is provided in section 7.2.1 and Table 7.1. The interview

participants were drawn from 8 Local Authorities, out of the originally intended 9, and these Local Authorities represent the 3 council stratifications (see section 7.2.1) that characterize councils in England and Scotland: urban, semi-rural and urban. Recognition of the levels of Local Authority asset management is reflected in the selection of interview participants for this research.

7.2 QUALITATIVE METHOD

This section is principally focused at four areas: sampling frame and sample selection, purpose of the researched local authorities, an overview of the semi-structured interview, and the data analysis method.

In this section the sampling frame is identified and the justification for choice of sample size is provided. Also discussed are the sections of the administered questionnaire aimed at eliciting insights from asset management practitioners.

7.2.1 The Sampling Frame and Sample Selection

The Municipal Year Book and Services Directory for 2013 was the source of the sampling frame. The Year Book lists different types of local authority administrative arrangements in England and Scotland. The local authorities are arranged into six types. Of these five are in England and include Metropolitan, London boroughs, Unitary authorities, District and County. In Scotland all local authorities are unitary. In terms of representation, the number of local authorities represented in each group is as follows:

Table 7.1 Types of Local Authorities

Local Authority Type	Number
County Council	28
District Council	201
London Boroughs	32
Metropolitan Districts	36
English Unitary Authorities	55
Scottish Unitary Authorities	32
TOTAL	384

The total number of local authorities is 384 (Table 7.1). Each local authority has an asset management function responsible for the management of operational properties. There is lack of uniformity in local authorities regarding the naming of departments that are responsible for operational property asset management work. The tendency for most local authorities is not to have a single property department but to include property asset management function alongside other services in a multi-service department known by different names in different authorities. Initially these had to be identified and following which the typical department names hosting asset management function emerged and the common ones include Estates, Property Service, Built Environment, Corporate Resource, Asset Management and property or variants of these.

The Year Book provided other key information such as name of department, the identity of the head of department including their name, full address, email address and telephone numbers. These biographic details were used to contact identified relevant individuals. Consequently the sampling frame was eventually set at 384 local authorities. A total of 15 senior, property asset managers (asset managers, estates managers and facilities managers) from 8 Local Authorities were interviewed (see section 7.3 for details and Appendix D). They were leading practitioners in their field. The non-probability snow ball sampling technique was adopted for interview participants. The overall goal was twofold. First, to get significant representation from different types of Local Authorities available in England and Scotland. Secondly, to learn from responses to the carefully designed interview questions. The interview candidates were chosen based on the following considerations:

- the right combination of interviewees most likely to provide the answers to the research questions;
- the type of Local Authority in Scotland and England (urban, semi-urban or rural) ;
- the position of potential interview participants; and

- the perceived attitude of respondents based on their responses to email and telephone communications asking them to participate in face-to-face interviews.

Limitations to the choice of interview candidates, based on the above criteria, included: the optimum number of interviews for this research based on sufficiency, available time, and travel and other costs; the effort required to interview and to transcribe the interview contents for analysis and use; and the willingness of suitable participants to grant an interview to the author.

7.2.2 *Purpose of the Researched Local Authorities*

The semi-structured interviews with selected operational property asset managers, estates managers and facilities managers were therefore carried out as part of an empirical research activity, to gather evidence and document detailed accounts of the current operational property asset management practices. In addition, data gathering was aimed at evaluating the extent to which the asset management approach has been effectively implemented in operational property management in the different types of Local Authorities in England and Scotland.

7.2.3 *Semi-Structured Interview*

As has been spelt out in the research design, detailed in chapter six (section 6.7.4.1) of this research, the Local Authority semi-structured interviews represent the first of two stages of data collection for this research. The second technique used was a large scale questionnaire survey, which is dealt with in the next chapter. The interviews were carried out as semi-structured. The interview questions were a prepared set of open and closed questions, primarily to guide and give a framework to the interview. A mix of open and closed questions allowed interviewees a degree of freedom to expand on their answers and to enable a full account of evidence to support particular viewpoints.

Interview Questions

Two sets of interview questions, directed at corporate and operational practitioners, were prepared, based on the data requirements determined by the research design (see Appendices E and F).

Conducting the Semi-Structured Interviews

The interview took place between February and May 2014. With the exception of one, all interviews took place at the offices of the interviewees and involved the researcher travelling either by rail or car to the respective Local Authority administration offices. Prior to the interview, it was estimated that each interview would take between 30 and 45 minutes to conduct. After the first interview, however, it became clear that more time would be needed to conduct the interviews. The actual interview sessions took 45 to 70 minutes to conduct. With the exception of two interview sessions, all were audio recorded after securing permission for this in advance from the interviewees. The interviews were subsequently transcribed by the researcher. The two interview sessions where permission to audio record was declined were hand written. Interviewees insistence that interview sessions be limited to an hour meant that in two instances, questions were selective and their answers not expansive.

Interview Transcription

The interview transcripts are excluded from this thesis due to large volume of text generated. Interview' transcription took around 12 hours each to transcribe, but the exercise was worthwhile as it increased familiarisation with the generated data and accurately informed the research.

The interviews were intended to capture how practitioners manage operational properties within their Local Authorities. To achieve this aim, the interview consisted of 12 key research themes based on the identified and defined asset management concepts presented in the conceptual framework of this research (section 4.10, figure 5.4). These thematic areas represent the asset management approach used in implementation. These 12 themes were addressed by the interview questions and are noted as sections below:

SECTION I: Profile of Interviewees

In this section, interview questions provide information on Local Authorities and interviewees to augment understanding on how the participants' profile influences their responses. The participants typically included asset, estates, and facilities practitioners.

SECTION II: Vision, Mission and Objectives

In this section, the interview questions establish each Local Authority's approach to developing an asset strategy vision, and to ensuring that corporate objectives inform the development of specific objectives for the management of assets.

SECTION III: Asset Management Capabilities

In this section, the interview questions assess whether Local Authorities had: adequate resources to effectively undertake asset management activities; effective leadership support for asset management; a culture of asset management; and a capacity building programme.

SECTION IV: Asset Knowledge

In this section, the questions sought to establish if asset management information systems in the Local Authorities captured relevant data and knowledge on assets as well as property and asset management capabilities, and aided management decision making.

SECTION V: Opportunities and Threats

In this section, questions helped assess Local Authorities reaction to the impact and asset management implications of opportunities and threats arising from political, economic, social, technological, legal, environmental forces.

SECTION VI: Service Level Gap

In this section, the questions assessed how asset and management performance shortfalls/service gap are determined through a consultative process that is supported by benchmarked KPIs, with service users, in order to understand their needs.

SECTION VII: Strategy Formulation

In this section, questions helped identify appropriate asset or non-asset-based strategies for: modifying demand for property usage; creating new, or upgrading existing assets; improving property management; and disposing of redundant assets.

SECTION VIII: Option Appraisal

In this section, the questions assess if practitioners utilised an option appraisal process to maximise value for money through the least whole life cycle cost and the highest financial and non-financial benefit.

SECTION IX: Strategy Implementation

In this section, the questions determine if the implementation of an asset management strategy, that sets out corporate (establishing a corporate structure) property (resource adequacy to carry out asset management practices) and project management (project management structure in place to manage strategy, programme and/or transactions) arrangements.

SECTION X: Monitoring and Control

In this section, the questions assess whether practitioners have an asset management monitoring process that involved benchmarking of asset management practices based on a suite of KPIs, which are derived from a benchmarking club, to which the Local Authority belongs.

SECTION XI: Audit and Review

In this section, the questions establish if the Local Authority property portfolio, asset management practices, and workplace and accommodation, were reviewed for current and target performance, based on KPI targets.

SECTION XII: Efficient and Effective use of Property Assets

In this section, the questions aimed at ascertaining, through participants' experiences, if asset management practices have resulted in efficient and effective use of property assets,

which is evidenced by: rationalisation of operational property holdings, reduction in the annual maintenance and operating costs, increase in space utilisation, improvement in asset condition, and suitability and accessibility of services.

SECTION XIII: Improvements in Service Delivery

In this section, the questions aimed at learning from interviewees whether asset management implementation has been successful in improving service delivery. In particular, if there was evidence of new working practices, cross-service working, co-location, partnership working, and enhanced environmental sustainability of property holdings.

7.2.4 Method of Analysis

In this section the approach adopted for analysing the captured qualitative data is discussed.

The section discusses the following aspects:

- the aim of content data analysis;
- the deductive and inductive approaches to data analysis;
- description of the approach adopted for this research;
- the actual data analysis procedure and steps;
- the development of the coding matrix; and
- the interpretation or abstraction phase.

The content data analysis approach was utilised for this study. Content analysis aims to attain a condensed and broad description of the phenomenon, in this study this is asset management performance, as represented by interviewees. Representation are the beliefs and opinions concerning a specific object, and interconnections between them (Allard-Poesi, Ducker-Godard, and Ehlinger, 2001, p351-371). Relating this to this study, these are the beliefs and opinions held by interviewees concerning asset management performance in English and Scottish local authorities. Therefore the analysis sought to interpret meanings and explanations as the way interviewees perceived and understood asset management performance. The outcome of the analysis was concepts or categories describing asset management performance. The purpose of developing concepts or categories was in order to

build up a model to describe a phenomenon of asset management performance in a conceptual form (Krippendorff, 1980) as cited by Elo and Kynga (2008).

Qualitative data analysis can be approached from either a deductive or an inductive perspective. However, where existing theory is used to shape the approach adopted in the qualitative research process then a deductive perspective to data analysis can be used. In this study strategic management theory shaped the development of a conceptual framework for operational property asset management which guided this study. According to Saunders, Lewis and Thornhill (2009 p489) a framework devised based on theory can then be used to direct the analysis of the data.

The qualitative data generated was analysed using deductive content analysis approach. The deductive approach assesses the data against prior theory represented by the developed conceptual operational property asset management framework (Allard-Poesi, Ducker-Godard, and Ehlinger (2001, p351-371). The pattern matching procedure was followed in analysing the data. The procedure involves predicting a pattern of outcomes based on theoretical propositions represented by the logical causal connections embodied in the developed conceptual framework to explain what is expected to be found. The approach therefore tested the adequacy of the developed conceptual framework as a means to explain the findings associated with asset management performance in local authorities. If, following data analysis, the pattern of data matched that which had been predicted through the conceptual framework then it was likely that the theoretically based explanation was appropriate to explain the findings (Saunders, Lewis and Thornhill, 2009).

The type of pattern matching applicable to this study was one where it was suggested that improvements in asset management outcomes, such as efficient and effective property performance and asset management performance, were likely outcomes of improved asset management practice. Improved asset management practice was likely to have arisen from effective implementation of strategic planning and asset management planning processes.

The steps involved in deductive approach and which were followed to analyse the data during this study are those suggested by Elo and Kynga (2008). They state that the deductive content analysis method is implemented in three main steps, namely *preparation*, *organising* and *reporting*. During the preparation phase of the analysis themes and main ideas about asset management performance were identified from the transcribed material.

According to Allard-Poesi, et al (2001p359), the organising phase comprises coding, creating categories and abstraction. For this study, the coding process consisted of breaking down the contents of a transcribed interview into units of analysis and integrating them into broad themes or categories. The developed themes or concepts were then formed into larger categories or a group of words with similar meanings. Categories are the operational definitions of variables, in this case asset management variables relating to asset management performance, asset management planning and strategic planning. Following the operational definition of each category, examples and coding rules how each deductive category were to be applied was then set out. The category definitions, coding rules and the determined coding circumstances were then assembled to form a template, also known as coding matrix.

7.3 RESULTS AND ANALYSIS

The seventeen operational property asset management practitioners' interviews have generated a large volume of empirical, qualitative textual data. As stated in section 7.2.4, the most appropriate data analysis method adopted was pattern matching. The aim of this section (section 7.3 - results and analysis) is to draw together data generated from the semi-structured interview questions, in eight case studies, which are categorized under twelve sections.

SECTION 1: PROFILE OF INTERVIEWEES

Questions in the first section of the interviews focused on the interviewees' position and role the in asset management. All interviews were conducted either with a corporate level officer in charge of asset Management, or with senior members of property asset management who were involved in asset management at operational level. Different Local Authorities have

various designations for these staff positions. Table 7.2 below provides brief details on the 8 case studies, and the 16 interviewees for this phase of the research from different asset management levels in Local Authorities in England and Scotland. The table also shows the roles of the interviewees. Figure 7.1 below the table is a UK map showing the geographical representation of the Local Authorities investigated for this research.

Table 7.2: Summary of the Interviewees

No	Interviewee	Local Authority	Job of Interviewees	Background Information
1	A	1 Rural	Strategic Asset Manager	<i>A non-metropolitan county in the West Midlands region of England. County Councils have a variety of functions including: education, social services, highways, fire and rescue services, libraries, waste disposal, consumer services, and town and country planning.</i>
	B	1 Rural	Corporate Director for Asset Management	
	C	1 Rural	Head of Estates	
2	D	2 Urban	Corporate Director	<i>A city and metropolitan borough in South Yorkshire runs most local services such as schools, social services, waste collection and roads.</i>
3	E	3 Semi-rural	Head of Property and Asset Management	<i>A metropolitan borough in North West England runs most local services, such as schools, social services, waste collection and roads.</i>
	F	3 Semi-rural	Corporate Director	
4	G	4 Semi-rural	Property Asset Manager	<i>A non-metropolitan district council in a non-metropolitan county which has 7 other districts. Is responsible for local planning and building control, local roads, council housing, environmental health, markets and fairs, refuse collection and recycling, cemeteries and crematoria, leisure services, parks, and tourism.</i>
5	H	5 Urban	Senior Property Officer	<i>A large city council in the Scottish central belt.</i>
	I	5 Urban	Head of Operational Property Asset Management	
6	J	6 Rural	Strategic Asset Manager	<i>The council covers a vast rural area, some islands and smaller towns to the west of Scotland.</i>
	K	6 Rural	Head of Property	
7	L	7 Urban	Strategic Asset Manager	<i>A large city council in north east Scotland.</i>
	M	7 Urban	Head of Operational Asset Management	
8	N	8 Semi-rural	Asset Management Section Head	<i>A small semi-urban authority in the west of Scotland with history of low economic opportunities and social deprivation due to closure of heavy industry.</i>
	O	8 Semi-rural	Head of Property Management	

^aAll 32 Scottish Authorities are unitary and are responsible for delivering the same range of public services. The services include: education, social services, roads and transportation, planning and the environment, economic development, housing, leisure, library services, cultural services, and waste management, among others.

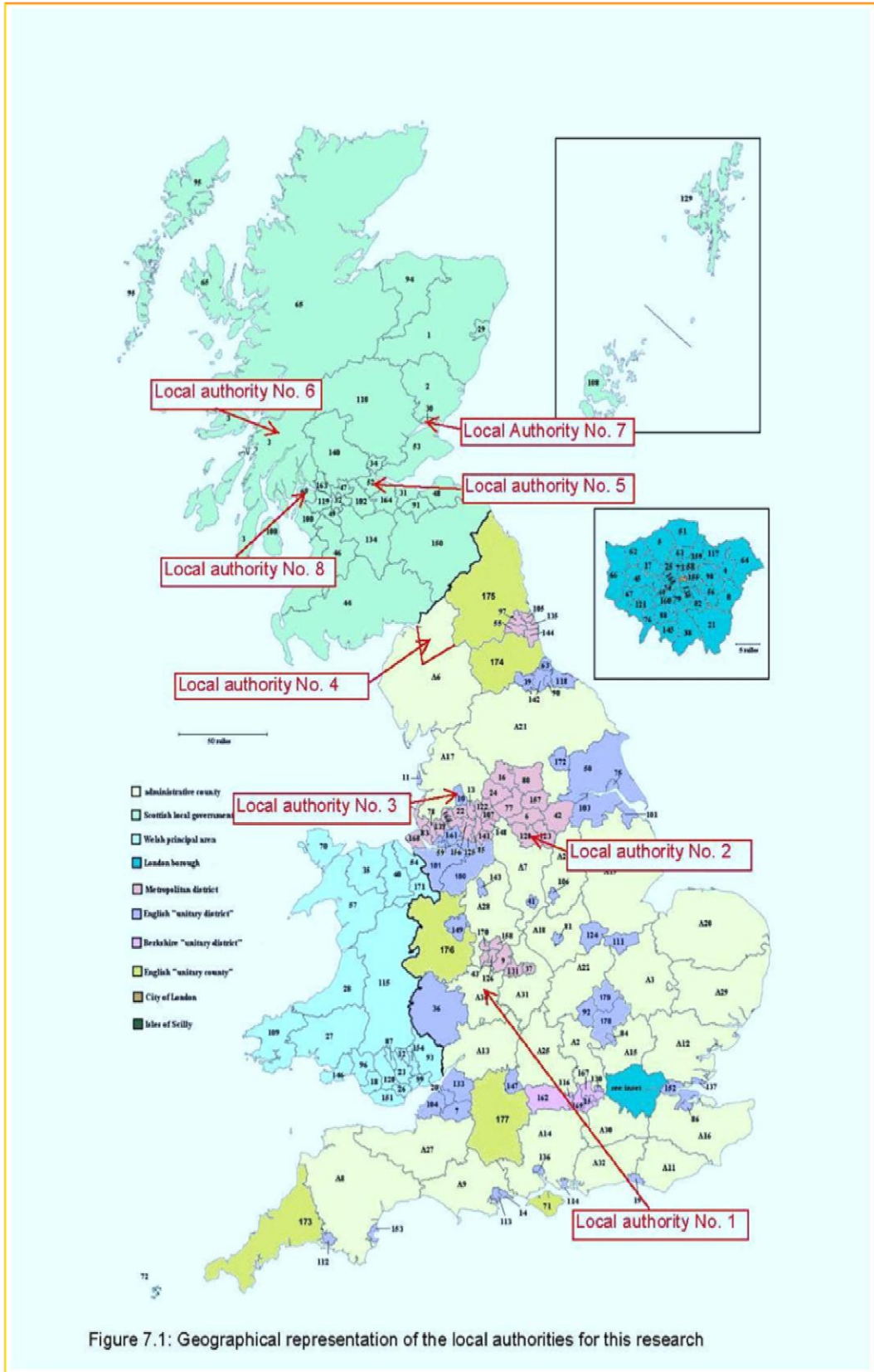


Figure 7.1: Geographical representation of the Local Authorities for this research

An equal number of Local Authorities from England and Scotland participated in the interviews. The original intention was to have six authorities in England and three from Scotland. However, it was not possible to achieve this intended proportionate level of representation. In terms of representativeness of interviewees, nearly all Local Authorities had individuals at corporate and operational levels, especially estates operational personnel. Due to the way most Local Authorities have structured their asset management functions, facilities management personnel are in most cases not part of the structure.

SECTION II: ASSET MANAGEMENT STRUCTURE

The aim of this section was to establish if Local Authorities had implemented a board level structure for asset management, and if a corporate landlord approach existed for the control of operational properties (Table 7.3). In terms of structure, except for Local Authority case study number 8, the rest of the Local Authorities have implemented a board level structure for asset management. The Property Asset Management Unit is overseen by a strategic asset management board type entity that has responsibility delegated to it by the Strategic Asset Management Team, which sits at board level and comprises the council's Chief Executive and the Executive Directors of council departments who hold assets. In addition, the common arrangement is for the Strategic Asset Management Team to report directly to an elected member of the council.

Best practice, according to reviewed literature, requires that the asset management function integrates both estates and facilities management functions. In all councils, the estates function is part of asset management, but it is only in two councils -- 5 and 6 -- that facilities management is integrated (Table 7.3).

Table 7.3: Structure of Asset Management

<i>No.</i>	<i>Board Room Level Structure</i>	<i>Asset Management Integrates Estates and FM Functions</i>	
		Estates Function is Part of Asset Management	FM is Part of Asset Management
1	Yes	Yes	No
2	Yes	Yes	No
3	Yes	Yes	No
4	Yes	Yes	Yes
5	Yes	Yes	Yes
6	Yes	Yes	No
7	No	Yes	No

Literature review suggests that the existence of a corporate landlord approach, where all operational properties neither belong to, nor are controlled by council departments is crucial for effective asset management implementation.

Table 7.4: Corporate Landlord Approach in Local Authorities

<i>No.</i>	<i>Corporate Landlord Approach</i>		
	Direct and Indirect Properties Corporately Controlled	Direct Properties Corporately Controlled	Indirect Properties Corporately Controlled.
1	Yes	Yes	Yes
2	No	No	Yes
3	No	No	Yes
4	No	No	Yes
5	No	No	Yes
6	No	No	Yes
7	No	No	Yes
8	No	No	Yes

From the available evidence (see Table 7.4), there is a total corporate landlord approach implemented only Local Authority case study one, where both direct and indirect operational properties are owned and controlled at the centre. In the rest of the investigated councils, direct properties such as schools, swimming pools, and children's homes, and from

which services are delivered, the departments operating in them still control what happens to assets. The asset management team only plays an advisory role regarding these services.

Failure to exert control on direct operational properties results from lack of service heads' and political support from the leadership and elected members. This lack of corporate ownership was echoed by interviewee N of Local Authority 8, who stated:

“... at the moment, it's very much a work in progress in terms of bringing all the council properties into corporate ownership. That is, the services still have control over the properties they occupy.”

Failure to extend asset management to the rest of the estate', especially direct properties, due to service heads not wanting to let go of control of these properties, is spelt out by interviewee L, who says:

“Like many Asset Management Teams we can only take asset management so far as to who controls buildings. I am the corporate landlord, for corporate offices but we have never pushed the corporate landlord function through the rest of the portfolio”.

Perhaps the degree of separation between the Asset Management Team and what individual departments do, and which should be dealt with by the Asset Management Team, is most acute in Local Authority 3. Quoting interviewee F, he states:

“The council has an entirely devolved arrangement for managing property assets. Each of the council services (e.g. education) has their own budgets devolved and they are responsible for what they consider their property portfolio in their area. They have staff within these teams who have responsibility for maintaining their properties, dealing with health and safety aspects or facilities management aspects, relocation, all plans for rationalization, all plans for making property surplus, all responsibilities for making cases for any improvement, etc. So you would say that property is still not looked upon as a corporate resource.”

In this Local Authority case study 3, the retention of all asset management related functions is the responsibility of the education department. This is a legacy of the time (in the 1990s to mid 2000s) when there used to be education estate asset management teams to spearhead education building and improvement programmes. It appears, in this Local Authority at least, that since the conclusion of these rebuilding programmes, the asset management teams

have remained in education departments and not integrated at the centre. A devolved arrangement therefore exists.

It can be concluded from the available evidence that Local Authorities have been very successful in introducing a board level structure for asset management. However, Local Authorities have not succeeded in putting in place the asset management structure that involves integration of estates and facilities management functions. In the majority of Local Authorities, facilities management remains outside the remit of asset management. Regarding the effectiveness of a corporate landlord approach, in most Local Authorities, asset management activities are directed mostly to indirect properties, over which asset management teams have control. Service heads still retain control of properties they occupy and are unwilling to let go of it. In some Local Authorities, the situation is even worse with education departments still carrying out asset management functions on their own.

SECTION III: VISION, MISSION AND OBJECTIVES

This section assesses the degree to which the development of specific objectives for the management of assets was informed by corporate objectives. To achieve this, the interviewees were asked to confirm: (1) the existence of a corporate plan which outlines the overall Local Authority objectives; (2) that asset management plans fully articulated Local Authority corporate objectives; and (3) that service asset plans informed asset management plans. The linkage is meant to indicate that a vision guides the development of an asset strategy, and that corporate objectives inform the development of specific objectives for the management of assets.

Table 7.5 summarises the linkage between corporate objectives, asset management objectives and service asset plans.

Table 7.5 : Linkage between Corporate Objectives and Asset Management Objectives

No.	Interviewee	Local Authority	1 Corporate Plan	2 Corporate Asset Management Plan Supports Corporate Objectives	3 Service Asset Plans inform Corporate Asset Management Plan
1	A	1 Rural	Yes	Yes	Yes
	B	1 Rural	Yes	Yes	Yes
	C	1 Rural	Yes	Yes	Yes
2	D	2 Urban	Yes	Yes	Yes
3	E	3 Semi-rural	Yes	No (Quote)	No
	F	3 Semi-rural	Yes	No	No
4	G	4 Semi-rural	Yes	No	No
5	H	5 Urban	Yes	No	No
	I	5 Rural	Yes	No	No
6	J	6 Rural	Yes	Yes	Yes
	K	6 Urban	Yes	Yes	Yes
7	L	7 Urban	Yes	No	No
	M	7 Semi-rural	Yes	No	No
8	N	8 Semi-rural	Yes	No	No
	O	8 Semi-rural	Yes	No	No

All Local Authorities have a corporate plan. However, only in Local Authority case studies 1 and 6 are there linkages between the plans. For instance Local Authority 1 used the strategic leadership of the organisation (corporate leadership and political leadership support) to link asset management and service delivery.

Interviewee A states that the Local Authority has succeeded in making the link because it has successfully sold the message that:

“At the end of the day, the purpose for public sector property ownership is purely for the delivery of services and that's why services need to focus on maximising the value of services that can be delivered through the property they occupy”.

The selling of the message has taken years of persuasion. Initially the services responded to asset management very poorly. The Local Authority has been able to convince services that properties are only vehicles for service delivery therefore what is important is their effectiveness in supporting their functions, and not whether services own properties or not.

Again quoting A, he forcefully makes the point and states:

“Services have pretended to view properties as being their properties and have thought about service delivery through those properties. What we've tried to do here is to understand what the property is doing for them. So when you look at your estates from a property management point of view, you look at what you've got, where it is, how it's currently being used in terms of its capacity and occupancy, and you also look at suitability. Now, this kind of order gives you the opportunity to say, 'Okay, what is this property doing for me?' And if you look at the cost associated with that, the running cost associated with it, as well as the capital invested in it, you get a view as to whether these properties are offering good support services or not.”

In the rest of the Local Authorities where there is no demonstration of any linkage between plans, the position is best summarized by interviewee G who states:

“However, we do not have the time or resources really to ensure that all services feed into corporate asset management plans, let alone prepare individual service asset plans.”

Regarding asset management plans, again all authorities have these in place. However, in Local Authorities 2, 3, 4, 5, 7 and 8 there is no linkage between service, asset management and corporate plans. This failure to ensure that prepared asset management plans support corporate objectives is best articulated by interviewee E in Local Authority 3, who stated:

“The asset management plan that was prepared was to satisfy CIPFA assessment for the Local Authority at the time, and the main priority was to present asset management for consideration by the auditors that showed the Local Authority in the best light by achieving an excellent rating. An asset management plan wasn't used actively for any operational purpose whatsoever.”

The situation is similar in Local Authority 8 where interviewee N, commenting on whether there is a link between asset management plans and corporate plans. He states:

“I don't think you see the linkages clearly. We all know what we should be heading towards.”

In Local Authorities N and G, not only are there no linkages between plans, but also service asset plans are not prepared. Quoting interviewee N of Local Authority 8:

“Way back, we talked to the individual services about doing service plans and linking it with the asset management plan. That wasn’t really done at the time. It stalled. It has been very dismal. There is so much resistance and service is overruling any kind of asset management plan.”

Interviewee G of Local Authority 4 states the same, saying:

“we do not have the time nor resources really to ensure that all services feed into corporate asset management plans, let alone having the time to prepare individual service asset plans.”

From the foregoing, it can be concluded that Local Authorities do prepare corporate and asset management plans. However, these plans are not fully linked to corporate plans. As for service plans, these do not exist in most Local Authorities. However, where they do exist, there is no real linkage with asset management plans. Overall therefore the weak or absence of linkage between service, asset plans and corporate plans means that Local Authority’ corporate objectives do not inform the development of specific objectives for the management of assets.

SECTION V: ENABLERS OF ASSET MANAGEMENT

This section aimed at finding out whether Local Authorities had adequate capabilities to undertake asset management activities. In order to achieve this aim, interviewees were asked what they considered were the elements comprising asset management capability including: (i) organisational and leadership commitment and support, (ii) resources adequacy in terms of: availability of a suitable management information system (MIS) and the right people, (iii) and embedded asset management culture, (iv) staff capacity building measures and ,(v) a cross functional and multi-disciplined team.

***i.* Organisational and Leadership Commitment and Support**

In terms of organisational and leadership commitment and support, this was assessed in terms of the interviewees’ experience in relation to the strength of political support from elected members, and from Senior Service Heads Officers within the organisation. Interviewees, at all levels, of Local Authorities 1, 2, 4, 5, 6 and 7 state that there is strong political leadership support. For instance interviewee A of Local Authority 1 states:

“On a political level, we have interest from the leader (Political Leader of the Local Authority) and we have a cabinet member (an elected member in charge of a relevant committee) that’s responsible for effectively implementing asset management, and who also has consistently taken an interest in it. And what we’ve tried to do as

a result of that is we've used the political leadership to keep asset management on the political agenda. We've used our cabinet member to manage our Local Authority members' interest in it."

In Local Authorities 3 and 8 the support from elected members is said to be weak For instance quoting interviewee F, an operational manager, in Local Authority 3:

"There are issues in terms of understanding of the whole concept of asset management for those high up. As a result, there are issues with leadership support. I am sure my line manager would have a more positive view on how things are going and he has only ever seen (Local Authority 3). He never worked in other Local Authorities like me."

It is interesting to note interviewee E who belongs to the same Local Authority and operates at corporate level holds a different perspective. He states:

"We have a corporate asset management group that is chaired by the leader of the Local Authority. So it's quite a high level and the leader of the Local Authority is also our asset management leader."

It is clear that in this Local Authority there are differences in leadership support perspective's between those operating at corporate and operational levels. It would seem that leadership support for asset management is a recent phenomenon and results from the need to respond to financial challenges that arise from recent economic challenges. For instance interviewee G of Local Authority 4 states:

"This support (political leadership) has come about as a result of the recognition that property has had to play a significant role since the economic recession."

In order to deliver quality services according to constrained budgets arising from the recent economic recession, Local Authorities have looked to property for possible solutions. Property assets have offered opportunities for efficiency savings either through the rationalisation of assets or changed working practices. Efforts to achieve these objectives appear to have been supported by elected members.

With the exception of Local Authority 1, all others have weak service support for asset management. In Local Authority 1, interviewee A demonstrates the strong level of support by stating:

"There is leadership support at both the corporate management and political levels. At the corporate level we have buy-in from the Chief Executive downwards. The property issues have been fed into a strategic leadership of W County Council via corporate director for a number of years. Corporate leadership has consequently taken an interest and has supported it."

It would appear that there is a strong association between corporate ownership of assets and support for asset management by service heads. Again as interviewee A puts it:

“It’s about the concept of a corporate landlord. One of the things about large complex organisations is that they tend to be divided into silos and the silo thinks that it has to control the ownership of all of the assets that it uses. A lot of public authorities would find that the Education Department thinks, it owns all of it --all of the education buildings -- and that the Social Services Department owns all social services. We broke that up. We broke that concept for some years in W County Council. All of the properties are owned by the county council, okay? And therefore it doesn’t belong to the Chief Education Officer to deal with it as he or she pleases, or more pertinently, the Director of Social Services to give to whomsoever he or she chooses because it’s a corporate asset.”

By bringing all the operational properties under corporate landlord approach, this particular Local Authority has found it easy to secure support from service heads that no longer have control over the assets they operate. The weak asset management support by service heads in the rest of the Local Authorities where there is no corporate landlord is best summarised by interviewee L of Local Authority 7 who states:

“It (asset management) still has a long way to go when you’ve got some very large and powerful Departments of Education and Social Work. Education probably takes up over half the Local Authority’s budget and the two departments make up three quarters of operational property. So, because of their size the fact that they have representation at the Corporate Asset Group, there is suspicion do not always play the corporate role. Social work is social work. In my experience, speaking about the public sector, Social Work operates in a vacuum.”

Applying asset management principles on direct operational properties remains a challenge due to the lack of a corporate landlord approach, and this gives service heads the control of operating properties such as schools and children’s homes.

The lack of asset management support for direct operational properties is made even more difficult because of the strong resistance by elected members to, for example, rationalise any of the properties in their areas. Again quoting interviewee L:

“And again, politically, the members are reluctant to make significant cuts in the size of the property portfolio because of the perceived reduction in services. And I think that’s one, we agreed to do more work because it has to be done with the politicians so they are aware of the sort of the full picture. You look, through Scotland, about the difficulties of trying to close schools usually for educational needs because you can’t close a school for a property reason. But they are probably out with the Local Authority’s main office accommodation, probably the most expensive assets to run and all the potential property savings and improvements to benchmarking (that can be made)”.

From the above discussion, it is clear that there is political leadership support for asset management in so far as it relates to indirect operational properties. There is no real support

from service heads for asset management where it affects properties from which they deliver services.

ii. Resources adequacy in terms of: availability of a suitable management information system (MIS) and right people.

As to whether Local Authorities had adequate resources, this was determined by the existence of a property management information system, as well as staff trained in asset management. Table 7.6 provides a summary of property management information systems available and their capability.

Local Authorities 1, 2, 3, 5, 6, 7, and 8, all had some kind of a property management information system. Local Authority 4 did not have any such system to support operational property asset management. Commenting on the lack of such a system interviewee G of Local Authority 4 states:

“Presently there is no property management information system for operational properties. The mass database system that exists is for non-operational properties, and it is 10 years old. It does not hold any FM data. It is not envisaged that the system is even going to be developed beyond current levels.”

The lack of a property management information system for Local Authority 4 is an exception. While all other Local Authorities do have a property management information system, the suitability of the available systems to support asset the management function is very weak. System’s suitability relates to its capability to support decision making by converting data into information. For instance only Local Authorities 1, 5, and 6, consider their systems suitable. Interviewee J of Local Authority 6 emphasises the suitability of the available asset management information system by stating:

“And, basically, you can sort any piece of information that is stored and associated with the asset in the system. You can then...it then has links with cluster reporting. And within cluster reporting, we can then get whatever piece of information is in there, whether we...what we want to get out. If it's there, we can get it out. But as far as the priorities in regard to the five factors (condition, suitability, sufficiency, operating costs, accessibility) you're referring to there, they all become very, very clear.”

In Local Authorities 2, 7, and 8, the available systems are considered inadequate. For instance quoting interviewee L in Local Authority 7:

“The system that we’ve got has had teething problems. Why did we buy it? Because it was part of an overall corporate asset management system. It was brought in by engineers, for engineers so it has never done what they were told at that time. Property Asset Management was a tag-along and we have suffered from that ever since. So it’s not the easy system but I think the development work that’s been done, the information is there.”

Interviewee O of Local Authority 8 comments on the unsuitability of their available system by stating:

“It’s (the management information system) never been resourced properly. ...the data that was put into it at the time was put in inaccurately. Since then, resources have been pooled. So, it’s never been used to any great extent at all. It’s got a capability to do lots of stuff. It should work for us. But, at the minute, we’re still sorting out the data. And then, we’ll have to input nearly everything from scratch.”

The situation in Local Authority 3 is even worse in that there is no corporate property management information system, but instead they have disparate systems which interviewee F considers inadequate. He states:

“I think our property data is poor. At the moment we don’t have a corporate property database but we want to get one. I think we hold property related information on at least 15 different systems probably. The majority [of the systems] don’t talk to each other. I think we have sort of gotten by in the past but it’s not sustainable”.

Table 7.6 Availability of Property Management Information Systems and Capabilities

Local Authority	Available Management Information System	Available System is suitable to support asset management function
1	Yes	Yes
2	Yes	No
3	Yes	No
4	No	No
5	Yes	Yes
6	Yes	Yes
7	Yes	No
8	Yes	No

Asset management capability was also evaluated in terms of availability and adequacy of staff with relevant asset management training to implement asset management activities. In all Local Authorities, asset management is operationalized by people with property training. This lack of staff with relevant asset management training that goes beyond property training has been recognised by others as a resource inadequacy. Quoting interviewee B he states:

“However, there are resource inadequacies in certain areas. (We) have come to a view that the right asset management person needs to be more than a Valuer by profession. They’ve got to be someone who actually has got the ability to communicate, to work with directors, to challenge them really. So, it’s a particular type of person that you want; someone who is able to negotiate, challenges, and really put a focus on how they (service heads) run their properties”.

Apart from resource inadequacy associated with lack of staff trained in asset management, there are also shortages in all Local Authorities in terms of sheer numbers to carry out asset management work. Quoting interviewee G, for example, he states:

“In actual fact, our expertise has reduced. Currently we only have about 6 people responsible for all property management issues.”

It is clear from the available evidence that while the majority of Local Authorities do have property management information systems, these do not adequately support asset management functions. The systems either do not hold relevant data; the data are out of date; they are not fully populated; or there are issues with data functionality. In some cases the systems just do not exist.

iii. Culture of Asset Management

Asset management capability was also explored in terms of the embedding of its culture across the organisation as is necessary for securing continuous asset management improvement (Table 7.7).

Table 7.7: Embedding of Asset Management in Local Authorities

No.	Asset Management Culture is Embedded across the Organization
1	Yes
2	No
3	No
4	No
5	No
6	Yes
7	No.
8	No.

In all Local Authorities, except 1 and 6, they struggle with embedding asset management across the organisation despite service heads in the majority of authorities comprising the strategic asset management team. Quoting interviewee N, he summarises the lack of asset management culture as follows:

“I think it’s (accepting asset management) quite difficult, because it’s relatively new. And, when I say ‘new’, I mean to people. They’re not used to this hot-desking and using charts. Generally we found they tended to resist any asset management strategies that we might come up with. It’s not good...it’s not great.”

Asset management practitioners believe that as long as departmental heads retain control of their property assets, due to lack of a corporate landlord approach, this prevents the

embedding of asset management, and the development of an asset management culture. For instance interviewee L states:

“It (embedding of asset management) still got a long way to go because particularly from the local authority point of view when you’ve got some very large, powerful departments who, because of their size whilst they have representation at Corporate Asset Group, there always has been a suspicion that at times, because of their power they do not always play the corporate role.”

From the available evidence it can be discerned that asset management is not fully embedded in most Local Authorities particularly because of lack of support from service heads for asset management initiatives.

iv Cross Function Asset Management Teams

Asset management capability in Local Authorities was determined by the existence of cross function asset management teams responsible for delivering asset management. In all the investigated Local Authorities, there are no dedicated cross functional multi-disciplinary asset management teams responsible for implementing all aspects of asset management.

Quoting interviewee H of Local Authority 5, he said:

“This is being developed aimed at having a cross functional staff base to be equipped with knowledge of property and asset management.”

The available evidence leads to the conclusion that Local Authorities do not have deliberately set up cross functional and multi-disciplinary teams to implement asset management activities.

v. Capacity Building Measures

Finally, the interviews sought to determine if Local Authorities had deliberate training programmes for building staff capacity in asset management. The evidence indicates that no such training programmes exist. The situation is best captured by interviewee G, who states:

“We never have had the opportunity to build skills, to tackle the strategic issues that deal with asset management. We have tended to acquire the expertise from outside as required such as from surveying firms. In actual fact, our expertise has reduced.”

Local Authorities seem to access training from wherever they can, as interviewee I states:

The policy is that, wherever good practice is identified, we will try to utilise that. For instance P. K. of Scottish Futures Trust tries to point out good practice, and that tends to be utilised.

The available evidence leads to the conclusion that Local Authorities do not have training programmes in place to build the skills of staff in asset management. Those staff training initiatives that exist are opportunistic and not deliberately organised.

SECTION V: ASSET KNOWLEDGE

Questions in this section sought to establish from interviewees' if asset management information systems in their Local Authorities captured data sets that inform knowledge about assets and assess performance. The questions queried: (i) type of data captured that informed knowledge about assets, (ii) the management information system (MIS) used to support decision making; and (iii) the MIS used to assess performances of property and asset management capabilities.

i. Type of Data Captured

Literature review suggests that there are certain key data sets that need to be captured for organizations to be informed about assets. The questions that were put to the interviewees therefore helped obtain information about an asset's condition, suitability, operating cost, sufficiency and accessibility. Table 7.8 below summarizes the extent of data captured by Local Authorities.

Table 7.8: Type of Data Captured by Local Authorities

No.	<i>Condition</i>	<i>Suitability</i>	<i>Sufficiency</i>	<i>Operating Cost</i>	<i>Accessibility</i>
1	Yes	Yes	Yes	Yes	No
2	Yes	Yes	No	Yes	No
3	No	No	No	No	No
4	No	No	No	No	No
5	Yes	Yes	No	Yes	No
6	Yes	Yes	No	Yes	No
7	Yes	Yes	No	Yes	Yes
8	No	No	No	Yes	No

Of the five types of data Local Authorities need to capture, the degree to which they do so is varied (Table 7.6). For instance, data on condition, suitability and operating costs is captured by Local Authorities 1, 2, 5, 6, and 7. From this evidence only two local

authorities in England and one in Scotland do not capture these data types. Only one Local Authority stated that it captures accessibility data. In Scotland, up until 2013, it was mandatory to capture data on condition, suitability and accessibility and report these to Audit Scotland. However, since 2014, Scottish authorities only need to report on condition and suitability types of data. Even then, as can be seen from Table 7.6, not all Local Authorities participate fully in the scheme. In England, it stopped being mandatory for Local Authorities to report certain Key Performance Indicators, hence data captured is at the discretion of each Local Authority. This might explain the poor data capture record in the English Local Authorities used as research study areas for this research, especially 2, 3 and 4. Only Local Authority 1 indicated that it captured data on sufficiency, and 1 captured data on accessibility.

From the evidence it is possible to conclude that, with the exception of operating cost, the majority of Local Authorities do not capture data about suitability, condition, sufficiency, and accessibility.

ii. Information and Management Decision Making

The questions in this section assessed whether the effective property management information systems (PMIs), for those Local Authorities that have them, have the capability to support decision making by converting data into information, and to assess existing property assets and accommodation (see Table 7.9).

Table 7.9: Management Information System: Decision Making and Assessment of Property Performance

No.	MIS is used to support decision making	MIS is used to assess existing property performance and processes
1	Yes.	Yes
2	No	No
3	No	No
4	No	No
5	Yes	Yes
6	Yes:	Yes
7	Yes	Yes
8	No	No

In Local Authorities 1, 5, 6, and 7, the systems are used to inform decision making. Quoting interviewee A:

“So we have the backward looking that tells you what your estate is doing for you. The forward looking visionary stuff about where the services want to get to, and then you give that information to a property expert who can say, ‘Well, actually you might be able to use those buildings, but these, even though they may be good buildings, they’re going to be obsolete.’ That will release capital so you could use that capital to justify investment to other areas of services. And that’s how you do it. You use your expertise in property management to explain complex issues simply and you deliver the message that I’m here to help you. I’m not here to make your life more difficult. And then you beat their cold, dead fingers off of those buildings that they are highly committed to. But that’s what we’ve done here. It’s an iterative process. You don’t convince everybody the first time around. But we’ve never believed in protecting people from the facts. Give people the facts. And it’s only when you begin to look at things like that objectively that you realise actually it may be the estate we’ve got, but it’s not the estate we need. And giving people information in a format that they can understand is very important.”

As expected, Local Authorities where data is captured are ones where MIS are also used to inform decision making as well as measure asset performance.

In terms of the effectiveness of the system to generate information to support decision making, this is effective when the information is presented in a manner that effectively communicates the intended message. This only takes place in a few of the Local Authorities as the majority do not capture relevant data to be able to convert it to meaningful information.

SECTION VI: OPPORTUNITIES AND THREATS

The aim of this section was to assess how Local Authorities reacted to the opportunities and threats arising from political, economic, social, technological, legal, and environmental forces. In order to realize this aim interviewees were asked questions whether Local Authorities had a planned or reactive approach for evaluating these external forces.

However, the degree of effectiveness of responding to these external impacts through a planned approach has been very variable. For instance Local Authorities 1, 6, and 7 stated that they adopt a planned approach to grappling with external environmental impacts. This is what interviewee J of Local Authority 6 had to say regarding how they reacted to the effects of economic pressures and technological impacts:

“The two (economic down turn and technology) were almost going hand-in-hand because at the time where the availability of money was reducing, you know for us to...for some of our staff who are in outlying areas and islands to come into a meeting, the cost of that trip not only in staff time for travelling, but also the actual cost of that is very high. And because we've got a number of islands, there's a need for them (staff) to meet. We reasoned that the technology is there, therefore investment in the technology if the payback is reasonable I would have thought was great.”

A similar example of a planned approach to dealing with anticipated changes was provided by interviewee L of Local Authority 7 who stated:

“Anticipating the worse financial settlement in two years time, the Local Authority is positioning itself for that. the Corporate Asset Group is just about to review properties primarily because of the financial situation that all public sectors are going to be in in two years time, and the fact that property is our second highest cost after people. So we are going to have to review the budgets again. The obvious place to look is property. The only other obvious place to look at is severe reductions in staffing budgets with all the horrendous implications that arise from that.”

Similarly for the same Local Authority, they are anticipating and planning for the changes that will arise from the newly adopted Local Plan. Quoting interviewee M:

“...the Local Authority recognised that there were significant improvements required to the City Council, the city's infrastructure, particularly at a time where the approved local plan showed the building over the next few years of 35,000 additional houses along with 35,000 additional houses in [A] which should also impact on the Local Authority. Obviously, there was that number of houses, and there was a requirement for schools, roads etc. The Local Authority did a lot of work with particularly the business sector of the city to look at the strategic improvement plan, which is now in place. And that is starting to look at how the Local Authority, along with its partners, can start to address the need to grow at the time of major economic difficulties.”

Interviewee A gave an example of how they anticipate external changes and plan to exploit present opportunities, stating:

“These constant changes create opportunities which can be exploited or anticipated [demand for property changes constantly]. It changes as a result of demographics. It changes as a result of differences in transactional channels. It changes as a result of customer expectation, funding, rationalising your services, all kinds of things. So you need to look at performance constantly. Opportunities to do things differently change constantly.”

Local Authorities 2, 3, 4, 5, and 8, adopt a reactive approach to responding to external environmental impacts. The following response by interviewee 4 of Local Authority G perhaps best captures the approach:

“Monitoring of external forces is reactive. However, a proactive approach is now creeping in.”

As to whether Local Authorities adopt a reactive or proactive approach to dealing with external environmental influences, the evidence is inconclusive, though those that react have a slight majority.

SECTION VII: SERVICE LEVEL GAP

The questions in this section sought to elicit from interviewees if a formal consultation process to understand users' needs was used: (i) to assess current asset and management performance; and (ii) to assess desired or target performance and (iii) to determine if current and desired performances were established using benchmarked KPIs. Regarding the use of a consultative process, with the exception of Local Authority 1, the rest do not have such a process for understanding service users' needs. In terms of the approach, this is what interviewee A had to say:

"...we've done a series of what we call service-asset strategies where we jointly prepared documents with service managers. And it was a backward looking exercise reviewing the estate, as well as a forward looking one to determine what we needed to do in the future. And if you want them to do the right thing, that's how you go about doing it."

However, the importance of a formal process to establish service users' needs has been commented upon by interviewee A, who said:

"I mean, my other cliché is that if you think asset management is about managing properties, you're looking in the wrong end of the telescope. It's as much about understanding service demand and service need as it is about understanding assets."

From the available evidence, only Local Authority 1 indicated that a formal consultative process supports the setting of service level gap

SECTION VIII: STRATEGY FORMULATION

The aim of this section was for practitioners to identify appropriate asset or non-asset based strategies that they use for modifying demand of property usage, and creation of new or upgrading of existing assets. The questions established if capital investment strategies and demand management and forecasting techniques were used in the interviewees' organizations. All interviewed subjects indicated that Local Authorities utilise asset strategy solutions such as capital investment programmes involving creation of new or upgrading of existing assets to close asset performance shortfalls. A business case is developed in support of proposed planned capital expenditure. Quoting interviewee J:

"For capital planning, we have a business case gateway approach where projects are recommended for inclusion within the capital plan."

The main focus of the business case is to ensure that the proposed capital programme can be met in the long term. Quoting interviewee L:

“The main work of the Corporate Asset Group is to make sure that we can afford the approved capital budget. We now have, and have had for a number of years, quite a detailed capital prioritisation system, which is managed by the Asset Management Team reporting in to corporately, to not only Corporate Asset Group but to the Finance Committee of the Local Authority and all Service Committees. So we report on the financial position of each capital project at every meeting so we got quite strict control.”

However, while all Local Authorities prepare business cases, there is an acknowledgement that some of them are not robust. The weaknesses are acknowledged by interviewee L who states:

“There are weaknesses particularly in the business cases, which we have to prioritise options. Again, that is down to other services. not having all the proper knowledge as to how to write appropriate business cases, having difficulty understanding their role and managing the capital process once money has been allocated for a project.”

Interviewees were asked to ascertain if non-asset solutions based on demand management and forecasting were used to modify demand, and specifically if they utilized them in any of the following: regulated use restrictions, cost-based solutions such as demand substitution and incentives, and to educate users and stakeholders as a means of modifying asset demand. While Local Authorities utilise asset strategy solutions, there are weaknesses in preparing the necessary support business cases. From the available evidence none of the Local Authorities had a deliberate policy on utilising non-asset strategies.

SECTION IX: OPTION APPRAISAL

The questions in this section established whether practitioners utilised an option appraisal process to select an optimal option that maximises value for money to achieve the least whole life cycle cost and the maximum financial and non-financial benefit.

The questions were directed at learning if: (i) Benefit Cost Analysis (BCA) technique was utilised to assess the financial viability of options and an optimal option was chosen based on least whole life cost; and (ii) Multi-criteria analysis (MCA) was used to assess options for non-financial costs, benefits in terms of social, economic and environmental impacts, and an option that maximizes non financial benefits. In Local Authorities 1, 2, 5, 6, and 7, Benefit Cost Analysis (BCA) and Multi-Criteria Analysis (MCA) are routinely used to

assess options as part of a business case, which is prepared with respect to any option being considered. Quoting interviewee M:

“As part of that business case, you would have early on in the business case development, also considered an option appraisal. Options are evaluated for their impact, affordability, deliverability, and risk. Yes, whole life cycle costing is carried out as part of a business case.”

However, it would appear that the involvement of services in the assessment of financial viability of options based on whole life cycle costing remains weak. Quoting interviewee L:

“So capital term-wise, we can afford the capital programme but what we are going to obviously have to start working with Services about, and challenging, and assisting them is looking for them to understand the revenue base particularly the role that property has not only to deliver services but I think we need to sort of ask them to be aware of the cost of property.”

Services still do not fully take into consideration the cost of occupying property. In Local Authority 4, option appraisal is only carried out with assistance from external consultants.

Quoting interviewee G who states:

“Any requirements for whole life cycle financial analysis is undertaken by outside consultants.”

In Local Authorities 3 and 8, option appraisal is not utilized. Interviewee F states:

“Option appraisal and whole life cycle costing do not exist. That’s one of the banes of my life. But, it’s high time...right time to introduce but, there’s absolutely none at the moment, particularly, the whole-life costing. So, the resistance is coming from colleagues, they’re from elsewhere, not really wanting to take this on board.”

From the available evidence, it can be concluded that most Local Authorities do carry out an option appraisal of strategies. However, while they effectively assess options for initial capital viability, there remains a problem for the Services Department to appreciate the need for assessment of long-term financial viability of options, based on whole life costing. Some Local Authorities do not use option appraisal of strategies at all.

SECTION X: STRATEGY IMPLEMENTATION

The aim of this section is to assess if asset management improvement strategies that were used by practitioners involved setting out: (i) corporate, (ii) property and (iii) project management level arrangements. Questions were asked based on literature review to isolate those elements associated with corporate, and property and project management

Table 7.10: Strategy Implementation Arrangements

	<i>Corporate level officer implements asset management plan</i>	<i>Culture of asset management challenge</i>	<i>Adequate resourcing of property function</i>	<i>Accountable & identifiable project manager</i>	<i>Trained cross-functional Project Management Team</i>	<i>Available & consistently applied common project management methodology</i>
	Yes	Yes	No	No	No	No
	Yes	No	No	No	No	No
	Yes	No	No	No	No	No
	Yes	No	No	No	No	No
	Yes	No	No	No	No	No
	Yes	No	No	No	No	No
	Yes	No	No	No	No	No
	No	No	No	No	No	No

arrangements, that are necessary to support strategy implementation. Table 7.10 further down, summarises the strategy implementation findings.

i. Corporate Level Arrangements

The elements associated with corporate level arrangements are that a Corporate Level Officer manages the implementation of the asset management plan. In Local Authorities 1, 2, 3, 4, 5, 6 and 7, the implementation of asset management is overseen by an officer with corporate level responsibility, except in Local Authority 8 where this is the responsibility of an officer at operational level. Even though there is a corporate level officer in all Local Authorities except 8, the implementation of asset management is impacted by the lack of integration of facilities management (FM) into asset management. This is the case in all Local Authorities. Quoting interviewee G who states:

“The situation is better than it had previously been. Now property has its own focus at the top table from executive to elected member level. However there is need to have one strategic view that covers FM and property. Presently, these are separately represented. There is no one single individual who has overall responsibility for all three. The asset management role does not cover FM.”

Having challenges in asset management in terms of interrogating the fitness for purpose of properties they utilise to support service delivery, this only exists in Local Authority 1.

Interviewee A explains this as follows:

“Now that there is a corporate landlord approach, the Services Department is able to challenge the properties they utilise. The department is encouraged to look at their estates from a property management point of view and encouraged to seek answers to the following questions: what have you got? where is it?, how it currently being used in terms of its capacity, occupancy, and suitability? The answers to these questions should lead the department to confront the question: “Okay, what is this property doing for me? And also to look at the costs associated with the property such as the running cost associated with it, as well as the capital invested in it to get a view as to whether these properties are offering good support services or not.”

In the rest of the Local Authorities, the Services Department has not really bought into the culture of asset management challenge. Primarily this would appear to be as a result of the resistance to asset management by service heads. For instance quoting interviewee O:

“There is so much Service Department resistance overruling any kind of asset management including reviewing how they’re actually using the buildings. And, there’s resistance from the other services to let go or to accept that it should, you know, we should’ve been there from the start. The properties are still in the control of the Service Department, which resists any asset management initiative.”

It can be concluded that while corporate level officers exist in most Local Authorities, the culture of asset management challenge is largely absent due to the reluctance of Service Heads to engage in asset management.

ii. Property Management Arrangements

Literature review identifies property management arrangements as being associated with the availability of adequate resources to support property function. The issue of resources appears to affect all Local Authorities, and probably result from budget cuts that arise from the recent economic recession. The statement by interviewee G of Local Authority 4 captured the dearth of available resources when he stated:

“We do not have the time nor resources. Currently we only have about six people responsible for property management issues.”

The impact of inadequate resources and its implications on delivery asset management service is best articulated by interviewee O of Local Authority 8 who said:

“It’s hard when you, you know, we do as best as we can with our limited resources. But, it’s an uphill struggle.”

Local Authority 7 adopts a pragmatic view in the context of resource constraints to strive to deliver effective asset management service. Quoting interviewee M:

“But I think there’s so much you can do. But, I think there’s a lot more that we could do with more time and resources. You have your staff. You do what you can to pin down what’s important and work with that. I’m sure everyone says exactly the same.”

However, it would appear that some Local Authorities, while acknowledging being affected by resource constraints, consider that the solution to the problem is the adoption of new working practices such as partnering with other community agencies and continuing such arrangements as the way to deal with the resource issue. As interviewee C put it:

“And, because we’re moving towards this joint property vehicle with the police and the fire and that, we’re not recruiting at the moment. So, I think it is an issue. But, I think with the joint property vehicle, at least then we’ll be combining resources with the various sorts of public sector partners. So, that will help.”

Local Authorities are constrained by inadequate resources especially staff to deliver effective asset management service. However, some Local Authorities consider that through adoption of innovative working arrangements, partnering with other community agencies will address the resource issue in future.

iii. Project Management Arrangements

Reviewed literature suggests that project management arrangements include having in place an identifiable project manager responsible and accountable for delivery of capital programmes; a cross functional project team responsible for capital projects; and availability of a consistently applied common project management methodology. In Local Authorities 2, 4, 5, 6, and 7, there is an accountable and identifiable corporate level officer called the programme manager, responsible for delivery of capital programmes. These Local Authorities have set up a corporate level structure, typically a board, to monitor and control project progress. The corporate level officer has overall responsibility for projects and he/she reports to the board. He/she interfaces with individual project managers and the board for different projects. In terms of the functional characteristics of the structure, interviewee K explains this:

“We’re taking account of how individual projects are being resourced, when they’re expected to be delivered, the time frames in which they’re expected to be delivered, and the risk associated with that, and we (Asset Management Board) receive exception reports on a monthly basis as a consequence of having set up that approach.”

There was no evidence of such an asset management positioned corporate level officer responsible for programme delivery in Local Authorities 3 and 8.

It can be concluded that in the majority of Local Authorities, there is an individual at corporate level officer responsible for capital programme delivery. In terms of the existence of a cross-functional project team, staffed with individuals trained in project management, no Local Authority has such an arrangement. Projects are delivered in a traditional sense using a functional approach. The traditional approach to project delivery is confirmed by interviewee J who states:

“Projects are delivered in a traditional sense with contract administrators and teams assembled as appropriate.”

There is recognition, however, of the value of having a cross-functional project management arrangement. Quoting interviewee L:

“We did have (a project management team) ... recognize that there is a need potentially for more project managers, either internal or external, to come in at a fairly early stage to assist with that type of work.”

As for the introduction of a common project management methodology to support project delivery, only in Local Authority 7 was this evident. Quoting interviewee L who states:

“The Local Authority has put together project management guidelines based on PRINCE 2 which are meant to be consistently applied.”

From the available evidence, it is clear that Local Authorities have made some progress towards implementation support for project management delivery. In the majority of Local Authorities there now is an accountable and identifiable corporate level officer responsible for capital programmes. However, the setting up of a project team dedicated to capital programme delivery and the introduction of project management guidelines remains undone in most Local Authorities.

SECTION XI: MONITORING AND CONTROL

Questions in this section determined from practitioners whether there was in place a asset management performance monitoring system in place. On the basis of literature review, the questions assess if an asset management performance monitoring system involved:

benchmarking of asset management practices based on a suite of KPIs derived from a benchmarking club, to which the Local Authority belonged; and (ii) internal benchmarking.

The findings are summarised in Table 7.11.

(i) Benchmarking Club

Local Authorities 3, 4, and 8, indicated that they do not benchmark nor belong to a benchmarking club. Interviewee G explains the lack of benchmarking as follows:

“Benchmarking is ignored. We do not have time and capacity to do it. We keep an eye on things but not seriously. We are not comparing ourselves with others because time for doing so would be worthwhile spent doing other things. We do not have resources to be doing benchmarking.”

Interviewee N of Local Authority 8 explains the lack of benchmarking as follows:

We don't have our systems properly in place that we can effectively use benchmarking. We know of broad parameters of grading, and we know where we can...very roughly where we are. But really, until we've got the management information systems in place, and with the accurate data, it's hard for us to accurately benchmark any of the buildings.”

It would appear that part of the reasons for lack of benchmarking is due to resourcing especially inadequate staff and undeveloped property management information systems.

Local Authorities 1, 2, 5, 6, and 7, belong to a benchmarking club. For instance Local Authorities 5, 6, and 7, belonged to a Scottish benchmarking club up to the year 2013. It was managed by the Chartered Institute of Public Finance and Accounts (CIPFA). However, as of 2014 these organisations now belong to the Local Government Best Value Benchmarking Club. Local Authority 1 belongs to 2 national benchmarking clubs called NAPPMI and COPROP, , as well as to a local club called the West Midlands Asset Management Club (WMAMC).

Of all the Local Authorities that belonged to a benchmarking club, only in Local Authority 1 does benchmarking occur. Local Authorities 5, 6, and 7, as well as those Scottish Local Authorities that do not belong to any club, are now legally obliged to report the KPIs on

Table 7.11: Benchmarking Arrangements

<i>No</i>	<i>Benchmarking Club</i>	<i>Internal Benchmarking</i>
1	Yes	Yes
2	Yes	Yes
3	No.	Yes
4	No	No
5	Yes	Yes
6	Yes	Yes
7	Yes	Yes
8	No	No

suitability, condition, and accessibility, to Audit Scotland. Since 2014 they must report to the Scottish Government regarding KPIs on condition and suitability.

Quoting interviewee J:

“Up till this year, Audit Scotland had statutory performance indicators and within them were three main property-related indicators for: condition, suitability, and the accessibility of operational property portfolio. Now, it's the Local Government benchmarking forum and two have been used, that is, condition and the suitability.”

Even though Scottish Local Authorities, which belong to a benchmarking club or not, send information to the audit body or Scottish Government, these indicators appear not to be used for benchmarking purposes at all. Interviewee L considers that the whole benchmarking exercise needs to be improved, stating:

I think what needs to be done, as I'm a member of the Federation of Property Societies in Scotland... and I've actually said this at our meetings, is that I think we've got a lot more work to do corporately throughout the whole of the Local Authorities in Scotland on benchmarking. I think the difficulty is that different Local Authorities have all got the same benchmark, but we are using the same information. So how can we benchmark with each other?

According to interviewee M:

“There is no real benchmarking as all authorities are using the same information. Even the information appears not to be comprehensive. Of all Local Authorities, 22 out of 32 belong to the Local Government Benchmarking Value Scheme. The group feeds information into a single online portal, but the information is not comprehensive as not everyone puts information on it. The information for benchmarking is therefore not very valid,”

Relating to his own organisation and the Scottish Benchmarking Club, interviewee M continues:

“I don't think we use it (benchmarking club) as much as we should in our organisation. And, I think we're now getting started to go out and use that information to try to compare ourselves with others, which is what benchmarking is about. I think we could do...it (Local Government Benchmarking Value Scheme) is promising but not everyone puts information in. So, if you have 10 cases of information, how do you use that information? How valid is that information if only 10 people are filling in the information, or less in some cases?”

It would appear that even though Scottish Local Authorities populate indicators set up by the Local Government Benchmarking Club, the information is not used to compare performance between authorities.

The situation is not any different in English authorities. In England, the government stopped mandatory provision of KPIs. Benchmarking is optional amongst Local Authorities. However, there appears to be disillusionment with the whole benchmarking exercise

especially when comparing performance with other Local Authorities. The situation is best captured by interviewee E who states:

“What we don’t really have is benchmarking across the Local Authorities, which is problematic unless you put sufficient effort into properly framing the question, and more importantly, how you calculate your performance indicator if it is going to be of little value? We have done benchmarking in the past and some things were really held up to be good and others were held up to be pretty poor. When we talked to other Local Authorities to compare performance, it became obvious the only reason they scored well is because they calculated it in a different way. There wasn’t sufficient clarity over the way you have to calculate the indicator.”

Coming up with consistent indicators for benchmarking is recognised by both Scottish and English Local Authorities as an existing problem, and evidence shows no real benchmarking across Local Authorities occurs even if that is recognised. Crucially also, is the lack of comparison between organisations of a similar nature in terms of size, social context, or geography. As interviewee E states:

“I think assessing yourself against similar Local Authorities is the key for me. This is because the issues we face on asset management level would be the same. The levels would be entirely different for say Manchester City Council because of differences in scale, but there are a lot of Local Authorities our size, not necessarily in the greater Manchester area but a few miles away. I think we can use them to compare ourselves to but again the indicators have to be meaningful. It should not just be industry indicators, unless the results can actually deliver tangible improvement on the ground. Otherwise, it is a waste of time.”

Lack or flawed benchmarking is not a universal situation. In Local Authority 1, there is recognition that Local Authorities differ in terms of size, social composition, and resource and leadership challenges. As such, it is more about the level of asset management performance improvement that a particular Local Authority is making than about comparisons. This is a fact that the Local Authority 1 seems very aware of. As interviewee A states:

“Now, anybody who has ever looked at performance management will know that no two Local Authorities ever measure anything the same. So it’s not so much about absolute comparators for us. It’s more about trends. We’re interested in knowing whether we are getting better, stable or worse compared to our own estate. Are we managing our estate better internally or not? Are we focusing on the rubbish buildings, getting rid of the worst performing ones, and investing in the best performing ones?”

However, the Local Authority compares its performance against other Local Authorities when it is appropriate. Again quoting interviewee A:

“And then we compare ourselves with other Local Authorities on the bigger things like how much property do we have per head of population? How many square metres do we have per head of population? Because, that tells you quite a lot about the efficiency of how you’re delivering your services.”

(ii) Internal Benchmarking

Regarding internal benchmarking, all Local Authorities except 4 and 8 stated that they do this. Local Authorities 6 and 7 especially compare yearly performances based on indicators for condition, suitability and accessibility. In Local Authority 5, internal benchmarking is based on condition KPI only. Quoting interviewee H:

“There exists a benchmarking management system where annual statement of condition (historical) is compared against other Local Authorities.”

However in Local Authority 1, there is recognition of the need to have internal comparators or indicators to assess the trend in performance, and external indicators to assess efficiency.

As interviewee A states:

“It’s about understanding what your performance is in a way you might be able to get improvement. But as I say, we have internal comparators and we have external comparators.”

From the available evidence, it can be concluded that most Local Authorities in Scotland belong to a benchmarking club and are mandatorily required to report on condition and suitability KPIs, having dropped the accessibility KPI. In England, the government had done away with reporting on KPIs. In England and Scotland, external benchmarking hardly occurs, and in both countries Local Authorities have no confidence in nationally produced benchmarking schemes but see merit in having local benchmarking schemes involving similar organizations. The disengagement by government to require Local Authorities to report on KPIs appears to have taken away the development of performance management arrangements including benchmarking across Local Authorities. However, in the minority of Local Authorities, there is recognition of the value that comes from belonging to a benchmarking club, and the need for internal and external benchmarking is considered pivotal for assessing asset management performance improvement trends.

SECTION XIII: EFFICIENT AND EFFECTIVE USE OF PROPERTY ASSETS

In relation to this section, the questions that were included were aimed at ascertaining, through participants' experiences, if asset management practices have resulted in efficient and effective use of property assets. Reviewed literature indicated that efficient and effective use of property assets is evidenced by: (i) rationalisation of operational property holdings, (ii) reduction in the levels of required maintenance and annual operating costs, (iii) increased space utilisation and (iv) improved asset condition, suitability and accessibility of services.

i. Rationalisation of property holdings

All the interviewees representing all Local Authorities, except Local Authority 3, state that they have rationalised their estates. Interviewee A best captures what has been a common feature and trend:

"... just from the Local Authority's point of view, we have shrunk non-school estate by 40% and we're going to shrink it by probably about 40% of what it was so we'll lose about 2/3... In terms of the actual numbers the Local Authority has reduced its operational assets from an original figure of 245 buildings in the non-schools portfolio 5 years ago. To date, it has released about 100 and consider that by the end of the five-year programme, there could be less than 100 buildings."

In Local Authorities 2, 4, 5, 6, 7, and 8 they indicate that the biggest drive to rationalise has been a reaction to recent economic recession. For instance interviewee I states:

"The city centre office rationalisation plan has changed slightly. Because of economic changes, the rationalisation plan has been rewritten to suit the changes. From a total of 19 buildings these have been reduced to 6 removing in total 500,000 sq.ft."

A similar observation is notable from Local Authority 6 where interviewee K stated:

"We've reduced the square metres we occupy by about 34%. In other instances, it was a question of moving out of offices we had leased."

The same is true in Local Authority 7 where interviewee M states:

"The Local authority closed its head office and redeveloped a new building where they have relocated staff from satellite offices. The surplus properties have been declared surplus to requirements and earmarked for disposal".

It is worth noting, however, that the rationalisation that has taken place has mostly affected the indirect operational properties such as Support Office portfolio and not indirect operational properties. Services are reluctant to support asset management initiatives

including rationalisation of the portfolio they control, and this is not assisted by the lack of a corporate landlord approach. The difficulties of rationalising the direct operational properties (such as schools, swimming pools, etc) caused by lack of service support are best summarised by interviewee L, who states:

“Politically, the members are reluctant to make significant cuts in the size of the (operational) property portfolio because of the perceived reduction in services. And I think that’s one, we agreed to do more work because it has to be done with the politicians so they are aware of the full picture. What we’ve been trying to say to the Services Department (is that), ‘Forget property, you tell us what services you want, we will try and get you the property.’ But that is easier said than done because we’ve got 10 buildings that are not ours corporately and I think that is the beast that we have been trying to tackle.”

Apart from the lack of support from the Services Department, exacerbated by lack of a corporate landlord approach, the lack of political support has also hindered rationalisation of especially direct properties such as the school estate. As stated by interviewee L:

“You look through Scotland’s Local Authorities on trying to close schools usually for educational needs because you can’t close a school for a property reason. But you’ll get [no support] any time you go to try and close a school. And they are, probably out with the Local Authority’s main office accommodation, probably the most expensive assets to run and all the potential property savings and improvements to benchmark.”

It is clear that Local Authorities have succeeded in rationalising their estates. However, the following observations are worth noting: The success has been in reducing support office accommodation; here are difficulties in rationalising direct properties such as schools due to lack of political will and support; there is lack of corporate ownership of direct properties; there is lack of support from service heads in control of their properties and who are not keen to engage in any rationalisation agenda.

(ii) Required Maintenance and Annual Operating Costs, Space Utilisation, Asset Condition, and Suitability and Accessibility of Services

Apart from rationalisation of property holdings, practitioners were also asked if asset management practices have led to improvements such as reduction in the levels of required maintenance and annual operating costs, increased space utilisation, asset condition, suitability and accessibility of services. Table 7.12 is a summary of the extent to which Local Authorities have realised efficiency and effectiveness in their operational property estate holdings, due to asset management practices.

Table 7.12: Efficient and Effective use of Operational Property Assets

No	Reduced required maintenance	Reduced annual operating costs	Increased space utilisation	Improved asset condition	Improved suitability	Improved accessibility
1	Yes.	Yes	Yes.	Yes.	Yes	Yes
2	Yes.	Yes.	Yes.	Yes.	No	Yes.
3	No	No.	No	No	No	No.
4	Yes.	Yes.	Yes.	Yes.	No	Yes.
5	Yes	Yes	Yes	Yes	No	Yes
6	Yes.	Yes.	Yes.	Yes.	No	Yes.
7	Yes.	Yes.	Yes.	Yes.	No	Yes.
8	Yes.	Yes	Yes.	Yes.	No	Yes.

All Local Authorities interviewed state that they have reduced the levels of maintenance backlog. For instance the indicative level of progress made is explained by interviewee B:

“When we started the programme (five years ago), we got maintenance backlogs of about £11.5 million on the non-schools estates. And, that’s come down by £2 or £3 million since we started. Every single building now is looked at. And, that’s what we report to the Corporate Landlord Board every...is meeting every 8 weeks”.

However, it needs to be emphasized that in other Local Authorities, the gains achieved relate mostly to indirect offices. As for the specific asset management practices that have led to such improvements, Local Authorities 1, 2, 3, 4, 5, 6, 7 and 8 state that this has been either through a rationalisation process or condition grading leading to the disposal of properties that perform poorly. Quoting interviewee N:

“Condition grading of properties was done five years ago. However, with the schools programme and some office rationalisation, the condition of the estate has improved, and with it there is a reduction in backlog maintenance.”

Over ten years or more in both Scotland and England, there has been a massive schools upgrading programme. This has led to the closure of schools that were in poor condition and these were replaced with new or upgraded ones. Only Local Authorities 1, 4 and 6 spent money to improve properties.

It can be concluded that over the past five years or so, Local Authorities have seen their operational property portfolio reduce its maintenance backlog. The improvements have been as a result of a rationalisation programme, the disposal of poorly performing properties, and the schools upgrading programme.

As a consequence of a rationalisation programme and getting rid of poorly performing properties, all Local Authorities report that the remaining operational property portfolio's condition and operating costs have improved. Since the grading of these efficiency and effectiveness elements are aggregated for the entire estate, it means that if a poorly performing portion of the estate is disposed of, the remaining properties' performance will rise. As interviewee H explains:

“By implication, as the underperforming properties have been sold, the condition of the portfolio has improved and so the cost of operating the properties is likely to have reduced.”

Examples of the types of improvements in operating costs are stated by Local Authorities 5 and 7. In Local Authority 5, interviewee I states that:

“In terms of revenue savings (operating costs) this is estimated to be £6 million annually over the next 20 years due to rationalisation and other measures.”

Similar improvements are also reported in Local Authority 7 where interviewee L states:

“As a result of smarter working the Local Authority has saved about £750,000 from office operating costs. This comes from closure of offices and concentrating staff in [.....]. Also due to improved condition and suitability of the estate following rationalisation and redevelopment, the Local Authority has saved £8 million”.

Examples of improved asset condition of the portfolio as a result of rationalisation and asset disposal is best articulated by interviewees H and J. Interviewee H states:

“Regarding condition, the number of properties classified as D has significantly reduced. The worst performers have all but been eliminated.”

In terms of the overall rating of the estates, interviewee J states:

“In so far as the condition of the operational property portfolio is concerned, the Local Authority estate, when benchmarked against other Local Authorities, in the same club. It is sitting at about 86% in category B; this is within the top performing quarter of Local Authorities.”

The picture regarding asset suitability is rather mixed. While Local Authority 1 reports improvements the rest of the Local Authorities state that limited progress has been made.

For instance, interviewee M states that:

Suitability, I think that many public sector organisations because suitability is assessed by the service, there's potentially a wee bit more work to do on suitability. And I think that's an area that (we) will be looking at. We do have a dedicated officer who looks at the conditions of the estate though that post has been vacant for the last few months. I think when the new post holder comes in, that person will be looking more on working with the Services Department on suitability.

The limited progress regarding suitability is echoed by interviewee K, who states:

“Our suitability is a bit lower. But it's in the high 60s (%) maybe...maybe just or 70s (%) maybe this year.”

The limited progress in suitability rating can be due to the fact that this indicator cannot be improved by rationalisation or disposal schemes, as it relates to aspects such as the location of the property. Disposal schemes and rationalisation programmes have focused on indicators such as condition, maintenance costs and operating costs.

From the available evidence, a number of conclusions can be drawn relating to improvements to most Local Authority operational property portfolio holdings. For instance, maintenance backlogs have been reduced, condition of the estate has improved, and there have been reductions in operating costs and improvements in asset accessibility. There has been limited progress in improving the operational portfolio's suitability. However, it is critical to note that improvements are largely due to an asset rationalisation programme rather than a programme of capital investment, which has led to a reduction in properties. Improvements have resulted from the national capital programme by both Scottish and West Minister Governments, which focused on improving the education estate, and led to the construction of a number of new schools, and the upgrading of others. Apart from education estates, indirect office properties have also seen an injection of capital investment programmes that has contributed to reductions in operating costs. However, this is related to the rationalisation programme, as closure of offices has often led to concentration of workers in a few buildings.

SECTION XIV: IMPROVEMENTS IN SERVICE DELIVERY

Questions in this section aimed at learning from interviewees whether they considered that asset management implementation undertaken to date has been successful in terms of success criteria likely to have brought about improvements in service delivery. On the basis of the reviewed literature, the criteria giving indication of likely improved impact on service delivery, and which the questions sought to identify include: (i) introduction of new

working practices, (ii) cross-service working, co-location, partnership working, and (iii) enhanced environmental sustainability of property holdings (See Table 7.13).

Table 7.13: Introduction of New Work Practices, Cross Service, Co-location and Environmental Improvements

<i>No</i>	<i>Introduction of new work practices</i>	<i>Cross-service working, co-location and/or partnership working</i>			<i>Enhanced environmental sustainability</i>
		<i>Co-Location</i>	<i>Partnering /Joint Working</i>	<i>Cross Service Working</i>	
<i>1</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>No</i>
<i>2</i>	<i>No</i>	<i>Yes</i>	<i>Yes</i>	<i>No</i>	<i>Yes.</i>
<i>3</i>	<i>No</i>	<i>Yes</i>	<i>No</i>	<i>No</i>	<i>No</i>
<i>4</i>	<i>No</i>	<i>Yes.</i>	<i>Yes</i>	<i>No</i>	<i>Yes</i>
<i>5</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>Yes</i>
<i>6</i>	<i>Yes</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>
<i>7</i>	<i>Yes.</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>Yes.</i>
<i>8</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>

(i) Introduction of New Working Practices

A number of questions were put to interviewees’ to learn from their experiences if new working practices such as flexible working arrangements including hot desking and home working were evident in their respective organisations. Evidence suggests that there is a very variable picture ranging from Local Authorities where there is no flexible working (Local Authorities 2, 3, 4, and 8), limited flexible working (Local Authority 5), to where flexible working is really embedded (Local Authorities 1, 6 and 7). In Local Authority 5, there is an element of flexible working as pointed out by interviewee H who states:

“There is recognition that technology will have an impact. There is limited amount of flexible and agile working, but efforts are underway to do more on this”.

In Local Authorities 1, 6, and 7, the organisations have put in place flexible working programmes, such as Flexible and mobile working (FAME) in Local Authority 1; Work Force Deployment (WFD) in Local Authority 6; and Smart Working (SW) in Local Authority 7) to ensure flexible working is embedded across the organisation.

The degree to which flexible working has taken hold in these organisations is best explained by interviewee A:

“I think the biggest thing we’ve done is to release people to work from different bases. I mean work is an activity, it’s not a place. And we have this culture where line of sight was the only way to manage people. Actually, you don’t need to do that. You need to manage performance rather than presence. So we’re able to use technology to enable us to access our systems, our records, all of our work remotely. We no longer provide people with a desk each. If you’re a mobile worker then you, we have one desk for two people. And we deliberately encourage people to work from different bases. We have a series of touch points available so that if you are, if you can’t get a desk, you can put your stuff down somewhere else.”

The whole concept of hot desking and homeworking have led to a real reduction in the desk to staff ratio as is explained by interviewee L of Local Authority 7, who states:

“The Local Authority has introduced a project called Smarter Working. Staff works on the basis of 8 desks for every 10 people. They are supported by various IT related technologies to work at home or do hot desking.”

The impact of technology in overcoming the need for physical contact in Local Authorities with widely dispersed communities is clearly exemplified by what has occurred in Local Authority 6 as explained by interviewee J:

“Within the offices, a number of years ago now, we undertook a project known as Work Force Deployment. (We) looked at [Local Authority 6] working, amongst other things. It was recognised that work was not a place where we go, but was rather a thing that we do. And it was acknowledged, for many of the staff, they could actually do the work that they’re engaged in without having to necessarily sit at an office every day. We could do it at home. We could do it in an office that is not necessarily the base. So, the Local Authority has taken technology into these office rationalisation projects and allows WiFi connection for staff. We also have drop-in areas for staff.”

Apart from using technology for flexible working spaces such as home working and non fixed bases, in Local Authority 6 they have also embraced technology to improve communication between staff in scattered locations. Again quoting interviewee J:

“The other aspect of technology we’ve used to a great extent has been communication. We try not to travel around too much. We have quite intensive video conferencing facilities. You know, we have quite a number of distant islands as well, within [Local Authority 6]. It could, in some instances, depending on where we were going, involve more than a day’s travel. We could have overnight stays. We don’t need really to do that now. We use a lot of Micro Lync technology to assist with flexible working. It has made a major difference.”

It can be concluded from the available evidence that less than half of the Local Authorities i have flexible working. However, where it has been introduced it has been very successful in improving communication and reducing the amount of space utilised by the Local Authority. Communication technology has played a major role in aiding flexible working. However apart from technology, this working system has also contributed towards the

rationalisation process, which is aimed at realising the benefits that accrue from reducing property cost and realisation of capital receipts. In the majority of Local Authorities, they have still not caught on to the role that technology can play in aiding flexible working and therefore have not as yet realised the benefits that it can bring.

(ii) Cross-service Working, Co-location, Partnership working

Service delivery improvement is evidenced by the extent to which there is colocation by various community agencies, as well as cross service working and partnership arrangements in service delivery. In Local Authorities 1, 2, 3 and 4, there is evidence of these working arrangements, but these are absent in Local Authorities 5 to 8.

Interviewee H best represents the position in Local Authorities 5 to 8 when he says:

“Regarding cross-service working, there is some impracticality. Our view is that services that work together such as finance, housing and social work, have some synergies. Otherwise, services without synergies cannot work together. As for co-locating, the Local Authority had considered it. However, this has not been taken forward as the assessment of Local Authorities’ service need does not support this. However, regarding co-locating with community partners, again not much has been done on this though considerations are being made to do so with NHS, fire etc. This is being done more to respond to the push by Scottish Futures Trust.”

However, there is nonetheless recognition that there is merit in moving towards co-location, cross-service working and partnering service delivery, especially with other community agencies. As interviewee L puts it:

“I think over the next few years, the public sector in particular, how we use offices will completely change, be completely revolutionised. I think again back to the situation, we might have a budget situation in two, three years time is a shared agenda. I think there is pressure from the central government — be it London and/or Edinburgh — for the public sector more to share property and particularly offices. It does not really matter who you work for. And certainly I think that is the way we will be going.”

However, in Local Authorities 1, 2, 3 and 4, where new working practices have been introduced, there are differences in terms of whether organisations are only at collocating stage or have fully moved to embrace delivery of services in partnership with other community agencies. For instance Local Authority 3 has collocated its local social housing service together with the local health services. However, there is no evidence of joint service delivery programmes. Each service still carries out separate activities.

In Local Authority 4 however, a number of agencies share centralised reception services. As interviewee G explains:

“For instance there is a single Contact Centre at Civic offices that serves the Council, Police, Social Services (a county function), Passport Office (Central Government function), Department of Work and Pension (Central Government function), and Deaf Vision (a charity).”

Evidence of integrated cross-service working and partnership service delivery is found in Local Authority 1. As regards partnership working, this Local authority as well as in 19 other community agencies including the Police, Fire Service, District Council, Social Services and others, have formed the Capital Assets Partnership, which aims at removing boundaries between organisations. The central focus is not just co-location but also to improve accessibility by users as well as cross-service working. The philosophy is explained by interviewee A in the following terms:

“And the thing that we’re involved with most at the moment is our capital asset partnership where we’re trying to remove the boundaries between organisations. All of these agencies want to have a presence of locality because the people who are being served very often have poor communication skills and low levels of motivation. If they’ve got to make an effort to do it, they won’t. So if it’s not on your doorsteps, it’s much harder to deal with those people. So looking through their eyes, what can we do to make their life easier? Well, put the services on their doorstep. But we can’t afford to do that because we can’t all afford to have these little satellite offices. But if we all come together, we can. If we all act as a single public sector, then there’s no reason why we couldn’t access or deliver those services through the same buildings. And we’re using this kind of example as a means of encouraging service managers to come together a bit more to break down the barriers and to not worry about, you know, I can’t share a building with them because they’ll steal my milk.”

The Local Authority is presently in an agreement with partners to introduce cross-service working. Local Authority 1 is discussing with a neighbouring Police force how to set up a Joint Asset Management vehicle, for managing property assets. They consider that through synergies, they could save up to 25% through the public estate. The importance of cross service working is emphasised by interviewee A who strongly believes that technical support services should be delivered cross-organisationally, and he states:

“I’m an absolute firm believer that the future for technical support to public sector services lies in cross-organisational collaboration. There is no future for a single organisation, having single technical support service because you can’t afford to do it, not viable. But that system or that support service across a number of organisations is viable, does have a future.”

The partnership considers that through cross-service working, the public estate can realise a lot of efficiency savings. Again quoting A, he says:

“But if you look at the public estate in its totality, it’s a fantastic resource. It’s far bigger than anything that we need. It’s, there’s a lot of capital tied up in it. There’s a lot of revenue going in to support in here. There are an awful lot of services which are limited by it because managers don’t think beyond it. So our objective is to seek to manage the estate as a single estate”

It can be concluded from the available evidence that the introduction of cross-service working, co-location, and partnership working are still being considered in Scottish Local Authorities. In English ones, the picture is mixed. Some Local Authorities have only gone as far as co-locating with other community agencies without moving towards joint service delivery programmes. In some Local Authorities, there is cross-service working amongst agencies even if it relates only to common reception services. However, in other Local Authorities, they have moved beyond co-location to partnership working including cross-service working.

(iii) Enhanced Environmental Sustainability of Property Holdings

The questions in this section helped determine whether asset management practices have positively impacted on the sustainability of the operational property portfolio. The reviewed literature indicated that properties that are sustainable are likely to have a positive impact on building occupants and this is likely to improve service delivery.

Local Authorities 4, 5, 7, and 8, indicated that they have taken measures to improve energy efficiency and carbon reduction in order to enhance the environmental sustainability of buildings. For instance interviewee G states the following with regard to the need to improve energy efficiency:

“Money has been spent on some properties such as the Civic Centre to improve environmental sustainability. For instance, we have installed environmentally friendly lighting, and solar panels on the Civic Centre which has seen its EPC rating improved to C.”

It would appear that the efforts to improve energy efficiency in buildings are being driven by the requirement to comply with legislation. Quoting interviewee G:

“Because of the need to respond to EPC legislation, there is now more focus on expensive buildings.”

Perhaps the magnitude of such focus is shown by the scale of investment undertaken by Local Authority 5 to improve energy efficiency of properties. As interviewee I states:

“The Local Authority has a carbon management plan. Every Service Department is being challenged to leave a carbon footprint. Some of the modern buildings such as an office at [220] High Street has very high BREAM due to LED lighting, photovoltaic, voltage optimisation. Also message is being sent to staff to use segregated waste. A good portion of the estate has some of these measures in place e.g. the Schools Project, with a committed budget of £200m.”

In Local Authority 7, they had an insulation programme to improve energy usage as well as measures which have seen a reduction in water usage. In Local Authorities where there have been no measures to improve environmental sustainability of buildings, this appears to be as a result of attention being paid elsewhere, especially on the need to deal with budgetary constraints. As interviewee B explains:

“the council has been focused on budgetary savings and not environmental issues. However, the Local Authority is aware that it needs to be ready to respond to the new legislative requirements.”

From the available evidence it can be concluded that almost an equal number of Local Authorities are taking measures to improve energy efficiency and water usage measures to improve the carbon footprint and the general environmental sustainability of buildings. However, the adoption of these measures appears to be driven by the need to comply with impending EPC legislation to come in force in a few years. In the majority of Local Authorities there are yet no measures to improve environmental sustainability of buildings. This appears to be as a result of having to focus on budgetary issues. However, the Local Authorities indicate that they will soon turn their attention to measures to improve environmental sustainability of buildings.

7.4 SUMMARY OF FINDINGS

Performance Measure	Outcome
<p>Profile of Interviewees</p>	<ul style="list-style-type: none"> • There was an equal spread of interviewees between those at director and operational levels. However, at operational level the majority of interviewees were property practitioners and not facilities ones.
<p>Asset Management Structure</p>	<ul style="list-style-type: none"> • All the interviewed Local Authorities have implemented a board level structure for asset management. The Property Asset Management Unit is overseen by the strategic asset management board normally represented by service heads. The board reports to an elected member. • In the majority of Local Authorities, facilities management remains outside the remit of asset management. In only two authorities, one <i>rural</i> and an <i>urban</i> local authority, have they put in place a structure that integrates estates and facilities functions. • In all local authorities, except a single rural local authority, a corporate landlord approach to property ownership is absent. In nearly all local authorities, therefore, asset management activities are directed mostly to indirect properties, over which asset management teams have control. Service heads still retain control of properties they occupy and are unwilling to let go of it. In some Local Authorities, the situation is even worse with education departments still carrying out asset management functions on their own.
<p>Corporate Goals</p>	<ul style="list-style-type: none"> • Regardless of the <i>type of authorities</i>, all do prepare corporate and asset management plans. This is largely due to the statutory and requirement set by Central and Scottish governments. • Only in <i>rural authorities</i> do asset management plans support corporate plans. • Also only in <i>rural authorities</i> is there effective linkage between service, asset plans and corporate plans, meaning that in urban and

	<p>semi-rural local authorities corporate objectives do not inform the development of specific objectives for the management of assets.</p>
<p>Asset Management Capabilities</p>	<ul style="list-style-type: none"> <p>● Leadership Support, both in terms of elected member support and from service heads, for asset management is <i>strong by rural and urban</i> authorities but <i>weak in semi-rural authorities</i> in so far as it relates to indirect operational properties.</p> <p>However, in <i>all types of authorities</i> there is no real support from service heads and elected members for asset management where it affects direct properties being those from which services are delivered.</p> <p>● Management Information Systems: All local authorities, except one, do have property management information systems. This means that all realise the significance of having such a system.</p> <p>However, in terms of the system's suitability <i>all rural authorities</i> perceive them to be <i>adequate</i> in terms of supporting asset management functions by holding relevant data; the data being current; systems are fully populated; or there being no issues with functionality.</p> <p><i>Urban authorities</i> present a <i>mixed</i> picture between possession of suitable and unsuitable systems.</p> <p><i>Semi-rural authorities</i> have <i>inadequate</i> systems or <i>do not have</i> such systems at all.</p> <p>● Adequate staff trained in Asset Management: In <i>all local authorities</i> there are inadequacies in terms of both numbers and skilled staff to implement property asset management due to lack of asset management training.</p> <p>● Culture of Asset Management: In <i>rural authorities</i> asset</p>

	<p>management culture is embedded across the organisation but weak in urban and semi-urban authorities.</p> <ul style="list-style-type: none"> • Availability of Cross functional Asset Management Teams: <i>No local authority</i> has such an arrangement • Programme of Building Capacity of Staff through Training Programmes: No formal training arrangements exist <i>in any of the local authorities</i>. Training is attained on an ad hoc basis.
<p>Opportunities and Threats</p>	<ul style="list-style-type: none"> • Proactively or reactively dealing with opportunities and threats: <ul style="list-style-type: none"> ▶ Evidence is inconclusive whether Local Authorities adopt a planned or reactive approach to PESTEL changes and their property asset implications. Rural authorities in particular adopt a planned approach to dealing with external influences. Urban authorities mostly do not adopt a planned approach while semi-rural ones are reactive in their responses. <p>Whether planned or reactive all local authorities have strongly reacted to budgetary pressures largely arising from recent economic challenges. In response most authorities have reacted by adopting technological solutions such as ICT to introduce flexible working. Similarly, legal and political forces such as EPC legislation have led to local authorities to react accordingly.</p>
<p>Asset Knowledge</p>	<ul style="list-style-type: none"> • Data capture: <i>All</i> local authorities struggle to capture data on <i>accessibility</i> due to lack of cooperation from services. <p>Urban and semi rural authorities do not effectively capture data on <i>sufficiency</i>. In the case of rural authorities, some do while others are ineffective</p> <p><i>Rural and urban authorities</i>, unlike semi-rural ones, do effectively capture data on <i>condition, suitability</i> and <i>operating costs</i>.</p> <p>Overall semi-rural authorities have problems in capturing almost all data types except operating cost data where the picture is mixed.</p>

	<ul style="list-style-type: none"> ● Effectiveness of the system to generate information to support decision making: This is effective when the information is presented in a manner that effectively communicates the intended message. This is very <i>effective in rural and urban authorities</i> but poor in semi-rural authorities.
Service Level Gap	<ul style="list-style-type: none"> ● In <i>urban and semi-rural authorities</i> a formal consultation process for establishing service demand and service need <i>does not</i> take place. In rural authorities in one of the two it does occur.
Strategy Formulation	<ul style="list-style-type: none"> ● Regardless of local authority type, all do utilise asset strategy solutions for capital investment decisions. However, in all there are weaknesses in preparing the necessary support business cases. ● In all local authorities there is no deliberate utilisation of demand management strategies as strategy options, or if they do, it is done opportunistically.
Option Appraisal	<ul style="list-style-type: none"> ● <i>Rural and urban</i> authorities do carry out option appraisal of strategies. However, while they effectively assess options for initial capital viability, there remains a problem, especially by the services departments in supporting whole life cycle cost planning to assess long-term financial viability of options. ● Semi-rural authorities do not use Option Appraisal at all to assess viability of options.
Strategy Implementation	<ul style="list-style-type: none"> ● Asset Management Plans: All Local Authorities have such plans even if not regularly updated. This is a legislative and policy requirement in Scotland a Central Government policy in England. ● Corporate Management Arrangements <i>Almost all local authority types, except one semi-rural one,</i> an officer at Corporate level is responsible for asset management plan implementation. ● Property Management Arrangements All types of local authorities report that they suffer from having

	<p>inadequate resources to support asset management activities. In particular there is lack of adequately staff trained in asset management; there is ineffective information systems; and lack of support especially from service heads.</p> <ul style="list-style-type: none"> ● Project Management Arrangements: <ul style="list-style-type: none"> ▶ In <i>all urban</i> authorities there is an individual at corporate level responsible for capital programme delivery. The <i>picture is mixed in rural and semi-rural</i> authorities. ▶ All local authorities still utilise functional approach to project management instead of a cross-functional project team. Also, in all authorities there are neither dedicated teams of trained project managers to implement capital programmes nor a single accountable project manager. ▶ In <i>all local authorities</i> there are no project management guidelines that are applied consistently across the organisation to aid project implementation
<p>Monitoring and Control</p>	<ul style="list-style-type: none"> ● Benchmarking: <ul style="list-style-type: none"> a) Benchmarking Club and External Benchmarking <p>All urban and rural authorities belong to a benchmarking club and none of the semi-rural authorities do.</p> ● Of all the rural and urban authorities that belong to a club, <i>only one rural authority does external benchmarking</i>. The rest do not, even if in the case of Scottish authorities they are mandatorily required to report certain condition and suitability indicators to Scottish Government and Audit Scotland. In England, the government had done away with reporting on KPIs some years back. ● The local authorities report lack of confidence in nationally produced benchmarking schemes but see merit in having local benchmarking schemes involving similar organisations b) <u><i>Internal Benchmarking</i></u>

	<ul style="list-style-type: none"> • All <i>urban and rural authorities</i> report that they have internal benchmarking arrangements. However, the <i>majority of semi-rural authorities</i> report that they <u>do not do</u> internal benchmarking. <p>In general the disengagement by government in England to require local authorities to report on KPIs and the lack of confidence in nationally produced benchmarking schemes appear to have taken away the development of performance management arrangements including benchmarking across local authorities. However, there is general recognition of the value that comes from belonging to a benchmarking club, and the need for internal and external benchmarking is considered pivotal for assessing asset management performance improvement trends.</p> <ul style="list-style-type: none"> • In English Local Authorities, benchmarking is either ignored by most authorities or is done voluntarily. Limited benchmarking takes place.
<p>Efficient and Effective Use of Property Assets</p>	<ul style="list-style-type: none"> • Property Rationalisation: <i>All urban and rural authorities</i> have been very effective in rationalising their property assets. In the case of <i>semi-rural authorities</i> there has been varied success. The effectiveness in office rationalisation in rural and urban authorities has been driven by the need to identify properties for disposal to meet budgetary shortfalls rather than arising from portfolio review as part of a planned asset management approach. ▶ Rationalisation has mostly been successful in reducing support office accommodation. ▶ There are real difficulties in rationalising direct properties due to lack of leadership support from elected members, lack of corporate ownership and control of direct properties, and lack of support from service heads who are not keen to engage in any rationalisation agenda. • Reduction in Required Maintenance, Condition, Operating Cost, Accessibility, and Space Utilisation: All rural and urban authorities have seen improvements in their operational property

	<p>portfolio especially reduction in backlog maintenance, improve asset accessibility, condition of the estate, reductions in operating costs, and increased space utilisation. The picture in semi-rural authorities is varied. In areas where improvements have occurred, these have been achieved largely as a result of rationalisation programmes, disposal of properties in poor condition, and the schools upgrading programme where both Scottish and West Minister Governments focused on improving the education estate and selling off some poor performing schools in the process. Apart from focusing on education estates, indirect office properties have also seen an injection of capital investment programmes that has contributed to reductions in operating costs. However, this is related to the rationalisation programme, as closure of offices has often led to concentration of workers in a few buildings.</p> <ul style="list-style-type: none"> • The overall net effect of the measures, the focus on indirect offices and improvements in education estate, has been to lift the performance of the remaining operational properties. • Suitability: In only one rural authority has suitability been improved. In the rest of the authorities there is little progress largely due to the fact that service departments' unwillingness to support asset management initiatives involving direct operational properties
<p>Improved Service Delivery</p>	<ul style="list-style-type: none"> • Introduction of new working practices: Flexible working has been successfully introduced in all rural and urban authorities but not in semi-rural authorities. In authorities where new working practices have successfully been introduced it has largely been as a result of embracing ICT technology which has played a major role in aiding flexible working. <p>It is worth noting that that Local Authorities that have embraced new technologies to introduce flexible working are large scale urban ones or rural authorities that serve large communities. Such authorities seem to have come to appreciate the economic benefits that can arise from flexible working.</p>

• **Cross-Service working, Co-location and Partnering:** The introduction of cross-service working, co-location, and partnership working presents a mixed picture. In two semi-rural, one urban and one rural authority is there evidence of successes. There is no progress in two urban, one rural and one semi-rural authority. In one rural authority in England there is very strong evidence of colocation, joint service delivery and partnering working. However, in both Scotland England the picture is mixed, as some authorities have only co-located with other community agencies without moving towards joint service delivery programmes. In some, there is cross-service working amongst agencies even if it relates only to common reception services. However, the picture of limited progress is irrespective of type of authority or indeed whether in England or Scotland.

• **Enhanced Environmental Sustainability:**

- ▶ The majority of semi-urban local authorities have been successful in introducing technologies to improve energy efficiency and measures to improve water usage measures all designed to improve the carbon footprint and the general environmental sustainability of buildings.
- ▶ There has been some measure of success by urban authorities while rural authorities have been ineffective.
- ▶ The authorities that have adopted measures to improve the carbon footprint and the general environmental sustainability of building appear to have done so in order to comply with impending EPC legislation due to come into force in a few years time.
- ▶ In Local Authorities where they are yet to adopt such measures the majority of them state that this is largely as a result of having to focus on budgetary issues.

7.5 CHAPTER SUMMARY

The aim of this chapter was to explore the factors that contribute to the effectiveness of an appropriate asset management framework for managing operational property assets in local authorities. Realisation of the aim was intended to be achieved by looking at organisational insights concerning the factors which had been identified through literature review as constituting the concepts associated with asset management and which had informed the developed conceptual framework.

Interviews were conducted as a means of looking at organisational insights and therefore were for two main reasons. These were to investigate the current operational property asset management practices and to collect data to inform the development of operational property asset management framework. The interview participants were drawn from eight local authorities representing rural, urban and semi-rural authorities. These three categories represent the main local authority geographical stratifications. The interview consisted of 12 key research themes based on the identified and defined asset management concepts presented in the conceptual framework. The thematic areas addressed by interview questions represent the asset management implementation approach and include: asset management structure; corporate goals; asset management capabilities; opportunities and threats; asset knowledge; service level gap; strategy formulation; option appraisal; strategy implementation; monitoring and control; efficient and effective use of property assets; and improved service delivery.

The generated data was analysed using deductive content analysis approach and pattern matching procedure. A number of findings emerged following the analysis. Firstly, all interviewed local authorities have implemented a strategic asset management board level structure represented by service heads and overseen by an elected member. However, in all these local authorities the structure does not integrate estates and facilities services. Regarding leadership, there is weak leadership support in supporting asset management activities relating to direct properties but strong support for indirect properties. The lack of

corporate landlord approach in most authorities hampers the development of asset management.

In almost all local authorities asset management plans are developed primarily as a result of the need to comply with statutory requirements. However, generally in rural authorities do asset management plans effectively support corporate plans. Regarding asset management capabilities in terms of information systems, training programmes for capacity building, asset management culture, and adequately trained staff in asset management most local authorities lack such capabilities. However, generally rural authorities perform much better but semi-rural ones are the least capable.

As for asset knowledge, rural and urban authorities have effective systems that support decision making but this is poor in semi-rural authorities. There is evidence of successes by rural and urban authorities at capturing certain types of data on condition, suitability and operating costs unlike semi-rural ones.

The development of non asset strategies remains a challenge for all local authorities. This is also the case regarding option appraisal which remains a challenge for most authorities especially semi-rural ones. The development of supporting business cases and integration of whole life cycle costing remains weak in most authorities.

Regarding asset management strategy implementation there are some successes in that most local authorities have a corporate level officer responsible for implementing asset management plan and capital programme. However, there are challenges such as inadequate finances and capable staff as well as weak leadership support.

The monitoring and reviewing of asset management activities is generally hampered by almost non existent external benchmarking arrangements due to lack of effective benchmarking systems. A certain level of internal benchmarking does occur especially in rural and urban authorities but is practically non existent in semi-rural authorities.

Overall there have been some improvements in terms of efficient and effective use of property assets especially in rural and urban authorities. This has been driven largely by the success of the rationalisation programme focussed on indirect properties to generate capital receipts. The overall condition, accessibility, operating costs, space utilisation of the operational portfolio of rural and urban authorities especially have been improved. However, suitability remains a challenge in almost all authorities. The impact of asset management on service delivery improvements has been varied. Rural and urban authorities have been very effective in harnessing ICT to introduce new working practices such as *flexible working*. However, in almost all local authorities they remain unsuccessful in implementing cross service working, co-location and partnering. Most local authorities have programmes, driven by the need to comply with EPC legislation, to introduce technological measures designed to improve energy efficiency and water usage.

CHAPTER EIGHT

QUANTITATIVE DATA ANALYSIS

8.1 INTRODUCTION

The qualitative analysis in chapter seven brought out partial findings for the main objective of the research to explore the factors that contribute to the development of an adaptable and flexible asset management framework for implementation in Scottish and English local authorities. The main aim of this chapter is to assess their level of importance by applying quantitative measures. To achieve this, a survey was carried out targeted at asset management practitioners in Scottish and English local authorities. The aim of the survey was to gather information on:

- (a) thoughts and experiences of practitioners regarding asset management improvements
- (b) role of asset management in achieving local authority objectives and the perception of asset management practitioners on the factors that enable effective asset management implementation
- (c) Asset management practitioner profiles on asset management implementation
- (d) Underlying factors that account for a flexible and adaptable asset management framework and which local authorities should consider in implementing asset management practice.

8.2 THE SURVEY

In this section the sampling frame is identified and the justification for choice of sample size is provided. Also discussed are the sections of the administered questionnaire aimed at eliciting insights from asset management practitioners.

8.2.1 The Sampling Frame and Selecting an Appropriate Sample Size

The sampling frame for the study is described in chapter 7 (section 7.2.1). The important consideration in sample selection is ensuring that the sample is random and representative (Brewerton and Milward, 2004). According to Gliner and Morgan (2000), when participants, such as potential questionnaire respondents, are geographically spread across the country, it is common to stratify from geography so that appropriate proportions of the

selected sample come from the different regions of the country. In this particular study there was a known geographical stratification of local authorities. The stratified random sampling technique was therefore readily applied to draw an appropriate sample level needed for the survey questionnaire.

The initial stratification was between English and Scottish local authorities. The second geographical division of local authorities related to the fact that in England in particular, local authorities are divided into five: county, metropolitan, London boroughs, Unitary and District authorities. In Scotland on the other hand all authorities are unitary. However, the common stratification characteristics are that in both in England and Scotland the local authorities are either metropolitan (urban), semi-rural and rural. It is acknowledged that it was not easy to accurately delineate the five groups of authorities into these three groups. Nonetheless, a convenience approach was utilised to do so based on geographical knowledge of local authorities and personal experience. At pilot stage due to the small nature of the sample used then, the targeted local authorities were conveniently selected in terms of whether they aligned with any of these three major groupings.

It was stated in section 7.2.1 that the sampling frame was eventually set at 384 local authorities to correspond with the number of local authorities. Prior to selecting the random sample, the necessary sample size that needed to be drawn had to be established. The appropriate sample size (n) was determined using the following equation as suggested by Triola (1997 p319) and Daniel and Terrell (1995 pp292-294):

$$n = (Z \times \text{Standard deviation}/\text{confidence interval})^2$$

where:

Z = a constant, which relates to the confidence level

Therefore, applying the above formula an appropriate sample size can be established by setting the confidence level and interval, obtaining the Z value and estimating the population standard deviation. Therefore, applying a confidence limit of 95% and a

confidence interval of plus or minus 0.1, the appropriate sample size (n) was established to be 96. On the basis of what was considered to be realistically achievable and the available resource constraints, the 10% confidence was chosen. The calculated sample size of 96 means that if completed questionnaires amounting to this magnitude were returned, the data would have a normal distribution.

8.2.2 Sample

In this section, the approach for setting the sample size is described. The intention was to identify three individuals per local authority, namely an asset manager, property manager and facilities manager. Therefore this meant that the 96 potential respondents had to come from at least 32 local authorities spread amongst urban, rural and semi-rural authorities. It was recognised, however, that in reality it is highly unlikely to achieve a survey response of 100% . This necessitated the need to adopt an appropriate sample size that would make it possible to achieve the target sample size of 96. Rather than limit the distribution of the questionnaire to the representative sample of 96 individuals from 32 local authorities, to maximise the number of responses it was instead sent to 330 employees in 110 local authorities representing urban, semi-rural and rural local authorities. This is three times more than the minimum number of required local authorities. A random sample of 110 local authorities was drawn from the established sample frame of 384, stratified into the three groups covering rural, semi-rural and urban authorities.

Recipients were also asked to pass on the questionnaire to relevant individuals if they themselves were not the appropriate personnel to complete it or to share with a colleague the questionnaire if they considered that another person could also be of help. Accordingly a total of 330 questionnaires were electronically distributed using Survey Monkey. A copy of the questionnaire is enclosed in Appendix G. This chapter describes the survey and its analysis. The methods of data collection are described in chapter 6. Of the 330 questionnaires that were sent to the selected sample, 89 responses were received. However, of these 76 responses were usable representing an effective response rate of just over 23%.

The 13 unusable questionnaires were mainly as a result of refusal by recipient to complete the questionnaires due to lack of time or incomplete returned questionnaires.

8.2.3 The Questionnaire

The results in chapter seven are insights gained from a limited number of asset management practitioners perspective. These results informed the data collected from a larger number of local authority respondents for corporate and operational asset management practitioner perspective, as explained in chapter 6. It was essential that if the gained insights were to be generalised, the findings from qualitative analysis needed to be tested on a wider population. To achieve this aim, a large scale survey questionnaire of a representative sample of the local authorities was undertaken. In order to achieve this aim, the questionnaire consisted of the following twelve sections:

SECTION I: PROFILE

This section explores the profile of participants in terms of *position*, years of *experience* in asset management, *age*, and *type of local authority*. To help with the understanding of the participants' profile influence into their responses, participants' profile was taken into account when correlating their opinion on enablers of asset management; vision, mission, and setting of objectives; asset knowledge; opportunities and threats; strategic task / service level gap; formulation of asset strategy; option appraisal; asset management strategy implementation; performance monitoring and control; efficient and effective use of property assets; and improvements in service delivery respectively in section 8.4 of this chapter..

SECTION II: ENABLERS OF ASSET MANAGEMENT

This section provides a summary of the participants' responses given in score, to different aspects of the enabling environment of effective asset management implementation in local authorities. The analysis of these responses, using relevant statistical tests described in section 8.3 of this chapter, reflects their opinion upon aspects related to enablers of asset management, as listed below:

- Organisational and leadership commitment and support
- Resources adequacy in terms of availability of a suitable management information system (MIS) and right people trained in asset management

SECTION III: VISION, MISSION AND OBJECTIVES

Participants were asked to assess how the development of specific objectives for the management of assets was informed by corporate objectives which in turn were guided by the corporate vision. This section provides a summary of the data collected from participants' responses reflecting their opinion upon aspects related to the linkage between corporate objectives and derivation of asset objectives, as listed below:

- Leadership clearly articulates the need for developing a property asset strategy
- Understanding of a local authority's goals and objectives and their property asset implications

SECTION IV: ASSET KNOWLEDGE

This section provides a summary of the participants' responses given in score, to different aspects about the ability of the available management information system to capture relevant data, inform knowledge about assets as well as aid performance assessment. The analysis of these responses reflects their opinion upon aspects related to asset knowledge as listed below:

- Availability of Property Management Information System (PMIS)
- A PMIS collects and generates information needed to support and inform asset management decision making
- Asset condition is regularly assessed and graded against them
- Assets are regularly assessed as to their Suitability to support current and future service delivery

- Assets regularly assessed as to their capacity or sufficiency whether are under or over utilised now or likely to be in the future
- Asset register contains regularly tracked costs of asset creation, revenue and refurbishment

SECTION V: STRENGTHS, WEAKNESSES, OPPORTUNITIES AND THREATS (SWOT ANALYSIS)

Participants were asked to assess how local authorities reacted to the opportunities and threats arising from external environmental impacts as well as internal capabilities and their asset management implications. This section provides a summary of the data collected from participants' responses reflecting their opinion upon aspects related to planned or reactive approach for evaluating these external forces, as listed below:

- Monitoring and assessment of the present and expected future state of the external environment
- Monitoring and assessment of the actual and potential collaborators and forces affecting collaboration and joint service delivery
- Availability of adequate resources such as right people and adequate funding)
- Benchmarking arrangements especially existence of an Asset management performance system (Benchmarking Arrangements)

SECTION VI: SERVICE LEVEL GAP

In this section a summary of the participants' responses given in score is provided to different aspects about the utilisation of appropriate process to understand users' needs in the setting up of the performance gap. The analysis of these responses reflects their opinion upon aspects related to service level gap, as listed below:

- Asset performance is established by evaluating asset condition, suitability, sufficiency, accessibility and whole life cost of asset

- Asset management capabilities is determined by evaluating asset management processes, adequacy of resources, asset management performance system, and asset management culture.
- Service level gap or strategic task comprising of asset and management capability shortfalls are quantified using Service statements

SECTION VII: STRATEGY FORMULATION

Participants were asked to assess how local authorities formulated asset or non-asset based strategies. This section provides a summary of the data collected from participants' responses reflecting their opinion upon aspects related to asset or non-asset based strategies used for modifying demand of property usage and creation of new or upgrading of existing asset, as listed below:

- Asset Demand Forecasting Techniques
- Utilisation of Demand Management strategies
- Utilisation of Asset Based Strategies
- Documented Asset Management Plan

SECTION VIII: OPTION APPRAISAL

This section provides a summary of the participants' responses given in score, to different aspects of the option appraisal process. The analysis of these responses reflects their opinion upon aspects related to option appraisal that seek to maximise value for money in terms of having the least whole life cycle cost and maximum financial and non-financial benefit, as listed below:

- Utilisation of Benefit Cost Analysis (BCA) technique to assess the financial viability of options based on least *whole life cost*;

- Utilisation of Multi-criteria analysis (MCA) to assess options that maximise non-financial benefits.

SECTION IX: STRATEGY IMPLEMENTATION

In this section participants were asked to assess how local authorities set out corporate, property and project management arrangements for implementing identified asset management improvement strategy. The section provides a summary of the data collected from participants' responses reflecting their opinion upon aspects related to these aspects, as listed below:

- Establishment of an asset management corporate structure
- Resource adequacy to support property management function to carry out asset management practices
- Establishment of a project management structure for project managing the strategy, programme and transactions

SECTION X: MONITORING, CONTROL AUDIT AND REVIEW

This section provides a summary of the participants' responses given in score, to different aspects of the monitoring and control process. The analysis of these responses reflects their opinion upon aspects related to asset management performance arrangement system, as listed below:

- KPIs are benchmarked against other councils
- Available performance asset management framework for continuously reviewing and improving performance
- Performance review is based on Key Performance Indicators.
- Senior managers are aware of the property costs of the buildings services occupy
- A strategic approach to the utilisation of office space by staff and co-location with partners and stakeholders

- Property review programme covers accommodation, vacant and underutilised land, functional reviews, service reviews, and rationalisation

SECTION XI: EFFICIENT AND EFFECTIVE USE OF PROPERTY ASSETS

As a result of operational property asset management implementation in the different types of local authority organisations, Scottish and English local authorities are expected to improve in areas described in the data collected from participants' responses reflecting their opinion upon aspects related to the efficient and effective use of property assets, and listed below:

- Rationalisation of operational property holdings
- Reduction in the levels of required maintenance and annual operating costs
- Increased space utilisation
- Recycled capital receipts

SECTION XII: IMPROVEMENTS IN SERVICE DELIVERY

As a consequence of implementing asset management in local authorities, the expectation is that different types of Scottish and English local authorities will show evidence that asset management has brought about improvements in service delivery.

The section provides a summary of the data collected from participants' responses reflecting their opinion upon aspects related to criteria related to improved service delivery, as listed below:

- Improved facilities
- Introduction of new working practices
- Increased cross service working, co-location and partnering
- Compliance with legislation
- Improved Accessibility
- Increased service usage

- Enhanced property environmental sustainability

The questionnaire variables associated with each of these sections is as shown in the survey questionnaire, appendix G.

8.3 THE ANALYSIS

In order to assist this investigation, the following statistical tests (Table 8.1) were carried out, where appropriate.

Table 8.1: List of statistical tests

<i>Measurement</i>	<i>Test</i>
<i>Data management</i>	
Missing Data	Pairwise Deletion
<i>Preliminary data analysis</i>	
Analysis of attributes	Participants' backgrounds were grouped into categories and analysed using SPSS summary of frequency.
Analysis of Responses	The data collected from the participants' responses contained 1 to 5 categories ranking. The percentage of frequency in each of these regions were calculated and tabulated.
<i>Normality test</i>	
Skewness	Absolute values of skewness should not approach 2
Kurtosis	Absolute values of kurtosis should not be greater than 5
Reliability and Validity of measuring instrument	Cronbach's alpha (α) should be ≥ 0.6 acceptable
<i>Test for assessment of suitability of data for factor analysis</i>	
Effect Size	Strength of correlation among items: $r=0.10$ is small; $r=0.30$ is medium size; $r=0.50$ is large effect size.
Bartlett's Test of sphericity.	Tests for existence of homogeneity of variance across samples. Significance at ($p<0.05$) for the factor analysis to be considered appropriate.
Kaiser-Meyer-Olkin (KMO)	Measure of sampling adequacy. Value of > 0.6 acceptable
<i>Inferential tests</i>	
Kolmogorov – Sminorv test	Test if distribution of scores is significantly different from a normal distribution
Chi-square (X^2) one sample	Tests the significance of findings. The test indicates whether the results from the two measures are about what one would expect if the two were not related. In particular, it is performed to test the Null Hypothesis whether participants' responses were given at random or had definite percentage of scoring.
Kruskal-Wallis H Test	To test the Null Hypothesis that the participants' responses are dependent of their background.

SECTION I: PRELIMINARY DATA ANALYSIS

This section summarises the preliminary analysis of the data. This involved testing the data for normality, assessing the reliability and validity of the developed measuring scale and describing the data.

a. Normality Tests

Data was analysed for normality by calculating absolute values for skewness and kurtosis and the results are shown in Table 8.2. The results indicate that none of calculated values for skewness are above 2 and those for kurtosis above 5. This indicates that the data is normal.

Table 8.2: Kurtosis and Skewness Values

Item	Skewness	Kurtosis
Organisational Experience	0.876	-0.387
Outside Experience	0.206	-0.786
Age	-0.513	-0.502
Organisational and leadership commitment	-0.841	-0.104
Asset Management Capabilities	-0.097	-0.372
Vision articulation	-0.736	-0.604
Clarity of goals and Objectives	-0.655	-0.441
Availability of a property management system	-1.29	1.318
Information supports decision making	-1.24	1.236
Condition assessment	-1.133	2.545
Suitability Assessment	-0.373	0.281
Sufficiency assessment	-0.284	-0.816
Asset costs tracking	-0.656	0.004
PESTEL assessment and asset implications	-0.217	-0.76
Colocation and joint service delivery	-0.04	0.25
Resources adequacy	-0.183	-0.726
Benchmarking arrangements	-0.315	-1.106
Asset performance assessment	-0.727	-0.075
Asset management capabilities evaluation	-0.939	0.504
Service statements for Performance Quantification	-0.713	-0.335
Asset Demand Forecasting Techniques	-0.602	0.027
Utilisation of Demand Management strategies	-0.482	-0.744
Utilisation of Asset Based Strategies	-0.482	-0.452
Documented Asset Management Plan	-0.163	-0.939
Financial and Non financial appraisal	-0.837	0.26
Utilisation of Benefit Cost Analysis and Multi-criteria analysis	-0.701	-0.343
Integrated asset strategy Implementation	-1.041	0.639

Development of medium and long term property strategy	-0.616	-0.473
Services Senior Management Support	-0.757	-0.123
Senior management asset champion	-1.746	3.325
Corporate Officer manages asset management plan implementation	-1.721	3.013
Elected member engagement	-1.344	2.014
Business case supports option appraisal	-1.329	1.879
Corporate approach to capital project prioritisation	-1.822	4.401
Clear assignment of management responsibilities	-0.338	-0.242
Adequate resourcing of property function	-0.27	-0.475
Clear assignment of asset strategy implementation	-1.898	3.917
Available cross functional team	-1.308	2.805
Accountable Capital programme delivery	-1.152	1.109
Common project management methodology	-0.399	-0.563
Specialised project management team	-0.364	-0.993
Utilisation of KPIs to measure performance	0.432	-0.71
Benchmarking of KPIs	0.235	-0.69
Continuous asset management performance review	-0.86	0.572
Performance Review Based on KPIs	0.022	-1.253
Property Costs Awareness	0.243	-1.051
Strategic approach to office utilisation	-0.38	-1.238
Comprehensive property review programme	-1.168	3.221
Property rationalisation	-0.317	-0.071
Reduced required maintenance	-0.199	-0.116
Reduced annual operating cost	-1.025	2.161
Increased space utilisation	-0.298	-0.77
Recycled capital receipts	-0.214	-0.187
Improved facilities	0.372	-0.377
Introduction of new working practices	-0.505	-0.732
Increased cross service working	-0.097	-1.344
Increased Co-location and partnering	0.159	-0.569
Compliance with legislation	-0.496	0.235
Improved Accessibility	-0.08	-0.483
Increased service usage	-0.725	0.776
Enhanced property environmental sustainability	-0.65	0.04

b. Reliability and validity tests

The variables that comprised the items included in the scale for measuring asset management implementation were analysed for reliability and validity by calculating cronbach's alpha. The items had a cronbach's alpha coefficient of 0.962 validating the

questionnaire instrument's internal consistency reliability and construct validity (Singh, 2007; De Vellis, 2003).

c. Data Description

Analysis of attributes and *responses* was carried out to describe the data. The analysis of respondents' attributes involved grouping their backgrounds into categories and analysing percentages, using SPSS summary of frequency. The results are shown in figures 8.3a to 8.3e in the Profile Section I below. The analysis of attributes relates to participants backgrounds in terms of the type of local authorities in which they work, age, experience and the position of participants in those organisations.

The data was further described by analysing responses. It is an important argument guiding this study that the perception of those involved in asset management practice assists in creating an impression of effective asset management performance. It was considered necessary as a result that data be collected to establish from asset management practitioners what their perception of asset management performance in English and Scottish local authorities was. The argument being that knowledge of this kind would provide some basis to have an insight into how respondents perceived the performance of local authorities in the current asset management arrangements in English and Scottish local authorities.

The respondents were asked to rate the level of importance of asset management performance factors in bringing about asset and organisational performance improvements in local authorities. The rating ranged from *extremely important* to *not very important*. The percentage of frequency in each of these regions were calculated and tabulated as shown in sections III to XIII in the Profile section below. The rest of this section provides summary of the results generated from these enquiries.

SECTION II: PROFILE

This section describes participants' profile, presented in percentages of frequencies, in Figures (8.3a-f) using the SPSS summary of frequencies command, namely: position, type

of authority, nature of authority, age, years of experience in the organisation , and years of experience outside the organisation.

a. Position

Participants are classified into three groups; asset managers forming 57%, Estates Managers forming 29% and facilities managers forming 14%.

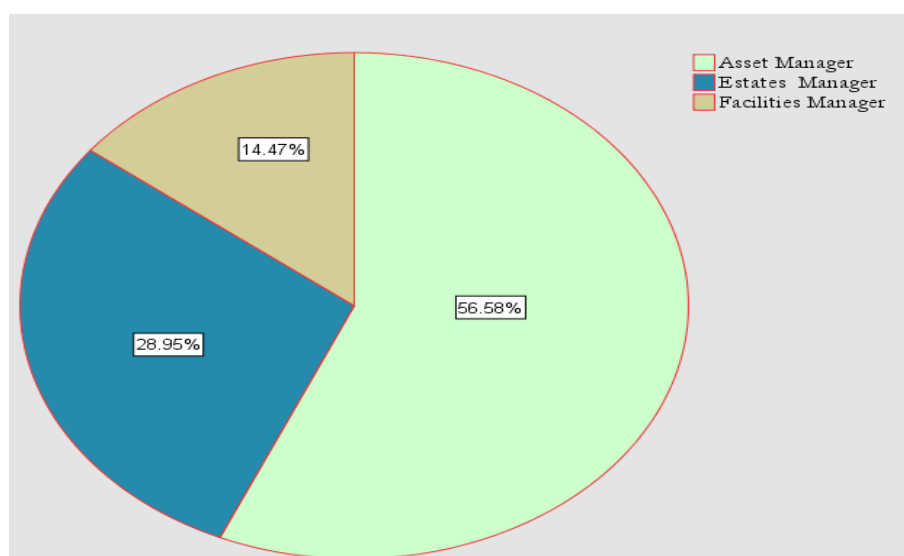


Figure 8.3a Position

The sample, therefore, brings a disproportionate response from participants that come from asset management position followed by estates managers. It is interesting that local authorities, it seems, consider such asset managers as ones mostly responsible for asset management work. This may be due to the lack of recognition that an asset management structure is one that has an asset manager supported by facilities and estates managers. The low frequency rate associated with facilities management could be due to lack of realisation that along with estates function, it too is along with estates management is an integral component of asset management structure.

b. Type and Nature of Authority

Local authorities are grouped according to their political disaggregation. The analysis of frequencies shows that the majority of respondents came from district councils at 51%

followed by metropolitan and Scottish authorities almost equally represented at 16% and 13% respectively.

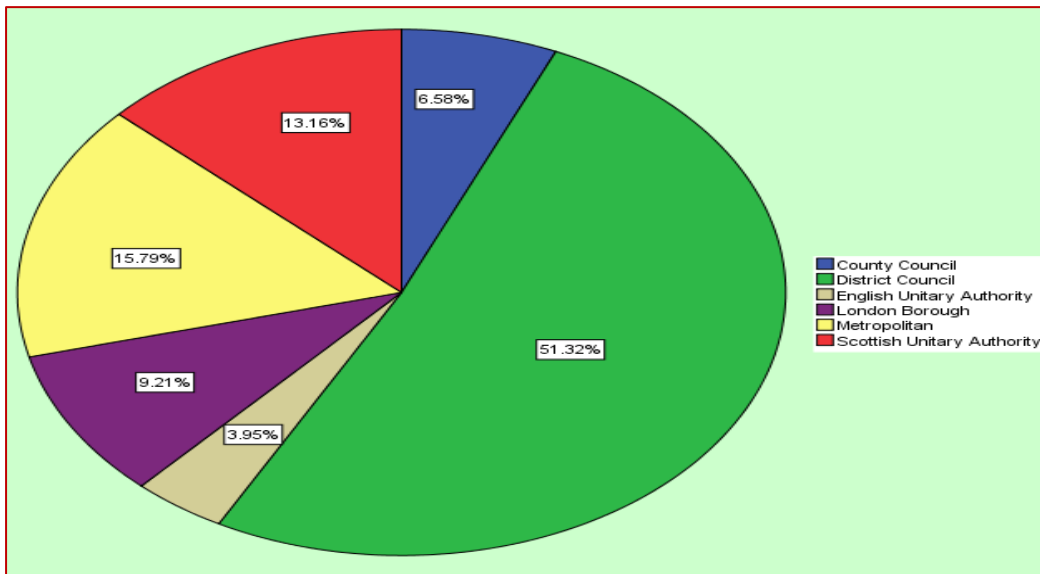


Figure 8.3b Type of Local Authority

However, as pointed out in section 8.2.3 these aggregations do not reflect the differences in size, social or economic context amongst local authorities. For these reasons all these local authorities are best disaggregated between urban, semi-rural and rural. The next section analyses responses based on these three divisions. The frequency distribution in Figure 8.3c shows that the proportions of respondents between rural and urban based local authorities is not that different. Rural authorities have a slight edge at 41%, semi-rural at 25% and 34% for urban authorities.

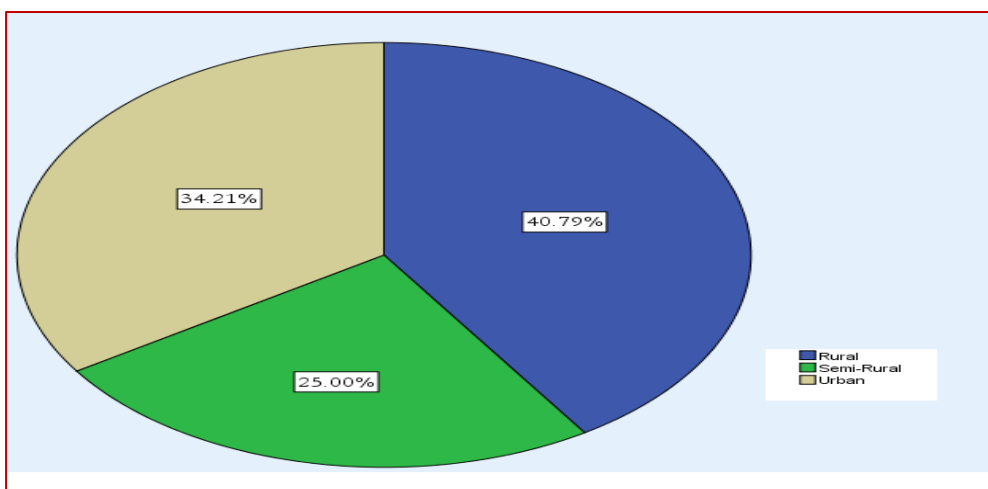


Figure 8.3c Nature of Authority

It is interesting to note therefore that the distribution of frequency of scores shows that the rural authorities had the most representation (40.79%), followed by urban authorities (34.21%) and least semi-urban (25%).

c. Age

Participants were categorised into four age groups, these were; Group 1 (25-34), Group 2 (35-44), Group 3 (45-54), and Group 4 (55-64). The highest proportion of participants falls in age group 3, followed by group 2. The age groups 1 and 4 have the least participants.

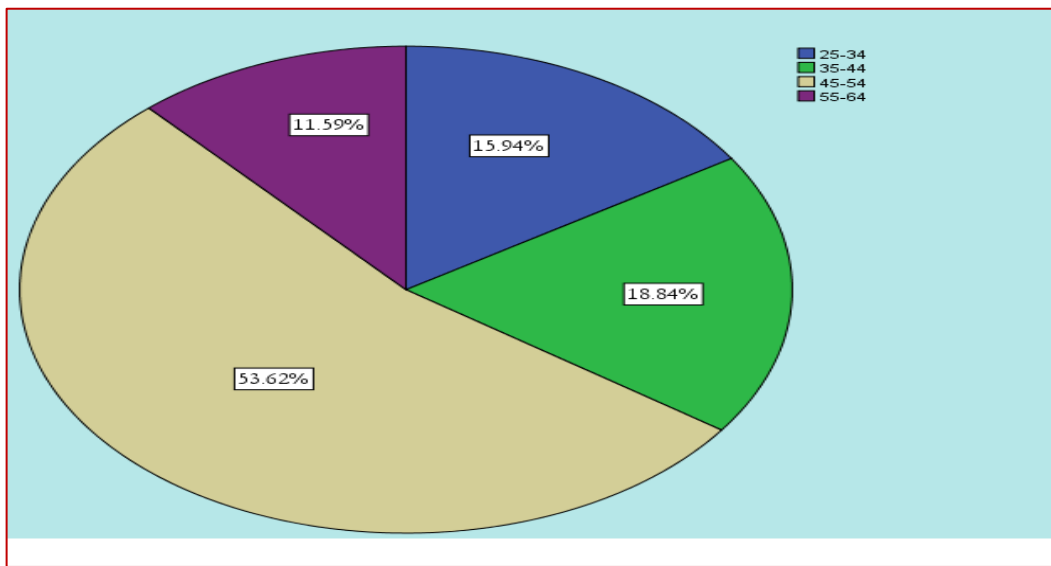


Figure 8.3d Age

The small number of participants in groups 1 and 4 can be explained by changes in work demographics and experience levels. The trend now is for more people taking early retirements as such organisations have fewer people in the age group 4. Regarding the low representation of those in age group 1, this could be due to the fact that asset management function is a strategic function and likely to command a more senior role. Consequently, those occupying these roles are likely to be older.

d. Years of experience in the organisation

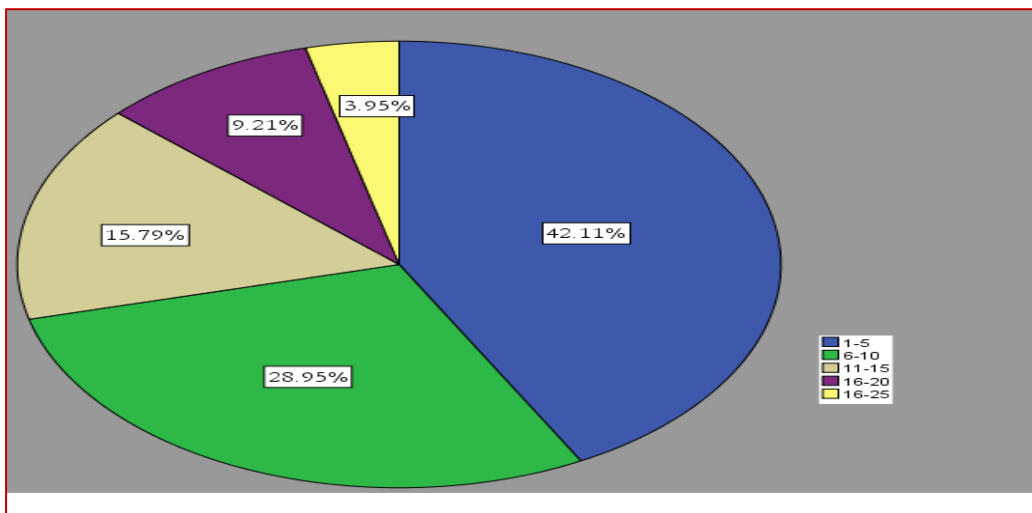


Figure 8.3e Experience in the organisation

The results indicate that participants with 1 to 5 years experience within the organisations were in the majority followed by those with 6 to 10. The least group are those with more than 16 years experience. The small number of participants from the very experienced individuals could be due to the relative newness of asset management concept.

e. Years of experience outside the organisation

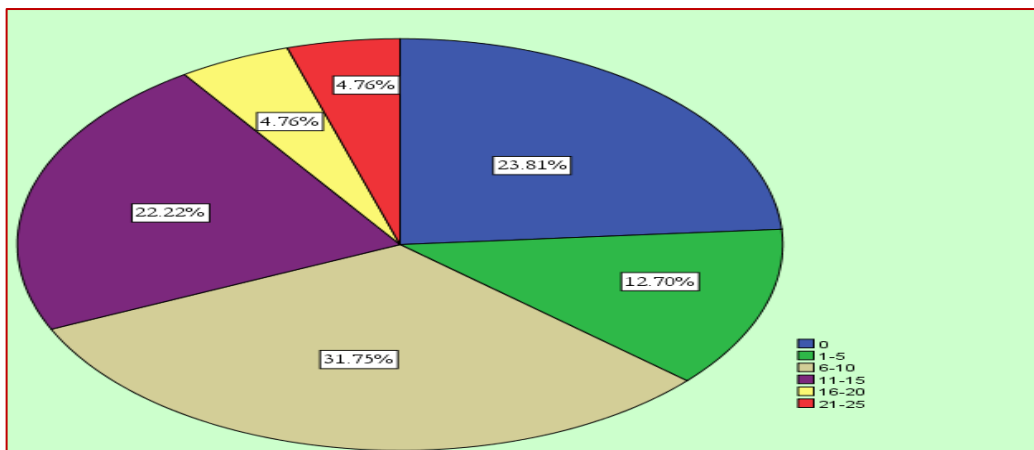


Figure 8.3f Experience outside the organisation

The results showing response frequencies by levels of experience of respondents obtained outside the organisation are shown in figure 8.3f. Results show that respondents with 6-10 years experience were the majority at 31.75% while those with no such experience amounted to 23.81% slightly ahead of those between 11 and 15 years experience who

amounted to 22.22%. Very few respondents had experience outside the organisation in excess of 15 years amounting to less than 10%.

SECTION III: ENABLERS OF ASSET MANAGEMENT

This section provides a summary of the participants' responses to the enablers of asset management objects of the implementation. These responses are analysed using the relevant statistical tests, described in Section 8.3 of this chapter.

a. Frequency

Table 8.3 shows the importance of organisational leadership commitment and the strengths and weaknesses in influencing asset management implementation by illustrating the distribution of frequency scores given by the participants. In summary, participants' responses indicate that the highest responses fall in the important and extremely important regions. An equal number of respondents consider that organisational and leadership commitments are either important or extremely important. While a high proportion consider asset management capabilities important only 15% of respondents consider it extremely important.

Table 8.3: Frequency of scoring to the importance of Including Enablers of Asset Management for asset management implementation

Importance of Enablers of Asset Management	Response (%)				
	Not very important	Not important	Average importance	Important	Extremely important
<i>Organisational and leadership commitment</i>	0	13	15	36	37
<i>Asset Management Capabilities</i>	0	9	33	43	15

The results indicate '*important*' to underpin asset management implementation with asset management capabilities but '*extremely important*' to do so with organisational and leadership commitment.

b. Significance

This section investigates whether responses given by the participants are given at random. To assist this enquiry, values of Chi-square are determined. Table 8.4 depicts the values of

Chi-square and the associated values of significance under H0 (H0: Probability of scores given at random).

Table 8.4 Summary of the level of significance from the Chi-square test

Test Parameters	X^2	Significance
Organisational and leadership commitment	15.263	.002
Asset Management Capabilities	23.158	.000

The results of this test show that, for a level of significance of <0.05 , the null hypothesis is rejected for both the parameters, indicating that these scores were not given at random.

a. Response Interdependence

To test that the participants' opinion is dependent of their profile, the Kruskal Wallis analysis of variance was undertaken. Table 8.5 presents a summary of the Kruskal Wallis to test the Null Hypothesis that participants responses are independent of their backgrounds.

Table 8.5 Kruskal Wallis Analysis of Variance for the Enablers of Asset Management

Test Parameters	Position	Type of Local Authority (Urban, Semi-Rural, and Rural)	Age	Experience in Organisation	Experience Outside Organisation
Organisational and leadership commitment	.144	.513	.910	.670	.754
Asset Management Capabilities	.128	.560	.976	.826	.946

The results show that, for a level of significance of <0.05 , participants' response to the importance of 'organisational and leadership commitment' and 'asset management capabilities', are not dependent on position, type of authority or experience.

In summary, the results indicate the asset management gains as a result of an enabling environment especially the *extremely important role of organisational and leadership support* and with *asset management capabilities playing an important function*.

SECTION IV: VISION, MISSION AND OBJECTIVES

This section provides a summary of the participants' responses to the setting of vision, mission and clear derivation of asset objectives of the asset management implementation. The responses are analysed using the statistical tests described in section 8.3.

a. Frequency

Table 8.6 shows the importance of articulating the vision and mission for asset management and from it clearly deriving asset management objectives in influencing asset management implementation by illustrating the distribution of frequency scores given by the participants. In summary, participants' responses indicate that the highest responses fall in the important region. An equal number of respondents (58%) consider that vision articulation and clarification of goals and objectives are important.

Table 8.6: Frequency of scoring to the importance of Vision, Mission and Objectives and their Asset Management Implications

Importance of Vision, Mission and Objectives	Response (%)				
	Not very important	Not important	Average importance	Important	Extremely important
<i>Vision articulation</i>	0	18	12	58	12
<i>Clarity of goals and Objectives</i>	0	15	15	58	12

b. Significance

This section values of Chi-squared are calculated to investigate whether responses by participants were given at random. Table 8.7 shows the values of the Chi-square and the associated significance values under H0 (H0: Probability of scores given at random).

Table 8.7 Summary of the level of significance from the Chi-square test

Test Parameters	χ^2	Significance
Vision Articulation	55.447	.000
Clarity of Goals and Objectives	51.368	.000

The results of this test show that, for a level of significance of <0.05, the null hypothesis is rejected for both the parameters, indicating that these scores were not given at random.

c. Response Interdependence

To test that the participants’ opinion is dependent of their profile, the Kruskal Wallis analysis of variance, summarised in Table 8.8 was undertaken.

Table 8.8 Kruskal Wallis Analysis of Variance for the

<i>Test Parameters</i>	<i>Position</i>	<i>Type of Local Authority (Urban, Semi-Rural, and Rural)</i>	<i>Age</i>	<i>Experience in Organisation</i>	<i>Experience Outside Organisation</i>
Vision Articulation	.564	.855	.117	.835	.813
Clarity of Goals and Objectives	.231	.942	.580	.428	.586

In the output presented in Table 8.8 above, the significance levels are all above 0.05. The results suggest that participants’ response to the importance of articulating *a vision* for property assets and *setting clear goals* to be able to derive asset management *objectives*, are not dependent on position, type of authority or experience.

SECTION V: ASSET KNOWLEDGE

This section investigates the participants’ responses and provides a summary reflecting their opinion on *asset knowledge* elements of asset management implementation. The responses are analysed using the relevant statistical tests described in section 8.3.

a. Frequency

Table 8.9 shows the importance of knowledge about assets including the mechanism for its acquisition for effective asset management implementation in Scottish and English local authorities by illustrating the distribution of frequency of scores given by the participants. In summary, participants’ responses indicate that the highest percentage fall in the important region. The ‘important’ frequency range registers the highest scores for *condition assessment, availability of a property management information system, suitability assessment, sufficiency assessment, and information supports decision making, in that*

order. An equal number of respondents considered 'asset cost tracking' to be of average importance or important.

Table 8.9 Frequency of Scoring to the Importance of Knowledge About Assets for Asset Management

Importance of Asset Knowledge	Implementation Response (%)				
	Not very important	Not important	Average importance	Important	Extremely important
Availability of a property management system	9	0	24	49	18
Information supports decision making	9	0	32	44	15
Condition assessment	3	3	17	62	15
Suitability assessment	3	3	29	47	18
Sufficiency assessment	0	12	20	47	21
Asset costs tracking	9	3	35	35	18

b. Significance

The responses were analysed for *significance* to investigate whether participants' responses were given at random. Values of Chi-square were determined to aid the investigation. Table 8.10 shows the values of Chi-square and the associated values of significance.

Table 8.10 Summary of the level of significance from the Chi-square test

Test Parameters	X^2	Significance
Availability of a property management system	72.947	.000
Information supports decision making	62.421	.000
Condition assessment	73.605	.000
Suitability assessment	48.079	.000
Sufficiency assessment	15.895	.000
Asset costs tracking	20.184	.000

The results of this test show that, for a level of significance of $p < 0.05$, the null hypothesis is rejected for all the parameters. This indicates that these scores were not given at random.

c. Response Interdependence

The participants' responses were further investigated whether their opinions were dependent of their profile. The Kruskal Wallis analysis of variance, summarised in Table 8.11, was carried out for that purpose. The values indicate that for level of significance of $p < 0.05$

participants' response to importance of *Assets costs tracking* is dependent on the type of local authority. The importance of *Availability of a property management system* and *Suitability assessment* are dependent on age.

Table 8.11 Kruskal Wallis Analysis of Variance for Asset Knowledge

<i>Test Parameters</i>	<i>Position</i>	<i>Type of Local Authority (Urban, Semi-Rural, and Rural)</i>	<i>Age</i>	<i>Experience in Organisation</i>	<i>Experience Outside Organisation</i>
Availability of a property management system	.256	.888	.007	.714	.466
Information supports decision making	.100	.416	.166	.093	.705
Condition assessment	.076	.144	.111	.846	.084
Suitability assessment	.048	.275	.011	.791	.708
Sufficiency assessment	.175	.229	.127	.952	.669
Asset costs tracking	.208	.027	.129	.950	.963

For a closer examination of the importance of asset knowledge in asset management implementation, the results of the Chi-square Crosstabs analysis of frequencies given by participants with different **Position** with regard to Suitability assessment are shown in Table 8.12. These results show that estates managers' participants gave a slightly higher score than asset managers in regarding suitability assessment as *extremely important*. Facilities managers gave the least score. However, asset manager participants gave higher scores to the *importance of suitability assessment* than participants in estate management and facilities management respectively.

Table 8.12 Chi-square Crosstabs analysis of frequencies for the importance of including suitability asset management within asset knowledge in relation to Position

Importance of including suitability assessment within asset knowledge	Position	Not very important	Not important	Average importance	Important	Extremely important
Suitability assessment	<i>Asset Manager</i>	0	0	18	18	7
	<i>Estates Manager</i>	0	1	5	8	8
	<i>Facilities Manager</i>	1	1	5	3	1

Table 8.13 shows that participants from urban areas gave higher scores in considering tracking cost of operating assets to be of *importance*. Rural participants regard asset cost tracking to be of average importance while semi-rural participants consider it to be *important*.

Table 8.13 Chi-square Crosstabs analysis of frequencies of participants for the importance of including asset costs tracking in relation to Type of authority

Importance of including asset costs tracking within asset knowledge	Type of Authority	Not very important	Not important	Average importance	Important	Extremely important
Asset Costs Tracking	Rural	7	2	13	6	3
	Semi-rural	2	3	5	7	2
	Urban	1	1	8	10	6

Table 8.14 shows the results of Chi-square crosstabs analysis in relation to age. The results indicate that the age group 45-54 had the highest scores on the extremely important range

followed by the younger age group (25-34) for both *Suitability assessment* and *availability of a property management system* parameters.

Table 8.14 Chi-square Crosstabs analysis of frequencies of participants for the importance of including suitability assessment and property information system in relation to age

Importance of including asset knowledge information on:	Age	Not very important	Not important	Average importance	Important	Extremely important
Suitability assessment	25-34	0	0	3	6	2
	35-44	1	0	9	3	0
	45-54	0	1	10	14	12
	55-64	0	1	3	3	1
Availability of a property management system	25-34	1	0	2	4	4
	35-44	1	0	1	10	1
	45-54	1	0	4	27	5
	55-64	2	1	3	2	0

SECTION V: STRENGTHS, WEAKNESSES, OPPORTUNITIES AND THREATS (SWOT ANALYSIS)

This section provides a summary of the participants' responses to the SWOT analysis elements of asset management implementation. The statistical tests described in section 8.3 are used to analyse the responses.

a. Frequency

Table 8.15 shows the importance of including reaction to the opportunities and threats arising from external environmental impacts as well as internal capabilities and their asset management implications for effective asset management implementation. The importance is shown by the distribution of frequency of scores given by the participants. In summary, participants' responses indicate that *PESTEL assessment* and *Colocation and joint service*

delivery are of average importance. The ‘important’ frequency range registers the highest scores for Resource adequacy and Benchmarking arrangements.

Table 8.15: Importance of SWOT Analysis

Importance of SWOT Analysis	Response (%)				
	Not very important	Not important	Average importance	Important	Extremely important
<i>PESTEL assessment and asset implications</i>	6	28	38	28	0
<i>Colocation and joint service delivery</i>	4	19	42	27	8
<i>Resources adequacy</i>	3	19	32	36	10
<i>Benchmarking arrangements</i>	8	29	17	42	4

This section investigates whether responses given by participants are given at random. Values of Chi-square were determined to aid the investigation. Table 7.16 shows the values of Chi-square and the associated values of significance under H0 (H0: Probability of scores given at random).

Table 8.16 Summary of the level of significance from the Chi-square test

Test Parameters	χ^2	Significance
<i>PESTEL assessment and asset implications</i>	16.21	.000
<i>Colocation and joint service delivery</i>	40.46	.000
<i>Resources adequacy</i>	25.58	.000
<i>Benchmarking arrangements</i>	34.53	.000

The results of this test show that, for a level of significance of $p < 0.05$, the null hypothesis is rejected for all the parameters. This indicates that these scores were not given at random.

c. Response Interdependence

To test that the participants’ responses were dependent of their profile, the Kruskal Wallis analysis of variance was carried out. Table 8.17 presents a summary of the Kruskal Wallis

to test the Null Hypothesis that participants' responses are independent of their backgrounds.

Table 8.17 Kruskal Wallis Analysis of Variance for SWOT Analysis

Test Parameters	Position	Type of Local Authority (Urban, Semi-Rural, and Rural)	Age	Experience in Organisation	Experience Outside Organisation
PESTEL assessment and asset implications	.457	.221	.842	.851	.775
Colocation and joint service delivery	.009	.303	.597	.543	.064
Resources adequacy	.068	.080	.223	.220	.913
Benchmarking arrangements	.415	.140	.334	.040	.704

The results show that, for a level of significance of <0.05 , participants' response to the importance of *co-location and joint service delivery* on asset management implementation is dependent on their **Position** while *Benchmarking arrangements* is dependent on **Experience in the organisation**.

For a closer examination of the importance of SWOT analysis in asset management implementation, the results of the Chi-square Crosstabs analysis of frequencies given by participants with different **Position** with regard to Colocation and joint service delivery are shown in Table 8.18. These results show that asset managers gave higher scores to the importance of *Colocation and joint service delivery* followed by facilities managers and least were estates managers. The higher performance of facilities managers relative to estates managers is despite the former only comprising of 14% of respondents compared with estates managers at 29%.

Table 8.18 Chi-square Crosstabs analysis of frequencies for the importance of including *Colocation and joint service delivery* asset management within SWOT analysis in relation to Position

Importance of including Colocation and joint service delivery within SWOT analysis	Position	Not very important	Not important	Average importance	Important	Extremely important
Colocation and joint service delivery	<i>Asset Manager</i>	1	7	17	15	2
	<i>Estates Manager</i>	3	6	11	1	0
	<i>Facilities Manager</i>	0	3	5	2	1

The results of the Chi-square Crosstabs analysis of frequencies given by participants with different Experience within the Organisation with regard to *Benchmarking Arrangements* are shown in Table 8.19. These results show that those with the least level of experience (1-5) scored the highest. However, the score was marginally higher than those with experience ranges 6-10 and 11-15 who registered the same score.

Table 8.19 Chi-square Crosstabs analysis of frequencies of participants for the importance of including Benchmarking Arrangements within SWOT Analysis in relation to Experience in the Organisation

Importance of including Benchmarking Arrangements within SWOT analysis	Experience	Not very important	Not important	Average importance	Important	Extremely important
Benchmarking Arrangements	1-5	3	14	7	8	0
	6-10	2	8	5	7	0
	11-15	0	2	3	7	0
	16-20	1	0	2	3	1
	21-25	0	3	0	0	0

SECTION VI: SERVICE LEVEL GAP

In this section a summary of the participants' responses to the objects of performance shortfall or service level gap of asset management implementation is provided. The responses are analysed using statistical tests described in section 8.3.

a. Frequency

Table 8.20 shows the importance of including performance shortfall for effective asset management implementation. The results show that *asset performance assessment* and *service statements for performance quantification* are **important** while *asset management capabilities evaluation* is of **average importance**.

Table 8.20 Frequency of Scoring to the Importance of Establishing Performance / Service Level Gap for Asset Management Implementation

Importance of Service Level Gap Determination	Response (%)				
	Not very important	Not important	Average importance	Important	Extremely important
<i>Asset performance assessment</i>	6	15	39	40	0
<i>Asset management capabilities evaluation</i>	9	15	46	30	0
<i>Service statements for Performance Quantification</i>	9	22	30	35	4

b. Significance

This section investigates whether responses given by participants are given at random. Values of Chi-square were determined to aid the investigation. Table 8.21 shows the values of Chi-square and the associated values of significance under H0 (H0: Probability of scores given at random).

Table 8.21 Summary of the level of significance from the Chi-square test

Test Parameters	χ^2	Significance
<i>Asset performance assessment</i>	29.16	.000
<i>Asset management capabilities evaluation</i>	28.21	.000
<i>Service statements for Performance Quantification</i>	31.47	.000

The results of this test show that, for a level of significance of $p < 0.05$, the null hypothesis is rejected for all the parameters. This indicates that these scores were not given at random.

b. Response Interdependence

To test that the participants' responses were dependent of their profile, the Kruskal Wallis analysis of variance was carried out. Table 8.22 presents a summary of the Kruskal Wallis to test the Null Hypothesis that participants' responses are independent of their backgrounds.

Table 8.22 Kruskal Wallis Analysis of Variance for Service Level Gap

Test Parameters	Position	Type of Local Authority	Age	Experience in Organisation	Experience Outside Organisation
<i>Asset performance assessment</i>	.088	.629	.622	.814	.595
<i>Asset management capabilities evaluation</i>	.227	.030	.585	.702	.675
<i>Service statements for Performance Quantification</i>	.367	.048	.976	.878	.263

The results show that, for a level of significance of < 0.05 , participants' response to the importance of *Asset management capabilities evaluation* and *Service statements for Performance Quantification* on asset management implementation are dependent on the

Type of local authority. However, the results show that the participants' responses are not influenced by position, age nor experience.

For a closer examination of the importance of Service Level Gap analysis in asset management implementation, the results of the Chi-square Crosstabs analysis of frequencies given by participants from different *Types of Authorities* with regard to *Asset management capabilities evaluation* and *Service statements for Performance Quantification* are shown in Table 8.23. These results show that the highest score for asset management capabilities is **average importance** with both rural and urban authorities placing equal weighting on the parameter. *Service statements for Performance Quantification* are **important** with the highest score by semi-rural participants followed by urban respondents.

Table 8.23 Chi-square Crosstabs analysis of frequencies of participants for the importance of including Asset management capabilities and Service statements in relation to Type of authority

Importance of including Asset management capabilities and Service statements within Service Level Gap	Type of Authority	Not very important	Not important	Average importance	Important	Extremely important
<i>Asset management capabilities evaluation</i>	Rural	6	5	15	5	0
	Semi-rural	1	2	7	9	0
	Urban	0	4	15	7	0
<i>Service statements for Performance Quantification</i>	Rural	4	9	7	8	2
	Semi-rural	0	3	3	12	1
	Urban	1	4	10	10	1

SECTION VII: STRATEGY FORMULATION

Summarised in this section are the participants' responses to the strategy formulation objects of the implementation of asset management practice. Relevant statistical tests, described in section 8.3, are used to analyse the responses.

c. Frequency

Table 8.24 shows the importance of including strategy formulation for effective asset management implementation. The results show that *asset demand forecasting techniques* are regarded as equally of **average importance** or **important**. *Utilisation of demand management strategies and utilisation of asset based strategies* are of average importance while *documented asset management plan* is **important**.

Table 8.24 Frequency of Scoring to the Importance of Asset and Non Asset Strategy Formulation for Asset Management Implementation

Importance of Strategy Formulation	Response (%)				
	Not very important	Not important	Average importance	Important	Extremely important
<i>Asset Demand Forecasting Techniques</i>	8	11	33	33	15
<i>Utilisation of Demand Management strategies</i>	4	30	37	30	0
<i>Utilisation of Asset Based Strategies</i>	4	22	48	26	0
<i>Documented Asset Management Plan</i>	4	26	22	41	7

b. Significance

This section investigates whether responses given by participants are given at random. Values of Chi-square were determined to aid the investigation. Table 8.25 shows the values of Chi-square and the associated values of significance under H0 (H0: Probability of scores given at random).

Table 8.25 Summary of the level of significance from the Chi-square test

Test Parameters	χ^2	Significance
<i>Asset Demand Forecasting Techniques</i>	34.921	.000
<i>Utilisation of Demand Management strategies</i>	21.789	.000
<i>Utilisation of Asset Based Strategies</i>	24.105	.000
<i>Documented Asset Management Plan</i>	27.947	.000

The results of this test show that, for a level of significance of $p < 0.05$, the null hypothesis is rejected for all the parameters. This indicates that these scores were not given at random.

c. Response Interdependence

To test that the participants' responses were dependent of their profile, the Kruskal Wallis analysis of variance was carried out. Table 8.26 presents a summary of the Kruskal Wallis to test the Null Hypothesis that participants' responses are independent of their backgrounds.

Table 8.26 Kruskal Wallis Analysis of Variance for Strategy Formulation

Test Parameters	Position	Type of Local Authority (Urban, Semi-Rural, and Rural)	Age	Experience in Organisation	Experience Outside Organisation
<i>Asset Demand Forecasting Techniques</i>	.633	.940	.869	.135	.738
<i>Utilisation of Demand Management strategies</i>	.878	.763	.382	.901	.727
<i>Utilisation of Asset Based Strategies</i>	.510	.253	.448	.986	.906
<i>Documented Asset Management Plan</i>	.741	.403	.486	.916	.817

In the output presented in Table 8.26 above, the significance levels are all above 0.05. The results suggest that participants' response to the importance of *asset demand forecasting*

techniques, utilisation of demand management strategies, utilisation of asset based strategies, and documented asset management plan, are not dependent on position, type of authority, age or experience.

SECTION VIII: OPTION APPRAISAL

This section summarises the respondents’ responses to the option appraisal objects of asset management implementation. The responses are analysed using statistical tests described in section 8.3.

a. Frequency

Table 8.27 shows the importance of option appraisal for effective asset management implementation in Scottish and English local authorities by illustrating the distribution of frequency of scores given by the participants . In summary, participants’ responses indicate that the highest percentage fall in the important region. The ‘important’ frequency range registers the highest scores for both, *financial and non-financial appraisal* and *utilisation of Benefit Cost Analysis and Multi-criteria analysis* in the appraisal process.

Table 8.27 Frequency of Scoring to the Importance of Option Appraisal for Asset Management Implementation

Importance of Option Appraisal	Response (%)				
	Not very important	Not important	Average importance	Important	Extremely important
<i>Financial and Non financial appraisal</i>	4	12	23	46	15
<i>Utilisation of Benefit Cost Analysis and Multi-criteria analysis</i>	8	19	31	38	4

b. Significance

The responses were analysed for *significance* to investigate whether participants' responses were given at random. Values of Chi-square were determined to aid the investigation. Table 8.28 shows the values of Chi-square and the associated values of significance.

Table 8.28 Summary of the level of significance from the Chi-square test

Test Parameters	χ^2	Significance
<i>Financial and Non financial appraisal</i>	42.026	.000
<i>Utilisation of Benefit Cost Analysis and Multi-criteria analysis</i>	43.605	.000

The results of this test show that, for a level of significance of $p < 0.05$, the null hypothesis is rejected for all the parameters. This indicates that these scores were not given at random.

c. Response Interdependence

The participants' responses were further investigated whether their opinions were dependent of their profile. The Kruskal Wallis analysis of variance, summarised in Table 8.29, was carried out for that purpose.

Table 8.29 Kruskal Wallis Analysis of Variance for Option Appraisal

Test Parameters	Position	Type of Local Authority	Age	Experience in Organisation	Experience Outside Organisation
<i>Financial and Non financial appraisal</i>	.836	.083	.126	.983	.360
<i>Utilisation of Benefit Cost Analysis and Multi-criteria analysis</i>	.300	.183	.369	.783	.419

The results show that, for a level of significance of < 0.05 , participants' response to the importance of *financial and non-financial appraisal* and *utilisation of Benefit Cost Analysis*

and *Multi-criteria analysis*, are not dependent on position, type of authority, age or experience.

SECTION IX: STRATEGY IMPLEMENTATION

This section provides a summary of the participants' responses to the strategy implementation arrangements of asset management implementation, and the analysis of these responses using the relevant statistical tests, described in section 8.3.

a. Frequency

The SPSS summary of frequencies is used to analyse the given responses to the implementation arrangements of asset management practice in Scottish and English local authorities. The results in Table 8.30 indicate **extremely important** to have integrated asset strategy implementation. Development of medium and long term property strategy, services senior management support, senior management asset champion, corporate officer manages asset management plan implementation, elected member engagement, business case supports option appraisal, corporate approach to capital project prioritisation, clear assignment of management responsibilities, adequate resourcing of property function, clear assignment of asset strategy implementation available cross functional team, accountable capital programme delivery, common project management methodology, and specialised project management team are important.

Table 8.30 Frequency of Scoring to the Importance of Strategy Implementation Arrangements for Asset Management Implementation

Importance of Asset Management Strategy Implementation Arrangements	Response (%)				
	Not very important	Not important	Average importance	Important	Extremely important
<i>Integrated asset strategy implementation</i>	7	4	19	33	37
<i>Development of medium</i>	8	11	11	37	33

<i>and long term property strategy</i>					
<i>Services Senior Management Support</i>	7	15	15	48	15
<i>Senior management asset champion</i>	7	4	4	52	33
<i>Corporate Officer manages asset management plan implementation</i>	7	8	4	59	22
<i>Elected member engagement</i>	7	7	15	52	19
<i>Business case supports option appraisal</i>	8	0	15	44	33
<i>Corporate approach to capital project prioritisation</i>	8	0	8	62	23
<i>Clear assignment of management responsibilities</i>	0	9	27	55	9
<i>Adequate resourcing of property function</i>	0	12	35	50	4
<i>Clear assignment of asset strategy implementation</i>	4	5	33	54	4
<i>Available cross functional team</i>	4	4	19	58	15
<i>Accountable Capital programme delivery</i>	4	6	8	56	26
<i>Common project management methodology</i>	4	11	22	44	19
<i>Specialised project management team</i>	4	11	19	44	22

b. Significance

This section investigates whether responses given by the participants are given at random. To assist this enquiry, values of Chi-square are determined. Table 8.31 depicts the values of Chi-square and the associated values of significance under H0 (H0: Probability of scores given at random).

Table 8.31 Summary of the level of significance from the Chi-square test

Test Parameters	X²	Significance
<i>Integrated asset strategy implementation</i>	33.079	.000
<i>Development of medium and long term property strategy</i>	24.395	.000
<i>Services Senior Management Support</i>	42.289	.000
<i>Senior management asset champion</i>	83.474	.000
<i>Corporate Officer manages asset management plan implementation</i>	103.605	.000
<i>Elected member engagement</i>	28.105	.000
<i>Business case supports option appraisal</i>	55.842	.000
<i>Corporate approach to capital project prioritisation</i>	59.684	.000
<i>Clear assignment of management responsibilities</i>	31.368	.000
<i>Adequate resourcing of property function</i>	39.263	.000
<i>Clear assignment of asset strategy implementation</i>	85.447	.000
<i>Available cross functional team</i>	61.368	.000
<i>Accountable Capital programme delivery</i>	73.605	.000
<i>Common project management methodology</i>	31.237	.000
<i>Specialised project management team</i>	28.868	.000

The results of this test show that, for a level of significance of <0.05, the null hypothesis is rejected for all the parameters, indicating that these scores were not given at random.

c. Response Interdependence

To test that the participants' opinion is dependent of their profile, the Kruskal Wallis analysis of variance was undertaken. Table 8.32 presents a summary of the Kruskal Wallis to test the Null Hypothesis that participants responses are independent of their backgrounds.

Table 8.32 Kruskal Wallis Analysis of Variance for Strategy Implementation

Test Parameters	Position	Type of Local Authority	Age	Experience in Organisation	Experience Outside Organisation
<i>Integrated asset strategy implementation</i>	.333	.186	.562	.603	.816
<i>Development of medium and long term property strategy</i>	.373	.262	.497	.952	.669
<i>Services Senior Management Support</i>	.417	.536	.848	.645	.072
<i>Senior management asset champion</i>	.724	.048	.510	.076	.974
<i>Corporate Officer manages asset management plan implementation</i>	.053	.177	.775	.626	.449
<i>Elected member engagement</i>	.665	.407	.880	.504	.267
<i>Business case supports option appraisal</i>	.744	.191	.633	.704	.576
<i>Corporate approach to capital project prioritisation</i>	.631	.859	.831	.306	.179
<i>Clear assignment of management responsibilities</i>	.397	.733	.562	.865	.173
<i>Adequate resourcing of property function</i>	.366	.435	.341	.385	.365
<i>Clear assignment of asset strategy implementation</i>	.602	.697	.950	.243	.706
<i>Available cross functional team</i>	.140	.119	.485	.650	.068
<i>Accountable Capital programme delivery</i>	.661	.223	.062	.908	.435
<i>Common project management methodology</i>	.370	.398	.444	.898	.403
<i>Specialised project management team</i>	.216	.020	.967	.068	.064

The results show that, for a level of significance of <0.05, participants' response to the importance of 'Senior management asset champion' and 'Specialised project management team', are dependent on the type of authority.

For a closer examination of the importance of strategy implementation in asset management implementation, the results of the Chi-square Crosstabs analysis of frequencies given by participants from different **Types of authority** with regard to *Senior management asset champion* and *Specialised project management team* are shown in Table 8.33. These results show that both parameters namely, *senior management asset champion* and *specialised project management team* are **important** for respondents in rural authorities.

Table 8.33 Chi-square Crosstabs analysis of frequencies of participants for the importance of including *Senior management asset champion* and *Specialised project management team* in relation to Type of authority

Importance of including <i>Senior management asset champion</i> and <i>Specialised project management team</i> within strategy implementation	Type of Authority	Not very important	Not important	Average importance	Important	Extremely important
<i>Senior management asset champion</i>	Rural	5	1	0	19	6
	Semi-rural	0	1	0	10	8
	Urban	0	1	1	13	11
<i>Specialised project management team</i>	Rural	3	7	3	14	4
	Semi-rural	0	4	7	7	1
	Urban	0	3	3	11	9

SECTION X: MONITORING AND CONTROL

In this section a summary of the questionnaire participants' responses to the importance of performance monitoring and control objects of asset management implementation is analysed.

The responses are analysed using the statistical tests described in section 8.3.

a. Frequency

Table 8.34 shows the importance of performance monitoring and control in influencing asset management implementation by illustrating the distribution of frequency scores given by the participants. In summary, participants' responses indicate that *Utilisation of KPIs to measure performance* and *Continuous asset management performance review* are of **average importance**. An equal number of respondents regard *Benchmarking of KPIs* as either of **average importance** or **not important**. *Performance review based on KPIs* and *Comprehensive property review programme* are **important**. *Property costs awareness* is **not important** while *strategic approach to office utilisation* is **extremely important**.

Table 8.34 Frequency of Scoring to the Importance of Performance Monitoring and Control for Asset Management Implementation

Importance of Performance Monitoring and Control	Response (%)				
	Not very important	Not important	Average importance	Important	Extremely important
<i>Utilisation of KPIs to measure performance</i>	9	24	29	24	14
<i>Benchmarking of KPIs</i>	8	32	32	24	4
<i>Continuous asset management performance review</i>	11	11	37	33	7
<i>Performance Review Based on KPIs</i>	10	30	15	35	10
<i>Property Costs Awareness</i>	5	38	19	29	9
<i>Strategic approach to office utilisation</i>	0	19	11	33	37
<i>Comprehensive property review programme</i>	5	5	0	62	28

b. Significance

This section investigates whether responses given by the participants are given at random. To assist this enquiry, values of Chi-square are determined. Table 8.35 depicts the values of Chi-square and the associated values of significance under H0 (H0: Probability of scores given at random).

Table 8.35 Summary of the level of significance from the Chi-square test

Test Parameters	χ^2	Significance
<i>Utilisation of KPIs to measure performance</i>	31.500	.000
<i>Benchmarking of KPIs</i>	33.432	.000
<i>Continuous asset management performance review</i>	56.763	.000
<i>Performance Review Based on KPIs</i>	29.784	.000
<i>Property Costs Awareness</i>	36.500	.000
<i>Strategic approach to office utilisation</i>	7.158	.000
<i>Comprehensive property review programme</i>	96.811	.000

The results of this test show that, for a level of significance of <0.05, the null hypothesis is rejected for all the parameters, indicating that these scores were not given at random.

c. Response Interdependence

To test that the participants' opinion is dependent of their profile, the Kruskal Wallis analysis of variance was undertaken. Table 8.36 presents a summary of the Kruskal Wallis to test the Null Hypothesis that participants responses are independent of their backgrounds.

Table 8.36 Kruskal Wallis Analysis of Variance for Asset Monitoring and Control

Test Parameters	Position	Type of Local Authority	Age	Experience in Organisation	Experience Outside Organisation
<i>Utilisation of KPIs to measure performance</i>	.725	.658	.269	.091	.341
<i>Benchmarking of KPIs</i>	.070	.593	.414	.695	.747
<i>Continuous asset management performance review</i>	.044	.282	.764	.255	.289
<i>Performance Review Based on KPIs</i>	.335	.265	.736	.328	.293
<i>Property Costs Awareness</i>	.494	.043	.348	.634	.620
<i>Strategic approach to office utilisation</i>	.129	.544	.918	.749	.864
<i>Comprehensive property review programme</i>	.071	.639	.026	.912	.040

The values indicate that for a level of significance of <0.05 participants' response to importance of *continuous asset management performance review* are dependent on their Position, while their response to the importance of *comprehensive property review programme* are dependent on **Age** and **Experience outside the organisation**. *Property costs awareness* is dependent on **Type of Authority**.

For a closer examination of the importance of including performance monitoring and control in asset management implementation, the results of the Chi-square Crosstabs analysis of frequencies given by participants with different **Position** with regard to *Continuous asset management performance review* are shown in Table 8.37. These results show that the highest score for *continuous asset management performance review* is '**importance**' with the highest score by **asset manager** respondents.

Table 8.37 Chi-square Crosstabs analysis of frequencies for the importance of including Continuous asset management performance review asset management within performance monitoring and control in relation to Position

Importance of including Continuous asset management performance review within performance monitoring and control	Position	Not very important	Not important	Average importance	Important	Extremely important
<i>Continuous asset management performance review</i>	<i>Asset Manager</i>	1	4	16	20	2
	<i>Estates Manager</i>	2	1	14	5	0
	<i>Facilities Manager</i>	2	2	4	3	0

Table 8.38 shows the results of the Chi-square Crosstabs analysis of frequencies given by participants with different **Ages** with regard to *comprehensive property review programme*. The age group **45-54** regard *Comprehensive property review programme* **important**.

Table 8.38 Chi-square Crosstabs analysis of frequencies of participants for the importance of including *Comprehensive property review programme* within performance monitoring and control in relation to age

Importance of including <i>Comprehensive property review programme</i> within performance monitoring and control	Age	Not very important	Not important	Average importance	Important	Extremely important
<i>Comprehensive property review programme</i>	25-34	0	0	1	4	6
	35-44	1	0	1	10	1
	45-54	0	1	5	24	6
	55-64	0	0	3	5	0

The results of the Chi-square Crosstabs analysis of frequencies given by participants with different **Experience outside the Organisation** with regard to *comprehensive property review programme* are shown in Table 8.39. These results show that *comprehensive property review programme* is important by those with 6-10 level of outside experience

Table 8.39 Chi-square Crosstabs analysis of frequencies of participants for the importance of including continuous asset management performance review within performance monitoring and control in relation to Experience Outside the Organisation

Importance of including Continuous asset management performance review within Performance monitoring	Experience Outside Organisation	Not very important	Not important	Average importance	Important	Extremely important
<i>Continuous asset management performance review</i>	0	1	1	5	7	1
	1-5	1	2	4	1	0
	6-10	1	3	8	8	0
	11-15	0	1	6	6	1
	16-20	0	0	2	1	0
	21-25	1	0	1	1	0

SECTION XI: EFFICIENT AND EFFECTIVE USE OF PROPERTY ASSETS

As a result of operational property asset management implementation in the different types of local authority organisations, Scottish and English local authorities are expected to improve in areas described in the data collected from participants' responses reflecting their opinion upon aspects related to the efficient and effective use of property assets. In this section a summary of the questionnaire participants' responses to the importance of efficient and effective use of property assets objects of asset management implementation is analysed.

a. Frequency

This section of the questionnaire asked about what affects the success of asset management implementation. The statistical tests described in section 8.3 are used to analyse the given responses to the efficient and effective use of property assets. The results in Table 8.40 indicate important to *rationalisation of operational property holdings, reduction in the*

levels of required maintenance, reduced annual operating costs, increased space utilisation, and recycled capital receipts.

Table 8.40 Frequency of Scoring to the Importance of efficient and effective use of property assets for Asset Management Implementation

Importance of <i>efficient and effective use of property assets</i>	Response (%)				
	Not very important	Not important	Average importance	Important	Extremely important
Rationalisation of operational property holdings	0	4	25	53	18
Reduction in the levels of required maintenance	0	7	34	50	9
Reduced annual operating costs	1	7	30	54	8
Increased space utilisation	0	15	17	51	16
Recycled capital receipts	0	1	26	49	21

b. Significance

This section investigates whether responses given by the participants are given at random. To assist this enquiry, values of Chi-square are determined. Table 8.41 depicts the values of Chi-square and the associated values of significance under H0 (H0: Probability of scores given at random).

Table 8.41 Summary of the level of significance from the Chi-square test

Test Parameters	χ^2	Significance
Rationalisation of operational property holdings	38.000	.000
Reduction in the levels of required maintenance	30.474	.000
Reduced annual operating costs	73.474	.000
Increased space utilisation	29.267	.000
Recycled capital receipts	35.524	.000

The results of this test show that, for a level of significance of <0.05 , the null hypothesis is rejected for all the parameters, indicating that these scores were not given at random.

c. Response Interdependence

To test that the participants’ opinion is dependent of their profile, the Kruskal Wallis analysis of variance was undertaken. Table 8.42 presents a summary of the Kruskal Wallis to test the Null Hypothesis that participants responses are independent of their backgrounds.

Table 8.42 Kruskal Wallis Analysis of Variance for Efficient and Effective Use of Property Assets

Test Parameters	Position	Type of Local Authority	Age	Experience in Organisation	Experience Outside Organisation
Rationalisation of operational property holdings	.726	.933	.849	.487	.209
Reduction in the levels of required maintenance	.760	.957	.621	.525	.540
Reduced annual operating costs	.250	.185	.618	.872	.751
Increased space utilisation	.066	.167	.170	.715	.206
Recycled capital receipts	.707	.034	.433	.381	.331

The results show that, for a level of significance of <0.05 , participants’ response to the importance of ‘*Recycled capital receipts*’ are dependent on the **type of authority**.

For a closer examination of the importance of including efficient and effective use of property assets outcomes in asset management implementation, the results of the Chi-square Crosstabs analysis of frequencies given by participants from different **Types of local authorities** with regard to Recycled capital receipts are shown in Table 8.43. These results show that both rural and urban authorities regard recycling of capital receipts important. The rural authorities, however, have a slight edge over urban authorities.

Table 8.43 Chi-square Crosstabs analysis of frequencies of participants for the importance of including Recycled capital receipts in relation to Type of authority

Importance of including Recycled capital receipts within effective and efficient property asset management	Type of Authority	Not very important	Not important	Average importance	Important	Extremely Important
Recycled capital receipts	Rural		0	13	14	3
	Semi-rural		1	2	10	6
	Urban		0	5	13	7

SECTION XII: IMPROVEMENTS IN SERVICE DELIVERY

As a consequence of implementing asset management in local authorities, the expectation is that different types of Scottish and English local authorities will show evidence that asset management has brought about improvements in service delivery. In this section a summary of the questionnaire participants' responses to the importance of improvements in service delivery objects of asset management implementation is analysed.

a. Frequency

The section provides a summary of the data collected from participants' responses reflecting their opinion upon aspects related to criteria related to improved service delivery. The statistical tests described in section 8.3 are used to analyse the given responses to the efficient and effective use of property assets.

The results in Table 8.44 indicate that respondents' regard *improved facilities* and *increased co-location and partnering* to be of **average importance** while *introduction of new working practices*, *increased cross service working*, *compliance with legislation*, *improved accessibility* and *increased service usage* are **important**.

Table 8.44 Frequency of Scoring to the Importance of efficient and effective use of property assets for Asset Management Implementation

Importance of improvements in service delivery	Response (%)				
	Not very important	Not important	Average importance	Important	Extremely important
Improved facilities	0	1	46	41	12
Introduction of new working practices	0	20	16	50	15
Increased cross service working	0	29	26	42	3
Increased co-location and partnering	0	15	42	36	7
Compliance with legislation	0	4	24	55	15
Improved Accessibility	0	16	36	40	9
Increased service usage	7	9	38	41	5

b. Significance

This section investigates whether responses given by the participants are given at random. To assist this enquiry, values of Chi-square are determined. Table 8.45 depicts the values of Chi-square and the associated values of significance under H0 (H0: Probability of scores given at random).

Table 8.45 Summary of the level of significance from the Chi-square test

Test Parameters	χ^2	Significance
Improved facilities	43.368	.000
Introduction of new working practices	25.789	.000
Increased cross service working	24.632	.000
Increased co-location and partnering	26.280	.000
Compliance with legislation	45.892	.000
Improved Accessibility	19.895	.000
Increased service usage	48.474	.000

The results of this test show that, for a level of significance of <0.05 , the null hypothesis is rejected for all the parameters, indicating that these scores were not given at random.

c. Response Interdependence

To test that the participants' opinion is dependent of their profile, the Kruskal Wallis analysis of variance was undertaken. Table 8.46 presents a summary of the Kruskal Wallis to test the Null Hypothesis that participants responses are independent of their backgrounds.

Table 8.46 Kruskal Wallis Analysis of Variance for improvements in service delivery

Test Parameters	Position	Type of Local Authority	Age	Experience in Organisation	Experience Outside Organisation
Improved facilities	.743	.962	.126	.288	.763
Introduction of new working practices	.166	.751	.766	.757	.050
Increased cross service working	.114	.394	.750	.259	.012
Increased co-location and partnering	.720	.423	.410	.504	.796
Compliance with legislation	.553	.542	.182	.279	.995
Improved Accessibility	.700	.223	.228	.227	.570
Increased service usage	.175	.654	.067	.992	.888

The results show that, for a level of significance of <0.05 , participants' responses to the importance of '*increased cross service working*' are dependent on **Outside experience**.

For a closer examination of the importance of including improved service delivery in asset management implementation, the results of the Chi-square Crosstabs analysis of frequencies given by participants with different *Experience Outside Organisation* with regard to '*increased cross service working*' are shown in Table 8.47. These results show that

increased cross service working is **important** by those with 6-10 years of **outside experience**.

Table 8.47 Chi-square Crosstabs analysis of frequencies of participants for the importance of including ‘increased cross service working’ in relation to Experience Outside Organisation

Importance of including <i>increased cross service working</i> within improved service delivery	Experience Outside Organisation	Not very important	Not important	Average importance	Important	Extremely important
<i>Increased cross service working</i>	0		4	3	8	0
	1-5		6	2	0	0
	6-10		3	5	11	1
	11-15		6	3	4	1
	16-20		0	1	2	0
	21-25		0	1	2	0

8.4 IDENTIFYING THE UNDERLYING FACTORS

8.4.1 Introduction

The main aim of this chapter is to assess the level of importance and effectiveness of the variables that contribute to the implementation of operational property asset management in Scottish and English local authorities. The analysis discussed in section 8.3 has identified those asset management practice factors that are important to asset management practice processes. In this section (8.4) factor analysis techniques is applied to assess the effectiveness of the factors in terms of bringing about improvements in asset management practice (Bassioni, Hassan and Price, 2008).

Factor analysis is a technique that helps identify unified concepts of related variables and is therefore ideal for reducing a large number of variables into a small number of related factors that could explain most variables that generate the phenomenon under study (Kline, 1994; Pallant, 2010; Dewberry,2004). Therefore, the contribution of this concept for this research is that it reduces many variables into a few factors that best explain the implementation of asset management in Scottish and English local authorities. In this section, the variables from questionnaire parts (Table 8.48) are analysed.

Table 8.48: Analysed Questionnaire Variables

Asset Management Variables	Analysed Questionnaire Parts
Enablers of asset management	a and b
vision, mission, and setting of objectives	a and b
parts a, b, c, d, and e in the asset knowledge	a, b, c, d, and e
Opportunities and threats	a and b
Strategic task / service level gap	a and b
Formulation of asset strategy	a, b,c,d and e
Option appraisal,	a and b
Asset management strategy implementation	Section A parts a, b, c, d, e, f and g, Section B parts a and b, and Section C parts a, b, and c
Performance monitoring and control	a, b, and c

As a result, the factors can be categorised as the representative of the groups of variables that influenced asset management in Scottish and English local authorities.

8.4.2 Factor Analysis Steps

A three step factor analysis process was followed as suggested by Singh (2007); and Tharenou, et al., (2007) amongst others . The steps, are: factor selection method, defining the number of factors, and labelling and interpretation of results.

Step 1: Method of Factor Extraction

The initial step is centred on selection of a method of extracting factors using either a confirmatory factor analysis or principal component analysis (PCA). The choice of method very much depends on the research objectives.

If the objective is to summarise the relationships between the original variables in terms of a smaller set of derived variables that “go together” as unified concepts which can account for the relationships (correlations) between variables, a suitable method should be principal components analysis (Polit and Beck, 2003; Tharenou, et al., 2007 p207). In practice, the principal component method is commonly used to determine factor extraction (Pett, Lackey and Sullivan, 2003). If the purpose is to test specific theories about the nature of hidden processes, or to compare a result with one that has been hypothesised, the confirmatory factor analysis should be used (Hoxley,2008; Dewberry, 2004).

One of the main objectives in this research is to group the objects into factors that would help to describe the essential factors that influence the implementation of asset management in Scottish and English local authorities. Therefore, principal components analysis was used in this analysis.

Step 2: Definition of Number of Factors to be Extracted

The second step is to define the number of factors to be extracted. Definition of the appropriate number is a three stage process that involves assessing the suitability of the data for factor analysis, applying factor extraction methods, and a re-run of the extracted components.

Assessing Suitability of the Data for Factorisation

A number of tests were administered to assess the data’s suitability for factor analysis. Data factorability was assessed for sample size adequacy, effect size to establish the strength of relationships amongst items, administration of Bartlett’s Test of sphericity to test for existence of homogeneity of variance across samples, and application of Kaiser-Meyer-

Olkin (KMO) test to measure sampling adequacy (Hair, Black, Babin, and Anderson, 2010; Black, 1995; Pallant, 2010). The tests were carried out using SPSS.

It has been suggested by Guilford (1954); Gorsuch (1974); Comrey (1973); and Cattell (1978) that the preferable size for factor analysis is 200 cases or more. A common rule of thumb for sample size is a ratio of 3 to 6 cases per variable as this minimises chance of overfitting the data (Cattell, 1978). The sample size of 76 in this analysis is less than the suggested threshold. This raises the question of adequacy of sample size for factor analysis to be able to extract appropriate number of factors.

However, it has been argued by a number of researchers such as Gagné and Hancock (2006); MacCallum, Widaman, Preacher and Hong (1999); Marsh, Hau, Balla, and Grayson (1998) that there are no absolute thresholds with minimum sample size. According to Field (2009), sample size is not critical in all circumstances. For instance it has been suggested by Jackson (2001) that factor extraction may also be influenced by other factors such as the level of communalities. The suggestion is that where the majority of communalities have loadings of greater than 0.6, samples of less than 100 may be sufficient. The communalities indicate the relationship between the items of a variable and all other variables. They in effect measure the proportion of variance explained by the extracted factors. Communalities obtained in this research are shown in Table 8.49, demonstrating that the majority of communalities have loadings greater than 0.6. In fact, there is evidence of research for which factor analysis has been carried out on even smaller sample sizes of less than 50 (Geweke and Singleton, 1980; Bearden, Sharma, and Teel, 1982; and Gagné and Hancock, 2006). The studies concluded that such sample sizes can be adequate and yielded no incidences of no-convergent when loadings are high.

That sample size adequacy and cases per variable ratio made little difference to factorability of data has been demonstrated through empirical research by Arrindell and Van der Ende (1985); MacCallum, Widaman, Zhang, and Hong (1999); and Field (2009). This has led to some researchers such as de Winter et al (2005), for instance, suggesting abandonment of

factorability recommendations based on absolute numbers and ratio. Perhaps MaCallum, Widaman, Zhang and Hong (1999) best sum up the argument when they state:

“A fundamental misconception about this issue is that the minimum sample size, or the minimum ratio of sample size to the number of variables, is invariant across studies. In fact, necessary sample size is dependent on several aspects of any given study, including the level of communality of the variables”.

It is apparent from the above arguments that there is lack of consensus on what might be regarded as adequate sample size for factor analysis. Consequently, the sample size of 76 responses for this research may be sufficient.

Table 8.49 Communalities

	Initial	Extraction
Organisational and leadership commitment	1.000	.655
Asset Management Capabilities	1.000	.214
Vision articulation	1.000	.666
Clarity of goals and Objectives	1.000	.430
Availability of a property management system	1.000	.683
Information supports decision making	1.000	.785
Condition assessment	1.000	.715
Suitability assessment	1.000	.737
Sufficiency assessment	1.000	.732
Asset costs tracking	1.000	.634
PESTEL assessment and asset implications	1.000	.611
Colocation and joint service delivery	1.000	.659
Resources adequacy	1.000	.520
Benchmarking arrangements	1.000	.684
Asset performance assessment	1.000	.573
Asset management capabilities evaluation	1.000	.550
Service statements for Performance Quantification	1.000	.512
Asset Demand Forecasting Techniques	1.000	.492
Utilisation of Demand Management strategies	1.000	.772
Utilisation of Asset Based Strategies	1.000	.570

Documented Asset Management Plan	1.000	.697
Financial and Non financial appraisal	1.000	.562
Utilisation of Benefit Cost Analysis and Multi-criteria analysis	1.000	.507
Integrated asset strategy implementation	1.000	.682
Development of medium and long term property strategy	1.000	.670
Services Senior Management Support	1.000	.643
Senior management asset champion	1.000	.717
Corporate Officer manages asset management plan implementation	1.000	.819
Elected member engagement	1.000	.663
Business case supports option appraisal	1.000	.726
Corporate approach to capital project prioritisation	1.000	.739
Clear assignment of management responsibilities	1.000	.580
Adequate resourcing of property function	1.000	.372
Clear assignment of asset strategy implementation	1.000	.593
Available cross functional team	1.000	.560
Accountable Capital programme delivery	1.000	.578
Common project management methodology	1.000	.738
Utilisation of KPIs to measure performance	1.000	.642
Benchmarking of KPIs	1.000	.522
Continuous asset management performance review	1.000	.558
Performance Review Based on KPIs	1.000	.620
Property Costs Awareness	1.000	.443
Strategic approach to office utilisation	1.000	.436
Comprehensive property review programme	1.000	.579
Specialised project management team	1.000	.579
<i>Extraction Method: Principal Component Analysis.</i>		

Data was also assessed for factor analysis suitability by calculating effect size. This is the strength of association between any two sets of variables (Bryman, and Cramer, 2004). Singh (2007) and Tharenou, et al. (2007) suggest that a correlation matrix of variables, and their respective items, should be constructed as a preliminary test. In factor analysis each variable is regarded as a dependent variable which is regressed on a set of independent

unobserved factors, each of which in turn is a function of all original variables (Cooper, 1990).

To test the factorability of the data, two measures, namely: Bartlett test of sphericity and Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy, were obtained (Table 8.50). The KMO index ranges from 0 to 1, with 0.6 suggested as the minimum value in Pallant (2010) and Tabachnick and Fidell (2007). Bartlett's test of sphericity should be significant ($p < .05$) for factor analysis to be appropriate (Pallant, 2010). From the output presented in Table 8.50, it can be seen that on both counts the data is suitable for factor analysis.

Table 8.50 KMO and Bartlett's tests of the suitability of the data for factor analysis

Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy		.603
Bartlett's test of sphericity	Sig.	.000

Following confirmation of the suitability of the data for factor analysis, the focus then was on identifying the number of essential factors that had most effect in influencing the implementation of asset management in Scottish and English local authorities. The analysis saw 12 components initially extracted accounting for 78.951% of the total variance in the 45 variables of strategic planning and asset management planning of asset management implementation in Scottish and English local authorities (Table 8.51). This extraction of the 12 components, according to Pallant (2010); Dewberry (2004); and Kline (1994), is based on the Kaiser criterion or the eigen value rule. Using this rule only factors with an Eigen value of 1.0 or more are extracted on the basis that factors of this magnitude represent a substantial amount of variation. An eigen value specifies the amount of variance explained by a factor.

Table 8.51 Total Variance Explained by Extracted Factors

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	15.702	34.894	34.894	15.702	34.894	34.894
2	3.318	7.373	42.267	3.318	7.373	42.267
3	2.586	5.746	48.013	2.586	5.746	48.013
4	2.149	4.775	52.788	2.149	4.775	52.788
5	1.867	4.149	56.937	1.867	4.149	56.937
6	1.798	3.995	60.932	1.798	3.995	60.932
7	1.637	3.639	64.570	1.637	3.639	64.570
8	1.581	3.514	68.084	1.581	3.514	68.084
9	1.360	3.022	71.106	1.360	3.022	71.106
10	1.219	2.708	73.815	1.219	2.708	73.815
11	1.179	2.621	76.435	1.179	2.621	76.435
12	1.132	2.516	78.951	1.132	2.516	78.951
13	.981	2.180	81.131			
14	.888	1.974	83.106			
15	.783	1.740	84.846			
16	.756	1.679	86.525			
17	.663	1.472	87.997			
18	.571	1.269	89.266			
19	.552	1.226	90.492			
20	.492	1.092	91.584			
21	.472	1.048	92.632			
22	.429	.954	93.586			
23	.328	.728	94.314			
24	.307	.682	94.997			
25	.269	.597	95.594			
26	.256	.570	96.164			
27	.240	.533	96.697			
28	.217	.482	97.178			
29	.200	.444	97.623			
30	.187	.415	98.038			
31	.150	.333	98.371			

32	.124	.275	98.645		
33	.119	.265	98.910		
34	.105	.234	99.145		
35	.096	.213	99.358		
36	.064	.142	99.499		
37	.053	.118	99.618		
38	.042	.093	99.711		
39	.033	.074	99.785		
40	.031	.068	99.853		
41	.023	.050	99.904		
42	.015	.033	99.937		
43	.015	.033	99.970		
44	.008	.018	99.988		
45	.005	.012	100.000		
Extraction Method: Principal Component Analysis					

It is worth pointing out that there is no precise solution for determining the number of factors to be extracted (Pett, Lackey and Sullivan, 2003). According to Pallant (2009) it is up to the researcher to determine the number of factors that he or she considers best describes the underlying relationship among the variables. However, what does exist are several criteria that can be used to help determine when to stop extracting (Field, 2009; Singh, 2007; Pett, Lackey and Sullivan, 2003; Tharenou, et al., (2007)). One of these is the Kaiser criterion. According to Tharenou, et al., (2007) the Kaiser criterion should not be the only criterion used for factor extraction as extracting the factors using eigenvalues greater than 1 may overestimate the required number of factors. According to Gorsuch (1983) Kaiser criterion is most accurate when there are fewer than 40 variables and the sample size is large in excess of 250.

An alternative to the Kaiser criterion suggested by Hair et al. (1998) is the Priori criterion where the researcher already knows the desired number of components based for instance on theory. In this research, the literature review identifies nine concepts based on theory that

supports asset management, implying the extraction of nine components if this criterion is adopted.

Another alternative criterion is the cumulative percentage of variance extracted by successive factors. With this criterion factor extraction process is terminated when a threshold for maximum variance has been achieved. According to Pett, Lackey and Sullivan (2003) for social science research selecting a solution that accounts for 60% of the total variance is acceptable. In this research, 60% of the total variance coincides with six components accounting for 60.932% as shown in Table 8.52.

It is also evident that the Scree plot in Figure 8.4 also provides support for a six component solution. The number of factors or components is determined by the point at which the plotted Eigen values appear to level out abruptly (Singh, 2007 p205; Lance and Vandenberg, 2009 p81). Inspection of the Scree plot shows that after the first six components, increases in eigenvalues decline.

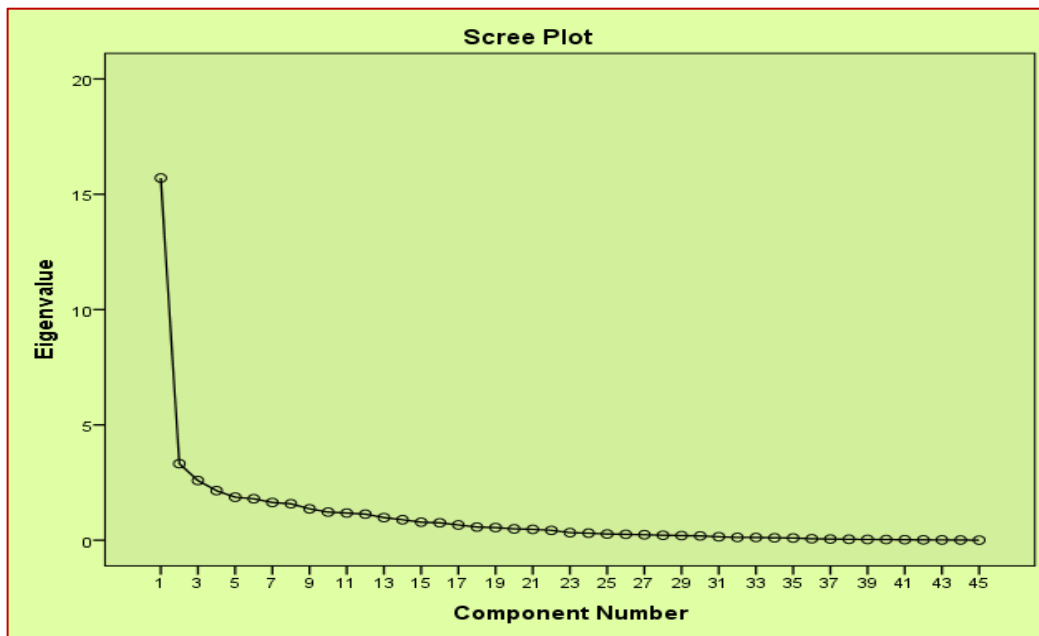


Figure 8.4: Scree plot for component extraction criterion

Principally, the objective of factor analysis is to reduce a large number of related variables to a more manageable number (Pallant, 2010). These fewer number of variables should be the most representative and parsimonious set of components possible. In this research retaining a nine factor solution would not have achieved these aims. Therefore, the six component solution was accepted and the analysis was re-run extracting six components. These six components extracted accounted for 60.932% of the total variance in the 45 variables of asset management implementation in Table 8.52.

Table 8.52 Factor loading for the rotated factors

	Component					
	1	2	3	4	5	6
Organisational and leadership commitment	.763					
Vision articulation	.724					
Corporate Officer manages asset management plan implementation	.724					
Resources adequacy	.672					
Specialised project management team	.607					
Available cross functional team	.601					
Corporate approach to capital project prioritisation	.597	.483				
Senior management asset champion	.593	.481				
Elected member engagement	.577	.468				
Business case supports option appraisal	.563	.435				
Clarity of goals and Objectives	.533					
Utilisation of Demand Management strategies		.819				
Utilisation of Asset Based Strategies		.706				
Clear assignment of asset strategy implementation		.683				
Documented Asset Management Plan		.630			.453	
Integrated asset strategy implementation	.446	.583				
Service statements for Performance Quantification		.578				

Development of medium and long term property strategy	.565		.442	
Adequate resourcing of property function	.560			
Services Senior Management Support	.540			
Condition assessment	.491	.486		
Clear assignment of management responsibilities	.423			
Sufficiency assessment		.832		
Suitability assessment		.819		
Asset costs tracking		.700		
Information supports decision making		.685		.486
Availability of a property management system		.555		.474
Asset performance assessment		.491		
Asset management capabilities evaluation		.488		
Comprehensive property review programme			.684	
Benchmarking of KPIs			.668	
Financial and Non financial appraisal			.663	
Performance Review Based on KPIs			.599	
Continuous asset management performance review			.518	
Strategic approach to office utilisation			.510	
Benchmarking arrangements		.443		.688
Colocation and joint service delivery				.630
PESTEL assessment and asset implications				.520
Utilisation of Benefit Cost Analysis and Multi-criteria analysis				.503
Property Costs Awareness				.621
Common project management methodology		.412		.600
Utilisation of KPIs to measure performance			.444	.591
Accountable Capital programme delivery				.503
Asset Demand Forecasting Techniques				.483

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 10 iterations.

Step Three: Labelling and Interpretation

The final step in factor analysis process is the labelling and interpretation of the factors. Principal axis factor analysis with varimax orthogonal rotation was conducted to assess the underlying structure for the 45 variables of the questionnaire parts specified earlier. According to Dewberry (2004) for mathematical reasons, at the factor extraction stage factors are not placed in the best position to enable the interpretation of data. In order therefore to find a more interpretable solution varimax orthogonal rotation was performed on the extracted component matrix. Varimax orthogonal rotation has the effect of spreading the variance across the factors more equally making them easier to interpret (Bryman, and Cramer 2004; Dewberry, 2004; Conway and Huffcutt, 2003).

The rotated component loadings show the correlations between each variable and the component. The variables that are measuring one construct are expected to load on one component and those measuring another construct should load on a different component. The rotated component loadings are shown in Table 8.52 above. In terms of assignment of importance to factor loadings Ford, MacCallum, and Tait (1986) argue that factor loadings greater than at least .40 are interpretable. Therefore any loadings that were less than 0.40 were therefore omitted.

The first factor, which seems to index ***Support*** orientation, loads more strongly on the first six items, with loadings in the first column. Support in form of ‘organisational and leadership commitment’, ‘clear direction’, enabling environment in form of senior management support, cross functional teams, resource adequacy, project management team’ resources had the highest loading. It is clear from the alignment of these variables that availability of support in form of senior management and elected member commitment as well as resources and the creation of an enabling environment in form of operating structures are critical to effective asset management implementation.

The second factor, which seems to index ***Strategy*** orientation, is composed of fourteen items in column 2 of the table. ‘Utilisation of demand management strategy’, ‘asset based

strategies’, ‘implementation strategy’, ‘asset management plan’, ‘integrated implementation strategy’, and performance quantification’ had highest loadings. The factors indicate that there should be developed strategies for: identification of asset and asset management performance shortfalls, strategy for meeting identified performance shortfalls, asset and non-asset solutions implementation strategy, and strategy for reviewing performance of an implemented strategy solution.

The first four cross loading factors had highest loading in column 1 of the table. The factors ‘corporate approach’, senior management asset champion’, ‘elected member support’, and ‘business case’, nonetheless attest to the importance leadership and organisational roles in strategy development.

The third factor, which seems to index *Information* orientation, comprised the items with loadings in the third column. ‘Sufficiency assessment’, ‘Suitability assessment’, Asset costs tracking’, ‘Information supports decision making’, ‘Availability of a property management system’, Asset performance assessment’, ‘Asset management capabilities evaluation’ as well as ‘condition assessment’ have highest loadings on the third column. ‘Condition assessment’ has cross loading with the second component. It is clear that this factor clusters variables about capturing of information on key data sets supported by a management information system to support decision making.

The fourth factor, which seems to index *Monitoring, Control* and *Review* orientation, is composed of the six items with strong loadings on the fourth column. The items include ‘Comprehensive property review programme’, ‘Benchmarking of KPIs’, ‘Financial and Non financial appraisal’, ‘Performance Review Based on KPIs’, ‘Continuous asset management performance review’, and Strategic approach to office utilisation’. The cluster of items orientate towards a management arrangement system for monitoring, controlling and reviewing performance.

The fifth factor, which seems to index *Performance Measurement System*, comprised the items with loadings in the fifth column. ‘Benchmarking arrangements’, ‘Colocation and joint service delivery’, ‘PESTEL assessment and asset implications’, ‘Utilisation of Benefit Cost Analysis and Multi-criteria analysis’ have highest loadings on the fifth column. ‘Benchmarking arrangements’ has its highest loading on this factor but had a cross loading of 0.443 on the fourth factor. The items that coalesce around this factor indicate a performance measurement system for monitoring and controlling asset and asset management performance.

The sixth factor which seems to index *Measurement Techniques* orientation, is composed of the five items with strong loadings on the sixth column. ‘Property Costs Awareness’, ‘Common project management methodology’, ‘Utilisation of KPIs to measure performance’, ‘Accountable Capital programme delivery’, and ‘Asset Demand Forecasting Techniques’ had highest loadings on the sixth factor. ‘Utilisation of KPIs to measure performance’ has its third highest loading of 0.591 on this factor but had a cross loading of 0.444 on the fifth factor. The group of items are those relating to utilisation of techniques to measure various aspects of asset management implementation including performance and processes.

Cronbach alpha (α) analysis was conducted to examine the reliability of variables for each factor (Pett, Lackey and Sullivan, 2003). Flynn, Schroederb and Sakabira (1994) state that in general measures that are highly reliable have alpha coefficients of 0.90 or greater, while scales that have alphas below 0.70 can be said to have less than fair reliability. Cronbach’s alpha is used to measure how well variables can be constructed into one single factor. Table 8.53 shows that all the six factors are above 0.70. This indicates that the coefficient alpha is strong meaning that over 70% of the variance of the total scores on the subscale of each factor can be attributable to reliable variance. There is reliability amongst the items in the set associated with each factor as such the factors are equally reliable (Pett, Lackey and Sullivan, 2003).

Table 8.53 Coefficient Alpha (α) Reliability Analysis of Components

Factors	Variable	Mean
Factor 1 Support ($\alpha = .916$)	Property Costs Awareness	2.8158
	Common project management methodology	3.3553
	Utilisation of KPIs to measure performance	2.8421
	Accountable Capital programme delivery	3.8158
	Asset Demand Forecasting Techniques	3.3684
Factor 2 Strategy Development ($\alpha = .899$)	Utilisation of Demand Management strategies	2.9733
	Utilisation of Asset Based Strategies	2.9467
	Clear assignment of management responsibilities	3.5600
	Documented Asset Management Plan	3.0400
	Integrated asset strategy implementation	3.8533
	Service statements for Performance Quantification	3.1600
	Development of medium and long term property strategy	3.7333
	Adequate resourcing of property function	3.4133
	Services Senior Management Support	3.5733
	Condition assessment	3.7467
Clear assignment of asset strategy implementation	3.5600	
Factor 3 Information ($\alpha = .819$)	Suitability assessment	3.7500
	Sufficiency assessment	3.6711
	Asset costs tracking	3.2500
	Information supports decision making	3.5526
	Availability of a property management system	3.7105
	Asset performance assessment	3.1053
	Asset Management Capabilities	3.6316
Factor 4 Monitoring and Control ($\alpha = .774$)	Comprehensive property review programme	3.9722
	Benchmarking of KPIs	2.7361
	Financial and Non-financial appraisal	3.6944
	Performance Review Based on KPIs	3.0417
	Continuous asset management performance review	3.2361
	Strategic approach to office utilisation	3.6389

Factor 5 Performance Measurement ($\alpha = .776$)	Benchmarking arrangements	2.8649
	Colocation and joint service delivery	3.0000
	PESTEL assessment and asset implications	2.7027
	Utilisation of Benefit Cost Analysis and Multi-criteria analysis	3.0676
	Utilisation of KPIs to measure performance	2.8649
Factor 6 Measurement Techniques ($\alpha = .773$)	Property Costs Awareness	2.8158
	Common project management methodology	3.3553
	Utilisation of KPIs to measure performance	2.8421
	Accountable Capital programme delivery	3.8158
	Asset Demand Forecasting Techniques	3.3684
α = Cronbach's alpha		

An *F* ratio and *Means Square* analysis was conducted to test the equality of item means (Pett, Lackey and Sullivan, 2003). The results shown in Table 8.54 indicate that in all factors except no.5, the *F* ratio is significant at $p = .0000$ indicating that the Null hypothesis of equality of means is rejected. There is significant variation in item means.

Table 8.54 Analysis of Variance (ANOVA)

<i>No.</i>	<i>Factor</i>	<i>Mean Square</i>	<i>F</i>	<i>Sig.</i>
1	Support	5.595	11.064	.000
2	Strategy Development	8.895	18.009	.000
3	Information	7.916	16.607	.000
4	Monitoring and Control	14.063	21.386	.000
5	Performance Measurement	1.922	3.899	.010
6	Measurement Techniques	13.292	19.935	.000

8.5 SUMMARY AND MAIN FINDINGS

The main concern of this chapter was to assess the level of importance of the explored factors in the implementation of asset management in Scottish and English local authorities.

The following conclusions were reached as a result of observations:

Profile	<p>•Position: asset managers were the most represented group followed by estates managers with facilities managers being the least represented. This would appear to reaffirm the identified weaknesses associated with asset management structure with most local authorities not having a structure that includes both FM and EM.</p>
	<p>Type of Local Authority: The majority of respondents came from rural authorities followed by urban authorities and least representation by semi-urban authorities.</p>
	<p>Age Category: The highest proportion of participants were those in age group 45-54 years, followed by those aged 35 to 44. The age groups 25-24 and 55-64 are the least represented. This could be due to the fact that the older workforce might not readily embrace the asset management concept approach to management while the younger age group might have over-representation of the junior workforce and therefore not likely to be involved in asset management which is strategic in nature and therefore dealt with by senior staff.</p>
	<p>Experience in the Organisation: Those with 1 to 5 years asset management experience within the organisations were in the majority followed by those with 6 to 15. This would seem to indicate that the old workforce with a lot of experience might not be readily embracing new working practices associated with asset management or it could be due to mere underrepresentation of this group in the workforce.</p>
	<p>Experience Outside the Organisation: Those with 6-10 experience or no experience at all outside the organisation were the majority The least represented were those with more than 15 years experience outside the organisation</p>
Enablers of	<p>• Organisational and leadership commitment: Is regarded to be of <i>extreme</i></p>

<p><i>asset management</i></p>	<p><i>importance.</i></p> <ul style="list-style-type: none"> ● Asset management capabilities: Regarded as <i>important</i>. <p>Responses were found to be independent of respondents' profiles</p>
<p><i>Vision, mission and asset objectives</i></p>	<ul style="list-style-type: none"> ● Local authorities regard it <i>important</i> the setting of a clear vision and clarity of goals and objectives to enable the derivation of asset objectives. The responses were found to be <i>independent</i> of respondents' backgrounds.
<p><i>Asset Knowledge</i></p>	<ul style="list-style-type: none"> ● Assessment of assets for condition, suitability, sufficiency, and existence of a property management information system that supports decision making are all regarded as <i>important</i>. ● Asset cost tracking – is regarded of <i>average</i> importance . ● Responses associated with asset cost tracking are dependent on Type of local authority while Availability of a property management system and Suitability assessment are dependent on respondents' age.
<p><i>SWOT analysis</i></p>	<ul style="list-style-type: none"> ● Resource adequacy and Benchmarking Arrangements: are regarded as <i>important</i> ● PESTEL Assessment and Colocation and joint service delivery: are of <i>average importance</i>. ● Response Interdependence: <i>Colocation and joint service delivery</i> are dependent on <i>Position</i> while Benchmarking Arrangements is dependent on respondents' Experience in the organisation. ● Influence of Position: All three professional groups (AM, EM, FM) regard Colocation and joint service delivery to be of <i>average importance</i>. ● Influence of Experience Obtained within the organisation: Those with experience between 11 and 20 years regard this as important. However, those with the least internal experience (up to 10 years) or with longest years of experience (over 20 years) least value benchmarking arrangements. Perhaps young ones do not fully appreciate the importance of benchmarking while older workforce is not keen to embrace the concept.

<p><i>Service Level Gap</i></p>	<ul style="list-style-type: none"> ● Asset performance assessment and Service statements for performance quantification are perceived to be <i>important</i> while Asset management capabilities evaluation is considered of <i>average importance</i>. ● Responses to service statements for performance quantification and asset management capabilities evaluation are dependent on Type of local authorities.
<p><i>Strategy Formulation</i></p>	<ul style="list-style-type: none"> ● Utilisation of demand management strategies and asset based strategies are regarded by respondents to be of <i>average importance</i> ● Respondents perceive the preparation of documented asset management plans and the use of asset demand forecasting techniques to be <i>important</i>. ● There is no interdependence between respondents' backgrounds and responses to demand or asset strategies as well as asset management plans and demand forecasting techniques
<p><i>Option Appraisal</i></p>	<ul style="list-style-type: none"> ● The appraisal of options based on both Financial and Non-financial considerations; and the utilisation of Benefit Cost Analysis and Multi-criteria appraisal analysis techniques are perceived to be <i>important</i> and the responses are <i>independent</i> of respondents' backgrounds
<p><i>Strategy Implementation</i></p>	<ul style="list-style-type: none"> ● Integrated Asset Strategy Implementation: Is perceived to be of <i>extreme importance</i> ● The rest of the concepts are regarded as <i>important</i>. ● Responses to the importance of 'Senior management asset champion' and 'Specialised project management team', are <i>dependent</i> on the Type of authority which all regard the concepts as important.
<p><i>Monitoring, Control and Review</i></p>	<ul style="list-style-type: none"> ● 'Utilisation of KPIs, 'Continuous asset management performance reviews': these concepts are perceived to be of <i>average importance</i>. ● Benchmarking of KPIs: is equally regarded as either of <i>average importance</i> or <i>not important</i>. ● Property costs awareness: is perceived to be <i>not important</i>. The responses are <i>dependent on Type of local authority</i>.

	<ul style="list-style-type: none"> • Continuous property review programme: Is regarded as <i>important</i> and the responses are <i>dependent on Position</i> of respondents. Responses to questions associated with this concept depend on both <i>Age</i> and <i>Experience outside the organisation</i>. • Strategic approach to office utilisation: is considered <i>extremely important</i>. The prominence of this concept could be due to the significant office rationalisation programme all authorities have been undertaking to realise efficiency gains.
<i>Efficient and Effective Use of Property Assets</i>	<ul style="list-style-type: none"> • All the concepts for evaluating asset management performance, namely: rationalisation of operational property holdings, reduction in the levels of required maintenance, reduced annual operating costs, increased space utilisation, and recycled capital receipts to be <i>important</i>. • Recycled capital receipts: is the only concept that is response interdependent. The responses depend on <i>Type of authority</i>.
<i>Improvement in service delivery</i>	<p>The evidence regarding the criteria related to improved service delivery indicate that:</p> <ul style="list-style-type: none"> • Improved Facilities and Increased Co-Location And Partnering are of <i>average importance</i> • Introduction of new Working Practices, Increased Cross Service Working, Compliance with Legislation, Improved Accessibility and Increased Service Usage are <i>important</i>. • In terms of the influence of background on responses, 'increased cross service working' is dependent on <i>Outside experience</i>.

Factor Analysis

The 45 items of the nine processes of strategic and asset management were subjected to principal components analysis (PCA) using IBM SPSS Statistics version 21. Prior to performing PCA, the suitability of the data for factor analysis was assessed. Inspection of the correlation matrix revealed the presence of many coefficients of .3 and above. The

Kaiser-Meyer-Olkin value was .603, exceeding the recommended value of .6 and Bartlett's Test of Sphericity reached statistical significance at 5%, supporting the factorability of the correlation matrix.

Using the Kaiser Criterion or Eigen Value rule PCA revealed the presence of twelve components with eigenvalues exceeding 1. On the basis that the Eigen Value rule tends to overestimate the number of extracted factors and also that the rule is most accurate when there are fewer than 40 items, alternative criteria were considered. Both the Priori Criterion and the Scree Plot criterion were rejected on the basis that the number of factors extracted was not parsimonious. The adopted criterion was the cumulative percentage of variance rule. Based on this criteria six components were identified that accounted for 60% of the total variance. The extracted factors are labelled *Support; Strategy Development; Information; Monitoring, Control and Review; Performance Measurement; and Measurement Techniques*.

Cronbach alpha (α) analysis was conducted to examine the reliability of variables for each factor and this was found to be in excess of 0.70 for each factor. This level of coefficient alpha is strong meaning that over 70% of the variance of the total scores on the subscale of each factor can be attributable to reliable variance.

An *F* ratio and *Means Square* analysis of all the factors indicated, with the exception of a single factor, significance at $p = .0000$. The Null hypothesis of equality of means was therefore rejected supporting the alternative hypothesis that there is significant variation in item means.

8.6 CHAPTER SUMMARY

The qualitative analysis in chapter seven brought out partial findings for the main objective of the research to explore the factors that contribute to the development of an adaptable and flexible asset management framework for implementation in Scottish and English local authorities and to assess their importance. The main aim of this chapter was to assess their

level of importance by applying quantitative measures. To achieve this, a survey was carried out targeted at asset management practitioners in Scottish and English local authorities. The aim of the survey was intended to gather information on four areas. Firstly, to gather information on the identity of asset management practitioner profiles. The aim was to assess if there was any relationship with asset management implementation. Secondly, to gather the views of asset management practitioners on the role of asset management in achieving local authority objectives and their perception on the factors that enable effective asset management implementation. Eliciting the thoughts and experiences of practitioners regarding asset management improvements was the another intention of the survey. Finally, the survey was intended to identify the most critical underlying factors that which local authorities should consider in implementing asset management practice.

Regarding profile, this was examined in terms of position, type of local authority and experience of practitioners. Asset managers were the most represented group followed by estates managers. Most of the responses came from rural authorities followed by urban authorities. As for age category of respondents, the age group 45-54 was the highest proportion perhaps indicating that those engaged in asset management are likely to be senior managers and in this age group. The majority of respondents had experience of up to ten years, in or outside their organisations.

The practitioners' perceptions were also elicited as for the factors considered most important in supporting effective asset management implementation. The factors included enablers of asset management; vision, mission and objectives; asset knowledge; SWOT analysis; service level gap; strategy formulation; option appraisal; strategy implementation; monitoring, control and review; efficient and effective use of property assets; and service delivery improvements.

Four factors were regarded to be extremely important and these included:

- organisational and leadership commitment;

- having an integrated asset strategy implementation; and
- strategic approach to office utilisation.

The factors that were regarded as important included:

- asset management capabilities;
- setting clear vision and goals;
- asset knowledge on condition, suitability, sufficiency and existence of a suitable property management information system;
- resource adequacy and benchmarking arrangements;
- asset performance assessment and service statements for performance quantification;
- asset management plans and use of demand forecasting techniques;
- strategy implementation concepts including: option appraisal; adequacy of resources; cross functional teams; project management approach;
- continuous property review programme for monitoring and controlling performance;
- concepts for evaluating efficient and effective use of property assets such as rationalisation of operational property holdings, reduction in the levels of required maintenance, reduced annual operating costs, increased space utilisation, and recycled capital receipts.
- Certain concepts for evaluating improved service delivery typically: introduction of new Working Practices, Increased Cross Service Working, Compliance with Legislation, Improved Accessibility and Increased Service Usage.

The following factors were regarded as of average importance:

- Tracking operating costs of assets;
- Co-location and joint service delivery

- Asset management capabilities evaluation
- Utilisation of asset and demand management strategies;
- Benchmarking of KPIs
- Improved facilities and increased co-location and partnership working as concepts for assessing improved service delivery.

The above factors identified by respondents as either extremely important, important or average importance were evaluated in terms of the most critical underlying factors which local authorities should consider in implementing asset management practice. The factors represent the nine asset management process variables and comprise of 45 items. The 45 items were subjected to principal components analysis (PCA). Prior to performing PCA, the data was tested and was found to be suitable for factor analysis. Adopting the criterion *cumulative percentage of variance rule*, six components were identified. The extracted factors are labelled *Support; Strategy Development; Information; Monitoring, Control and Review; Performance Measurement; and Measurement Techniques*.

CHAPTER NINE

DISCUSSION AND VALIDATION OF RESULTS

9.1 INTRODUCTION

The research findings from qualitative and quantitative research in chapters seven and eight respectively are discussed in this chapter. Also covered in this chapter is the development, revision and validation of the developed framework. The discussion of the results initially summarises the key findings. Thereafter, the findings are interpreted by placing them in the appropriate context. Validation of the developed framework is considered at three levels, namely: internal validation, external validation and reliability of the research process. Finally, the implication of the findings is addressed.

9.2 RESULTS DISCUSSION

In this section the key findings are summarised and their implications outlined. Thereafter, the meanings of the significant results represented in the framework covering strategic planning, asset management planning, asset management outcomes and any extraneous findings are then interpreted.

9.2.1 Summary of Findings

The aim of this research was to develop a flexible and adaptable operational property asset management framework for local authorities in England and Scotland. The aim was supported by specific objectives intended to explain the concept of asset management, its development and implementation; identify the contribution of operational property asset management in achieving local authority objectives; develop a conceptual framework of asset management including the implementation methodology. The results suggest that asset management is strategic and integrative in its approach. An adaptable and flexible asset management framework implemented through a board level asset management structure, supported by a strong leadership, operating in an enabling environment with embedded asset management culture and with effective property performance management arrangement is the most appropriate arrangement for improving asset management practice in English and Scottish local authorities.

9.2.2 Contextual Interpretation of The Findings

In this section the meaning of the results is explained by taking into account the context of the research. The interpretation of the findings takes into account the research context in terms of the extent to which they are supported by existing literature. Initially the key factors that bring about an enabling environment are identified and an explanation provided of how they operate. Thereafter, the key findings associated with enabling environment, strategic planning, asset management planning and outcomes of the asset management processes are interpreted.

(a) ENABLING ENVIRONMENT

The findings of this research suggest that four factors are critical to the creation of an asset management enabling environment. These include local authorities having in place appropriate asset management and organisational management structure, leadership, corporate landlord and appropriate asset management culture in the organisation. The findings of this research show that most local authorities have implemented a strategic asset management board of a matrix structure. However, despite having in place such a structure, it does not integrate estates and facilities functions. This means, therefore, that local authorities' asset management structures do not effectively communicate asset management activities across the organisation. Male (2006) investigated the type of asset management structure that was most appropriate for managing central government operational properties. He concluded that having in place a property asset management board of a strong matrix structure is the most effective structure for implementing asset management. The structure's effectiveness is because it brings together strategic and operational aspects of property asset management into one organisational unit.

Ali *et al* (2008) in a study investigating the role of an appropriate structure in corporate real estate reached similar conclusions, stating: *“asset management activities comprise all aspects of real estate holdings in the organisation. It is important therefore to have an appropriate structure which ensures that there is effective communication”*.

As for leadership, this research has shown that leadership support from elected members and service heads for asset management in so far as it relates to indirect properties is strong in rural and urban authorities but weak in semi-rural ones. However, support is weak in all authorities for direct properties. This weak leadership support in local authorities is behind the failure to fully implement asset management in these organisations. It is also apparent, therefore, that asset managers even if they occupy senior positions they have limited authority to effectively implement asset management. The weak leadership lies behind the common scenario witnessed in most local authorities where asset management support is limited to indirect properties. The comprehensive failure to drive the asset management agenda to have a bearing on direct properties where it is needed most, is also as a result of the limited leadership support. The implication of these findings are that asset managers should occupy positions not just similar to other service heads but perhaps a level above corporate heads but below the Chief Executive. Such a position will give them the necessary seniority and authority to require heads of services to report to them or at least be below them. Similar research examining the role of leadership in influencing asset management effectiveness for operational properties in the public sector and rail and utilities companies reached similar conclusions.

Research by Edwards (2010) investigating the role of leadership on asset management in the rail and utilities sectors concluded that effective leadership was important in helping organisations move from a departmental view or functional view of their business towards a more integrated view centred on asset management. Similar findings were observed by Male (2004) in a study examining asset management in government operational property assets. He concluded that effective leadership for those involved in asset management at the top leadership level is essential for enabling them to drive forward the asset management agenda in an organisation. The significance for asset managers to be not just positioned at the senior level in the organisation's hierarchy but also to have the necessary authority to drive asset management agenda has been the subject of research investigation by others. Ali *et al* (2008) researching leadership role in corporate real estate concluded that an asset

manager should be functionally positioned at a strategic level and close to the chief executive or top leadership in order to have the necessary management authority to provide the needed leadership role. Similarly, (Edwards, 2010) reached similar conclusions stating that an asset manager who occupies a senior leadership position gives the individual sufficient authority and resources to drive through the asset management process. He also concluded that such a position if comes with the necessary authority allows the asset manager to seek and obtain inputs from personnel such as service heads across the organisation (Edwards, 2010).

This research has also found that in almost all local authorities the corporate landlord approach where direct operational properties are centrally controlled and owned is very ineffective or absent. Service heads still retain control over direct properties and are unsupportive of asset management arrangements except where it relates to indirect properties. Direct properties, in the main, are still considered to be owned by individual service departments occupying them. Essentially what this means is that the management of direct properties especially remains fragmented in that different services or departments are involved in the management and use of property assets. The fragmented management approach was also observed by Kaganova (2006) in a study examining management practices of government owned operational properties. Similar research carried out in the 1980s by Audit Commission (1988a) showed that local authority property was not centrally owned and controlled and that it was considered to belong to individual service committees occupying it. In practical terms, fragmentation implies *that criteria unrelated* to asset management effectiveness or efficiency splits direct operational property into many portfolios, and these portfolios are managed quite independently. Even if some respective departments of local authorities manage these properties well, the overall result is that the performance of property assets and management practices tend to be *suboptimal*.

As a result of fragmented management local authority organisations are experiencing economic inefficiencies associated with the performance of their property assets, especially

direct operational subjects. These inefficiencies include physical and economic underutilisation. Two previous studies by the Audit Commission (1988a; 2000) reviewing property management in local authorities in England and Wales found that the fragmented approach created a number of physical and economic underutilisation of properties. The inefficiencies, similar to the ones identified by this research, include firstly, buildings being poorly located. This is acting as a barrier to service modernisation as this does not allow for “joined up” working , whether through co-location or partnering / joint service provision, and improving accessibility to the public. This lack of interagency partnering or joined up service provision represent unnecessary duplication of resources. Secondly, the lack of central control and ownership is contributing to the difficulty for local authorities to readily exploit surplus or underutilised property, transfer property between committees, or encourage the identification of surplus property for disposal. In addition, the fragmented management approach is not providing incentives to services that control and occupy these direct properties to efficiently and effectively manage the properties. These occupiers perceive little benefit in surrendering “their” vacant or underused properties either for disposal or use by other service areas. Furthermore, local authorities are failing to carry out regular property reviews which are necessary if property is to be managed as a dynamic rather than as a static resource. As a result of fragmented management approach local authorities are unable to recognise the opportunity costs of holding property. The lack of centralised control and ownership is also creating a situation where there is lack of coordinated maintenance strategy. This is resulting in backlog maintenance as maintenance budgets are being used for what local authorities see to be more pressing needs. It is also notable that the ineffective management arrangement is contributing to political apathy and opposition to change property management practices relating to direct operational properties. Additionally, due to lack of centralised ownership and control of direct property assets, local authorities do not effectively challenge the need for owning such properties or to review the manner in which property services are organised and obtained. Consequently

most local authorities continue to retain and maintain buildings that are in the wrong place, of the wrong size, or are otherwise unsuitable for their existing use.

Regarding asset management culture, the research evidence suggests that asset management culture is embedded in rural local authorities but to a lesser extent in urban authorities and very weak in semi-rural authorities. This is also evidenced by the fact that rural authorities have an effective planned approach to reacting to external environmental PESTEL forces and to a lesser extent by urban local authorities. In semi-rural authorities opportunities and threats are dealt with in a reactive manner. The strong asset management culture in rural local authorities is likely to be associated with strong change management culture in those authorities. In rural authorities where there is strong asset management culture they are most effective in responding to change affecting them, to embed asset management practices and to continuously seek to improve their asset management practices.

The difference in asset management culture across local authorities indicates variations in organisational culture across local authorities. The variation in organisational culture is reflective of the differences in property asset management practices. This is likely to be due to differences leadership; size; social, economic and cultural composition of the communities they serve; geographical and political differences across local authorities. Local authorities with strong change management culture are likely to successfully integrate these organisational differences when planning their strategies for responding to PESTEL influences.

These research findings are supported by similar research carried out by Tanfield and Denyer, (2004) examining strategic management of long term infrastructure assets. The study found that asset management is a strong change event. Male (2010) reached similar findings in a study of government operational property assets. He concluded that the successful implementation of asset management could involve substantial organisational change. Tanfield and Denyer, (2004) further argued that organisations that have a strong

change management culture ensure that there exists a continuous asset management improvement process. The Department for Provinces and Local Government (DPLG) (2010) stated that the existence of a continuous improvement process makes it possible that asset management processes and data, once developed, become embedded as ‘business-as-usual’ rather than a one-off compliance exercise to produce an asset management strategy.

(b) STRATEGIC PLANNING

As regards strategic planning, the significant findings are in three areas. These include issues related to asset management capabilities, cross functional asset management teams, and those associated with asset knowledge. This research shows that in almost all authorities there are inadequacies in terms of numbers and capabilities of staff trained in asset management. The implications of the findings are that there is inadequate asset management capability in most local authorities, both at organisational and staff levels involved in asset management activities, to effectively implement all aspects of asset management. The lack of capability means that local authorities are unable to effectively develop asset management roles and competences to ensure that individuals have a wider understanding of how their role contributes to the overall asset management goals and how the activities they are responsible for integrate with other activities in the organisation.

One of the important findings of this research is that there is lack of cross functional asset management teams in all authorities. The implication of this finding is that local authorities do not utilise the most appropriate team structure for implementing asset management. This has a number of unsatisfactory consequences for asset management implementation. Firstly, as a result of lack of a cross-disciplinary management group with shared responsibility, asset managers are unable to be assisted to optimise and deliver the asset management plan. Optimisation is possible where there is effective assignment of roles and responsibilities for overall better coordination of activities of the asset management program. In addition, local authorities are unable to unify asset management activities across the organisation and driving progress across service departments or other organisational boundaries such as to

elected members and community groups. It is difficult as a result to encourage corporate buy-in to asset management by other service heads, elected members or service users. Local authorities remain unable, therefore, to demonstrate corporate support for asset management. Furthermore, the opportunity offered by a team based approach for local authorities to *provide a way of overcoming fragmented thinking and attitudes*, information sharing and promotion of a corporate pool of asset management expertise remains elusive. Finally, the absence of a cross functional team approach means that asset management practice does not benefit from the allocation of multi-disciplinary supporting staff with dedicated time to carry out asset management work.

Regarding asset knowledge, the research findings show that *rural and urban authorities* have been effective at capturing data on *condition, suitability and operating costs*. However, all local authorities are ineffective at capturing data on *accessibility* and *sufficiency*. Overall, therefore, local authorities lack reliable adequate property information and sufficiently populated management information systems needed to support asset management decisions. Similar research carried out by Grubisic, Nusinovic and Roje (2009) examining public asset management in Croatia, found that despite the age of information technology and worldwide computer use, they found that many public authorities lacked reliable information on public assets.

The lack of reliable information held in asset management information systems means that the property systems of local authorities do not convey adequate information to assist with management decisions. Management are not able to be informed about the *environmental performance* of buildings in terms of CO₂ emissions, *health and safety surveys, energy performance, required maintenance, maintenance spending patterns, benchmarking, agreed performance targets* for instance.

Furthermore, as a result of lack of reliable information it means that *revenues and expenses are not tracked on a property by property basis*. In addition, as a result of not having access to space utilisation information, effective property management practices such as comparing

performance against industry standards and benchmarks remain ineffectively implemented. Further still, due to unreliable information local authorities do not have adequate knowledge about the value of the assets they own. Knowing the value of assets owned is important as it facilitates the calculation of the balance sheet or the net worth of the local authority. Local authorities are therefore unable to utilise their balance sheet to collateralise any borrowings. It is also the case that it is difficult for local authorities to guard against the possibility that some public property assets could “disappear” due to unreliable inventorisation of property assets. Furthermore, due to unreliable information, local authorities are unable to effectively impute capital charges to other public agencies, or other local authority departments that use these assets, to force their efficient use.

As a result of lack of reliable information it also means that there is ineffective elected member scrutiny of property asset performance. This is because local authorities are unable to establish robust monitoring and reporting procedures for asset performance, to assess progress against their strategies. Elected members are, therefore, not provided with appropriate information to be able to scrutinise property performance.

(c) ASSET MANAGEMENT PLANNING

The significant findings associated with asset management planning processes relate to issues about *strategy formulation, demand management, whole life cycle costing and option appraisal, strategy implementation and monitoring and control*. This research found that all councils utilise asset strategy solutions to close identified asset performance gaps. However, there are general weaknesses in the preparation of supporting business cases. The research also found that none of the authorities utilise, in a deliberate way, *demand management strategies*. In appraising options, the data shows that rural and urban authorities utilise benefit cost analysis for financial evaluation but this is limited to initial capital appraisal. The use of *whole life cycle costing* remains of limited application in most

local authorities. The whole concept of option *appraisal* is hardly utilised in semi-rural authorities.

Local authorities' inability to appreciate the use of demand management interventions means that they are failing to utilise an important strategy option which can be used to close the identified gap. Demand management can be used in isolation or to complement asset based solutions to limit asset usage. Local authorities often need to respond to factors such as insufficient resources; over-utilisation of property assets at certain times; funding constraints; theft and vandalism; and/or insufficient property capacity. In these circumstances local authorities do not always have to rely on asset solutions or indeed they might be unable to provide such solutions. Demand management solutions such as asset use restriction, cost based measures and educating users can be employed to address any of these challenges. It is the case therefore that local authorities are not in any systematic way utilising non asset solutions to help them deal with some of the challenges impacting on asset usage.

The fact that most local authorities have not embedded whole life cycle costing when appraising options means that they can not be sure that they can afford all the lifecycle costs that will be incurred by the asset, not just the up-front investment. As a result they can not forecast all the expenditure to be incurred during the asset's lifecycle, and any revenue that can be realised as a result of the asset being operated. Specifically, it means that when undertaking capital investments they are unable to show all details of sources of funding and any loan obligations, all lifecycle operations and maintenance forecasts, renewal forecasts and any revenue associated with capital investment projects. Local authorities, therefore, by failure to utilise option appraisal process with whole life cycle costing technique they are therefore not optimising strategy selection. The projects they select are not maximising value for money in terms of having the least whole life cycle cost and maximum benefit when implementing capital investments.

Regarding strategy implementation, significant findings relate to arrangements at corporate, property and project management levels. This research has shown that in so far as *corporate management arrangements* are concerned, in all local authority types the development of asset management plan is embedded. Also the data shows that, with a limited extent in semi-rural councils, in the rest of local authorities an officer at Corporate level is responsible for asset management plan implementation. There are a number of implications arising from the finding of having an asset management plan in place. Initially, it means that local authorities have a document which ensures that there is logical flow to the overall asset management planning process by seeking to explain how assets support service delivery. This is possible because the preparation of an asset management plan document proceeds by providing answers to the following specific questions which progress in a logical manner: Why are property assets important to the organisation? What is needed in terms of property assets? What assets has the organisation got? What will close the gap? How will it be done? How will the organisation know it is getting there? Furthermore, since an asset management plan provides a clear statement of strategy, it means that local authorities are assisted in ensuring that an explicit, co-ordinated approach to asset management is implemented across the authority, reflecting service needs as determined by consultation with stakeholders.

The fact that in most councils there is an appreciation of having in place a corporate level officer who is responsible for asset management plan implementation is significant. The officer is able to facilitate communication and implementation of the asset management activities arising from the plan. For instance, the officer so placed makes it possible that there are clear reporting lines to a strong corporate centre. The clear reporting lines provide a clear lead for the asset management process and ensure that the decisions taken are then implemented. In addition, the existence of such an officer means that in most local authorities there is someone to champion a corporate and strategic approach to capital and asset planning

As for property management arrangements, the findings of the research are that all local authorities indicate that they have resource inadequacies. These shortages range from monetary, capable staff, information systems and leadership support. The implication of not having adequate resources is that property management activity in most local authorities is struggling to carry out property management functions. This means that in most local authorities it is not possible to implement the strategic considerations of asset management which ensures that the land and building asset base is optimally structured and aligned with the local authority's corporate goals and objectives. In a similar study by the RICS (2008) examining public sector asset management in the UK, they indicate that strategic property considerations ask the questions: where should the property be located? why should the property be sited in a particular location? and what size of property is needed to support a service? Due to resource constraints, property services functions of local authorities are unable to effectively operationalise these policy questions. The property services functions of local authorities are therefore unable to effectively deliver the strategic asset management objectives by undertaking the professional and management work necessary to ensure that property is in the condition, form, layout and location desired.

In so far as project management arrangements are concerned, this research shows that the significant issue is about project management structure. The findings show that a functional rather than cross functional project management structure is utilised in all authorities. The implications of adopting this approach are similar to those outlined in an earlier section in this chapter (section 9.2.2.b) about the failure to utilise cross functional asset management teams. However, there are specific implications related to project management and the lack of utilisation of a cross functional approach. Firstly, local authorities are unable to readily identify the person responsible and accountable for delivery of maintenance and capital programmes. Secondly, the identification of a person responsible and accountable for monitoring and supervision of asset management programme implementation becomes difficult. In addition, local authorities are unable to constitute subgroups that are responsible

for capital projects implementation. Furthermore, local authorities are unable to engender a strong project management culture in the organisation. Similar research carried out by DCLG and York Consulting (2008) examining project management arrangements in English local authorities concluded that there should exist a formal corporate project management approach to project management, based on the PRINCE2 gateway process or similar.

As for monitoring and control, the findings of this research show that benchmarking and the whole performance management system remains undeveloped in most local authorities. These findings replicate those by Oxford Brookes University and University of Reading (1993) and DCLG (2010). A limited number of authorities' especially *rural* and *urban* ones belong to a benchmarking club. Despite this, external benchmarking hardly takes place due to the lack of confidence in available benchmarking schemes. There is a degree of internal benchmarking in rural and urban authorities but only occurs to a very limited extent in semi-rural authorities.

As a result of undeveloped benchmarking arrangements local authorities are unable to learn from other organisations and understand what best practices about asset management are being undertaken. The fact that they are unable to learn from others, it is not possible to establish realistic "appropriate practice" targets and the asset management monitoring process. Furthermore, local authorities are unable to establish a standardised benchmarking system. The system is very dependent upon establishment of a comprehensive and relevant property performance measurement and management system. As a result of not having such performance measures in place, local authorities cannot effectively review the performance of the operational property portfolio, property asset management practices and workspace or accommodation. In addition, local authority management cannot make effective use of information because there is no effective performance benchmarking system with appropriate performance indicators. It is not possible therefore to effectively establish if property resources are being managed in an *efficient* and *effective* manner.

The establishment of performance effectiveness requires that internal benchmarking occurs. Since most local authorities are unable to perform internal benchmarking, they are therefore unable to establish performance trends of their portfolio. They cannot, with any degree of confidence, know whether they are getting better, stable or worse compared to their own estate. They cannot even be sure if they are focusing on the poor performing buildings, getting rid of the worst performing ones, and investing in the best performing ones. *One of the* consequences of not effectively performing external benchmarking is that they cannot establish how they are efficiently managing their operational assets relative to their peers. They are, for instance, unable to compare themselves with other local authorities on the bigger things like: how much property they have per head of population? How many square metres do they have per head of population? As they are unable to obtain this information, they cannot establish the efficiency how they are delivering their services.

Overall, therefore, most local authorities can not effectively determine the level of asset management performance improvement that they are making.

(c) ASSET MANAGEMENT OUTCOMES

The research also investigated the outcomes arising from the impact of asset management practices. The research evidence shows that there have been improvements in terms of efficiency and effectiveness of *indirect* property assets. The improvements relate to reduction in backlog maintenance, improved asset accessibility and condition of the estate, reductions in operating costs, and increased space utilisation. Improvements have been driven largely by rationalisation programmes involving property disposals to meet budgetary challenges and not so much as a result of injection of capital to improve physical attributes or workspace arrangements of properties. These successes have not been replicated to direct properties such as schools where the impact of asset management is most needed. The rationalisation of direct properties has been unsuccessful as a result of lack of leadership support and weak corporate landlord approach to close schools, or community facilities for example. The overall operational properties portfolio, therefore, has had

marginal improvements in terms of efficiency and effectiveness of property asset usage and consequently minimal impact on service delivery improvements. Similar research carried out by Audit Commission (2009) examining asset management practices in local authorities in England concluded that buildings that are rundown and not fit for purpose in relation to the delivery of modern services are unlikely to attract high usage.

This research evidence also shows that semi-rural authorities have been very effective in introducing technological measures designed to enhance environmental sustainability by improving energy efficiency and water usage. The picture is varied in the rest of the authorities. The need to comply with impending EPC legislation appears to be behind adoption of the measures. Improvements in energy performance of buildings have meant that where this has occurred such local authorities have realised direct and indirect benefits. The direct benefits are the reductions in energy costs and therefore overall operating costs of buildings. The indirect benefits stem from the improved environmental performance of the property portfolio as buildings have become more energy efficient. Due to the fact that these buildings perform well environmentally, they help to address the wider concerns about climate change and global warming.

In terms of the effectiveness of property management practices and their impact on improving service delivery, the research shows that rural and urban authorities have been very effective in harnessing ICT to introduce new working practices especially *flexible working*. The introduction of new working practices especially *flexible working* and hot desking, has led to reductions in office space requirements. Staffs do not require as much office space as they had been utilising. The practices in effect have meant that the efficiency of office space use by local authorities has increased and with it minimisation of operating costs. However, it has to be emphasised that flexible working has really had an impact on indirect offices only. In almost all local authorities, they have been less effective in implementing *cross service working*, and this is largely as a result of the structure and nature

of the poorly managed property portfolio. The poorly managed and therefore underperforming portfolio in terms of suitability, condition, sufficiency and accessibility that is in the hands of local authorities does not encourage cross-service working. Local authorities are not able therefore to operate in a joined up way with other public agencies in order to provide modern and flexible services. These poorly managed and performing properties are not encouraging co-location with partners/ stakeholders thereby do not provide an effective basis for partnership working. Furthermore, local authorities are not effectively enhancing service delivery due to the unsuitably located portfolio which are not easily accessed by service users. The difficulties service users encounter accessing services means that local authorities are hindered in realising objectives of equity or social inclusion. In addition to their unsuitable location, the poor quality of the operational properties in terms of physical condition, layout and from which services are delivered is having a significant impact on the usage of services by communities.

9.3 DEVELOPMENT OF THE FRAMEWORK

In this section the three stages and their associated steps undertaken in constructing the developed operational property asset management framework are explained. The stages include development of the conceptual framework, empirical evaluation of the conceptual framework and representation of the conceptual framework as a process model to aid visualisation and presentation.

The steps involved in the initial stage of developing the conceptual framework included identification and definition of asset management concepts; exploration and examination of relationships between concepts; operationalisation of the concepts; and description of the developed framework. The identification and definition of asset management concepts that guided this study were based on: articulation of theory underlying the framework; examination of existing frameworks; and a review of relevant literature.

It has been argued in sections 4.4 and 4.5 that strategic management theory and organisational management theory respectively are the most appropriate theories that underlie asset management. In section 4.6 a number of existing asset management frameworks are reviewed to help identify and define asset management concepts. On the basis of popularity and establishment in research practice, the Total Asset Management Process framework was selected as the most suitable for this study. A review of literature in section 4.7 indicated that asset management concepts are the processes associated with asset management practice. There are two interlinked processes of strategic planning and asset management planning supported by tools and techniques that together make up the structured process of asset management. The strategic planning, asset management planning and the tools and techniques consist of specific process activities which are the asset management concepts or variables.

The exploration and examination of relationships between the identified and defined concepts was dealt with in section 5.2. This was done in order to prepare a causal or concept map and to identify the causal logic of the framework. The perceived relationships between groups of concepts and individual concepts are indicated in a series of lines and arrows. The boxes are used to represent the concepts.

The process of developing the conceptual framework also involved operationalisation of the identified and defined framework concepts (section 5.3). Operationalisation involved deciding how the identified and defined concepts might be measured. A review of available performance measurement systems identified benchmarking as the most appropriate system for measuring performance of the identified asset management concepts likely to indicate any asset management improvement. The developed asset management conceptual framework is described in section 5.4 and illustrated in figures 5.5.

In the second stage, the developed conceptual framework was empirically evaluated through expert interviews and survey questionnaires (chapters seven and eight). The objective of the interviews was to assess the framework asset management practice and process factors and

their logical relationships. The questionnaire measures applied in chapter eight sought to assess the level of importance of the process factors. The developed conceptual framework after empirical evaluation is shown in figure 9.2.

The final stage of framework development involved representing the developed and empirically evaluated conceptual framework as a process model to aid its visualisation. As a result of the complexity of the resultant relationships amongst asset management processes following evaluation of the conceptual framework, the developed framework became difficult to understand, especially as it was expressed as a block diagram. This necessitated the need to express the concepts in a process manner, rather than strictly causal as represented by the conceptual framework in a block diagram form. Therefore, the conceptual framework has been represented as a process model to visualise and present the framework. The process model, shown as figure 9.3, is the developed operational property asset management model. The logical flow of the model and the identification and inter-relationship amongst asset management processes is explained in a separate section (Appendix H, pages 384-391) after the model.

9.4 VALIDATION

This section deals with the validation of the developed operational property asset management framework. The aim of the validation process was to determine whether the constructs and methodological approaches utilised in developing the framework are appropriate and also to establish the reliability and generalisability of the findings. Thus validation is important because it reflects the validity of every step of the research methodology and reliability of the findings. Initially the concept of validation is discussed. This is followed by introducing the approach for undertaking validation, namely, external and internal validity as well as reliability procedures. Finally, the details involved in validity and reliability procedures utilised in this study are discussed.

9.4.1 Concept of Validation

After the development of the framework, its generalisation had to be validated to ensure that it represented the characteristics of the general population and that they are not specific to the samples used in the estimation. Research validation is concerned with demonstration of research quality (Lucko and Rojas, 2010). According to Drucker-Godard, Ehlinger, and Grenier (2001) quality research is precise, of practical use and results contribute to knowledge. Research that meets these criterion is valid and reliable. The process of validation, therefore, concerns evaluating external validity, internal validity and reliability in every step of the research methodology (Brewerton and Millward, 2004; Colton and Covert, 2007; Lucko and Rojas, 2010). The rest of this chapter, therefore, discusses the validation process undertaken in this research.

9.4.2 External Validation

In this section external validity is described and the measures utilised in this research to secure external validity are discussed. According to Ihantola and Kihn (2011) external validity determines whether inferences can be drawn on the basis of the framework used and data collected, and whether results may be generalized to other samples, time periods and settings. The drawing of inferences is influenced by sampling plan in terms of adequacy of *sample size* and representativeness of sampling procedure (Ihantola and Kihn, 2011). The sampling plan utilised in this research to ensure representativeness and sample size adequacy are adequately dealt with in sections 7.2.1 for qualitative research and in the case of quantitative research this is covered in sections 8.2.1 and 8.2.2. Issues such as selection of representative sample, measures to ensure high response rate to improve sample samples as well as dealing with missing data due to low or non response are all covered in these sections.

According to Robson (1996), generalisation is secured by the researcher providing all what a reader needs to know to understand the findings including a *full description of the theoretical framework* on which the study is based. Sections 9.3, 9.4 and appendix H give a full description of the framework supporting this research. In addition, a full account of the study is provided especially how the empirical findings of the research reconnect to asset management theory (see section 9.2). Furthermore, the study conclusions (section 10.11) as well as the study's contribution to knowledge (section 10.10) all provide full explanation how the new evidence enhances understanding of the research question.

(a) Techniques for External Validation and choice of Validation Technique

There are various techniques for validating a framework. According to Smith (1993) interviews and survey techniques are most appropriate for validating qualitative based frameworks. In terms of approach, Bock (2001) argues that the review of experts in the field of study is an acceptable method of validation. Since the framework developed in this research is non-quantitative, the validation approach was undertaken by eliciting expert judgement and feedback. A validation questionnaire was prepared which reflected the expected aspects of the developed framework. The prepared questionnaire was distributed to a select number of expert asset management practitioners. According to Creswell (2007), the intentions of expert opinion validation are to assess the developed framework's adequacy and clarity. A framework that is regarded as comprehensive and clearly understood is robust and likely to be accepted by users (Omolara, 2013). According to Omolara (2013) there are three principal approaches for undertaking the validation process, namely: interviews, focus group and postal surveys. Both the focus group and interviews were, for the purposes of this research, not utilised as they were considered unsuitable due to the cost and resource constraints associated with their application. As a result of the cost effectiveness, ease of distribution and follow up of postal surveys this was considered the most appropriate option and was therefore selected. The postal survey comprised careful preparation of a semi-structured questionnaire in order to maximise the

chance of eliciting appropriate responses while offering the respondents the opportunity to expand and carefully explain their responses.

(b) Development of Validation Questionnaire

In order to get feedback on the developed framework, a validation questionnaire was issued to identified experts participating in the empirical evaluation of the research. A summary report of the research study was also sent along with the questionnaire (see appendix H) to provide clarity about the research and thereby help with the completion of the validation questionnaire. Leading up to the issuing of the questionnaire, emails were sent to the identified experts seeking their assistance in validating the developed framework. Thereafter, an email attaching a description of the framework, a cover letter stating the research purpose, the validation process and what participants were expected to do, was issued to eight chosen experts, each with more than 10 years of experience. A copy of the validation questionnaire and research report are included in Appendix H. The completed validation questionnaires were sent back through email.

The questionnaire was designed considering several criteria for validating a framework as suggested by Gass (1983) and Macal (2005) as cited by Omolara (2013), including:

- *Completeness*: whether the framework was considered to include all important asset management factors necessary for effective asset management implementation and practice.
- *Comprehensibility*: whether the framework was considered to be easily understood by intended users.
- *Cost effectiveness*: whether the framework's potential benefits outweigh the cost of implementation.

(c) Selection of the experts and responses

In order for the framework to be of acceptable standard to stakeholders, the validation exercise needed to be able to generate meaningful comments from relevant experts. This was achieved by selecting asset management experts with the required level of expertise to take part in the validation exercise. As suggested by Omolara (2013), experts were selected from the list of practitioners who responded to Questionnaire Survey based on the following criteria: relevant expertise, relevant experience and academic and professional qualifications. A sample frame was taken from the previous survey respondents list because:

- most practitioners in the list were individuals in senior positions with relevant expertise and experience in asset management implementation and practice.
- their prior involvement in the earlier survey created familiarity with this research, which ensured reasonable response rates.

(d) Feedback from Experts and Discussion

The feedback of three experts from asset management practice was obtained in response to the issued validation questionnaire seeking their opinion on the developed framework. In general, the feedback from expert was very positive with helpful comments and suggestions. Table 9.1 shows the qualifications and years of experience in property and asset management work. From the table, it is evident that the experts have significant involvement in property and asset management work. In terms of qualifications, these are appropriate. In addition, there is breadth of experience and the cumulative asset management experience is more than 70 years. Table 9.2 provides a summary of the responses obtained from the questionnaire. An examination of the responses in Table 9.2 indicates that most experts agreed that the framework addresses an important problem in asset management practice. As to whether the developed framework is capable of performing its intended function accurately, all the experts were of the opinion that the framework is capable. *Quoting respondent 1:*

“The framework is also of assistance to corporate managers in developing asset management principles throughout an organisation, and is clearly a model that can sit within the financial regime, which in delivering asset management is crucial”

This suggests that the framework would be regarded as a useful tool for improving asset management practice. Regarding the framework’s comprehensibility, all experts are of the opinion that it is clear and easy to understand. The rest of the experts except one consider that the resources needed to implement it are outweighed by the potential benefits and that it would not be too costly to implement it even within the existing resource constraints.

Quoting respondent 1:

“It is not necessarily a question of cost. It is perhaps a question of resources being redirected and this is where corporate buy-in at senior management level is crucial”.

In terms of the framework’s completeness, the experts are of differing opinions with one indicating that the framework comprehensively describes asset management practice and the layout clearly represents the process while the other two did not think so. One of the two experts considered that the framework left out capital planning and area reviews. However, all the experts considered that the framework was detailed and addresses all the relevant criteria of asset management techniques, tools, and outcomes. However, two of the experts were unsure about the criterion for the processes for asset management policy and practice.

(e) Suggested Changes / Improvements to Framework

While the various feedback obtained on the framework was mostly positive, there was one suggested change that was put forward by two experts. Both indicated that even though capital planning was referred to in the framework description, it needed to be captured in the actual framework. Quoting both respondents’ 1 and 3:

“There is clear need for asset management to be clearly conjoined with capital planning processes with seamless procedures” (Respondent 1)

“Capital planning is mentioned as an issue but doesn’t really appear in the diagram. Also area reviews probably should get a mention too”. (Respondent 3)

Figure 9.1, is the revised framework showing capital planning as integral to asset management process. It shows that asset management improvement process integrates the capital planning process. The capital planning process provides a framework for the management and monitoring of the capital programme. It sets out the processes for generating capital receipts and prioritisation of capital project proposals but carried out seamlessly along with asset solutions processs (York Consulting and DCLG, 2007). In effect it is integrated within the asset performance review and option appraisal processes.

OPERATIONAL PROPERTY ASSET MANAGEMENT FRAMEWORK

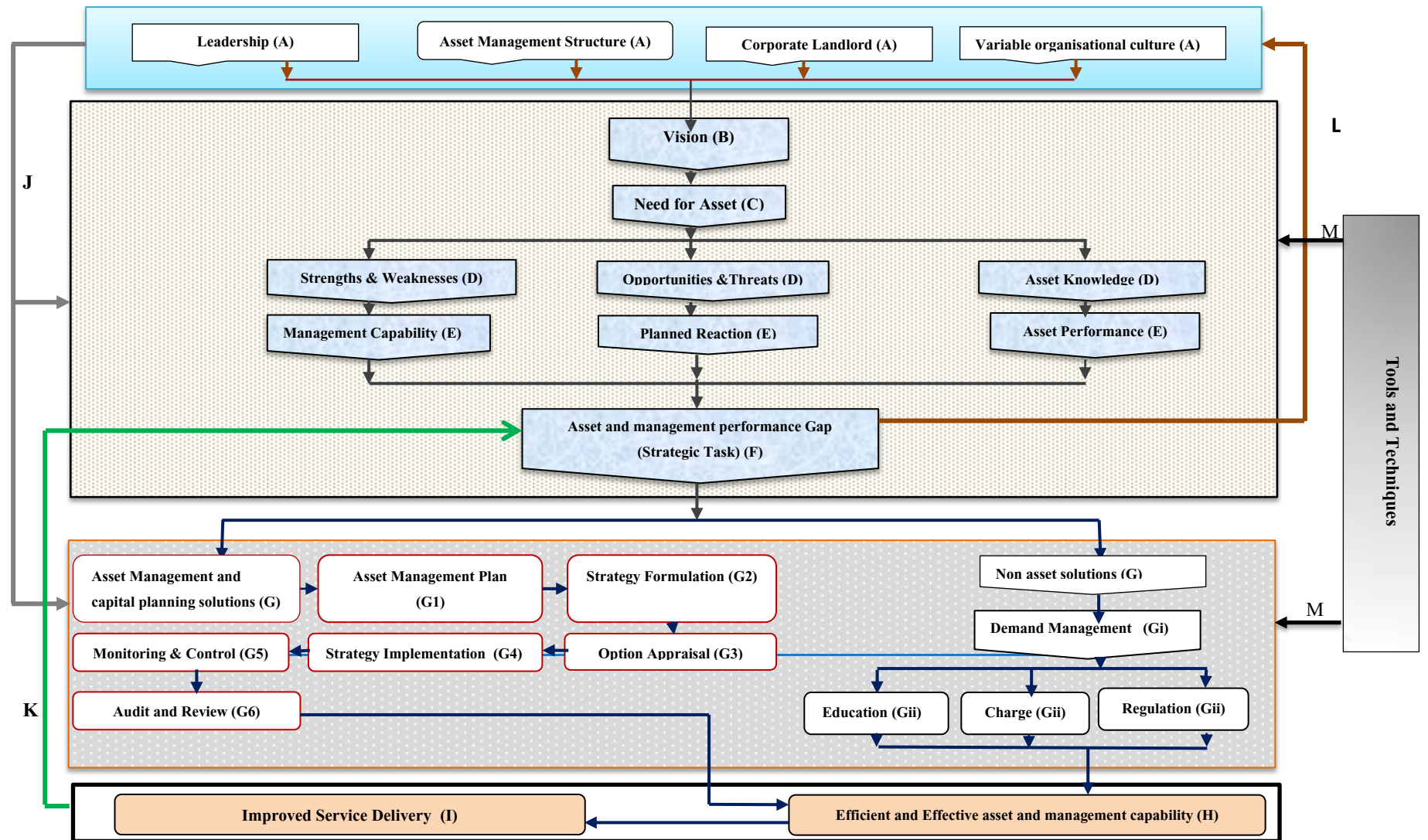


Figure 9.1: Revised Asset Management Process Framework.

In general, the consulted experts were in favour of the framework. They indicated that they would regard the framework as an important tool for improving asset management practice in local authorities. This represents a positive contribution to the body of knowledge and practise of operational property asset management in the public sector and the developed framework can therefore be recommended to practitioners.

Table 9.1 Profile of the Validation Experts

Expert	Organisation	Designation	Expertise	Qualification	Years of Experience
1	Urban local authority	Corporate Asset Manager	Property Management	BSc; MRICS	35
2	Semi-rural authority	Corporate Asset Manager	Property Management	BSc; Post Graduate Dip in Facilities Management; MRICS	27
3	Urban Council	Team Leader	Asset Management	BSc; Certificate in Asset Management	14

Table 9.2: Summary of Responses from Experts

Validation Criteria	Experts		
	1	2	3
Framework addresses important problem in asset management practice	Yes, quite significant	Yes, quite significant	Yes, but not significant
Framework capability in assisting practitioners in asset management implementation and practice	Yes, it is highly capable	Yes, it is capable	Yes, it is capable
Framework is clear and easy to understand	Yes	Yes	Yes
Resources demand applying the framework	Cost immaterial	It would be too costly to operate	The benefits of the model justifies any resource requirements
Completeness of the framework in terms of description and layout	It is comprehensive	It is poor	It is poor
Suitability of asset management policy and practice processes	Not sure of their suitability	These are very suitable	Not sure of their suitability
Suitability of asset management	These are suitable	These are suitable	These are suitable

techniques and tools			
Criterion for asset management outcomes	These are suitable	These are suitable	These are suitable

9.4.3 Internal Validation

According to Singh (2007) internal validity refers to the true causes, which result in an outcome. Therefore, testing internal validity of the research is designed to evaluate the veracity of the connections established in the analysis (Goddard, Ehlinger, and Grenier, 2001). The veracity of the connections in research is demonstrated by the rigour with which the study was conducted in terms of being sure of the correctness of the inferences of the results produced.

(a) Techniques for Internal Validation

Testing for internal validity applies to the research process, which poses similar problems regardless of the nature of the study (Black, 1999). A good standard of internal validity is achieved by seeking to remove biases in the research process. Biases in the research process that might be damaging to internal validity can arise due to the instrumentation effect during research design and data collection, the selection effect during sampling, the contamination effect during analysis and interpretation, as well as due to ill-defined theoretical models (Black, 1999).

Internal validity, according to Singh (2007) comprise content validity, criterion validity and construct validity. Content validity is described by Colton and Covert (2007) as “*the degree to which an instrument is representative of the topic and process being investigated*”. Criterion validity, also known as instrument validity, according to Singh (2007) draws an inference from test scores about performance and demonstrates the accuracy of a measure or procedure by comparing it with another standard valid procedure. However, Carmines and Zeller (1990) argue that no relevant criterion exists with which to assess a measure of a concept with regard to *criterion validity* and that similarly, *content validity* is quite difficult to apply in the social sciences. Accordingly, Drucker-Godard, Ehlinger, and Grenier

(2001) point out that as a consequence *construct validity* is really the most relevant concept validity criterion in social sciences.

Construct validity refers to whether operationalisations of theoretical constructs are appropriate. According to Black (1999) a research study can secure construct validity by carefully defining concepts and consequential constructs. By so doing it helps to eliminate ambiguity and establishes a basis for ensuring construct validity and reliable operational definitions of the variables. Construct validity is of two types convergent validity and discriminant validity. Convergent validity refers to the relationship between measures of constructs that should be strongly related. Discriminant validity refers to the relationship between the measures of constructs that should not be strongly related to each other. To demonstrate construct validity of an instrument, there has to be demonstration of *both* convergent and discriminant validity (Colton and Covert, 2007). Construct validity can be demonstrated by a Factor analysis on the items of each construct (Flynn, Schroeder, and Sakakibara, 1994).

(b) Test Results for Internal Validation: Factor Analysis

Factor analysis uses correlations to identify common factors that influence a set of measures and individual factors that are unique to each item. Factor analysis to demonstrate construct validity for this research is dealt with in section 8.4. The analysis demonstrated the magnitude of inter-item correlations and factor loadings (section 8.4). For the majority of the variables, the inter-item correlations were in excess of 0.30 suggesting that a number of variables measured the same dimensions. As for factor loadings the reliability of the variables for each factor revealed a strong Cronbach's alpha coefficient in excess of 0.70 indicating strong reliable variance on the subscale of each factor.

9.4.4 Research Reliability

According to Colton and Covert (2007) reliability can be defined as “the extent to which an instrument produces the same information at a given time or over a period of time”. Reliability, therefore, indicates consistency of the measuring instrument and measurement

results. It applies to both quantitative and qualitative research (Black, 1999). In quantitative research, testing can be done to assess validity and reliability, whereas with qualitative research, rather than testing, precautions are taken to improve validity and reliability (Goddard, Ehlinger, and Grenier, 2001). The lack of reliability of measurements results can lead to random or chance error making it difficult to make inferences about the relations between variables in quantitative research.

(a) Techniques for Research Reliability

Reliability of the measuring instrument is established by calculating the internal consistency of a measuring instrument; taking precautionary practical measures; and evaluating reliability of overall research results. According to Colton and Covert (2007 pp79-80), calculating Cronbach's alpha coefficient is the best known and mostly widely used method of measuring internal consistency. Flynn, Schroederb and Sakabira (1994) define internal consistency as the degree of intercorrelation among the items which comprise a scale such as a questionnaire. According to Black (1999) Cronbach's alpha (α) is a reasonable indicator of the internal consistency of instruments that do not have right-wrong (binary) marking schemes such as rating or Likert.

(b) Test Results for Research Reliability

An alpha coefficient of 0.70 is usually taken as being the minimum level acceptance of the internal consistency of the research instrument (Dewberry, 2004). Although an alpha value of 0.70 is often considered the criterion for internally established scales, Flynn, Schroederb and Sakabira (1994) cite Nunnally (1978) who states that permissible alpha values can be somewhat lower for new scales. Nunnally suggests the use of a minimum alpha of 0.60 for new scales. As the scales to be used in this research are new, a criterion alpha of 0.60 was used. Results (section 8.3.b) showed a cronbach's alpha coefficient of 0.962, indicating that the developed questionnaire is internally consistent.

A number of precautionary practical measures were taken to improve the validity and reliability of the quality aspect of this research. The practical measures were intended to

prevent the introduction of new extraneous variables as a consequence of instrument design or administration and which were followed in this research are those suggested by Black (1999 p199). These measures were carried out at the development, administration and data recording stages. The tasks included instrument validation and piloting with a small group representative of the population (section 6.6), data coding (section 7.2.4.), recording the data (section 7.2.3), and cleaning the data to prepare for analysis (section 7.2.4).

Evaluating reliability of overall research results consists in establishing and verifying that the various processes during *all operational stages* of both the quantitative and qualitative research phases involved in the research are capable of being repeated with the same results being obtained by different researchers and at different periods (Goddard, Ehlinger, and Grenier, 2001). For this research the data collection process (sections 7.2.1 to 7.2.3; 8.2.1 to 8.2.3.); coding, data preparation process and analysis (sections 7.2.3, 7.2.4, 8.3. 8.4), including presentation of results (sections 7.4 and 8.5) are clearly explained and therefore easily verifiable.

9.5 CHAPTER SUMMARY

The research findings / results from qualitative and quantitative research in chapters seven and eight respectively are discussed in this chapter. Also covered in this chapter is the revision and validation of the developed framework. The results suggest that asset management is strategic and integrative in its approach. An adaptable and flexible asset management framework implemented through a board level asset management structure, supported by a strong leadership and operating in an enabling environment is the most appropriate arrangement for improving asset management practice in English and Scottish local authorities.

This chapter has also addressed the validation of the framework developed in this research. External and internal validations as well as research reliability have been described. The feedback of three experts was used for external validation of the framework, through a validation sheet containing open-ended questions and questions evaluated on a Likert scale. Feedback was obtained through responses of the validation sheet via telephone

conversations and email correspondences. The validation approach included inviting participants to give their opinion on the significance of the framework, its adequacy, completeness, comprehensibility and cost effectiveness. Out of eight invited experts, only three responded. All were in favour of the framework, indicating that the framework is a positive contribution to improving operational property asset management implementation in English and Scottish local authorities.

Internal validation and research reliability were also assessed. Internal validity was assessed by establishing construct validity which was demonstrated by a factor analysis on the items of each factor. This was done by calculating Cronbach's alpha coefficient. The internal validity of the variables for each factor revealed a strong Cronbach's alpha coefficient in excess of 0.70 indicating strong reliable variance on the subscale of each factor. Reliability was also established by calculating the questionnaire's internal consistency. Like internal validity this was also demonstrated by calculating Cronbach's alpha coefficient. The results showed a Cronbach's alpha coefficient of 0.962, indicating that the developed questionnaire was internally consistent and therefore reliable. Furthermore, the reliability of the overall research process was evaluated. It has been demonstrated that the research stages from data collection process, coding, data preparation process, analysis and presentation of results can be easily followed and replicated. This demonstrates verification of the research and therefore its reliability.

CHAPTER TEN

CONCLUSIONS AND RECOMMENDATIONS

10.1 INTRODUCTION

This chapter summarises the research, and evaluates it against the original objectives. The conclusions drawn are presented, the research limitations discussed, the recommendations for future research suggested and the contribution to knowledge of the research stated.

10.2 DISCUSSION

There is growing recognition amongst local authorities that asset management has the potential to improve property management practice. This has led to an increased trend, supported by various initiatives such as asset management frameworks, to encourage adoption of operational property asset management approach. Literature, however, showed local authorities adopting the available asset management frameworks are failing to achieve the full benefits from their asset management implementation. The available frameworks are incapable of providing understanding of local authority differences in terms of organisational culture, leadership, size, social, economic and cultural composition of the communities they serve, and geographical and political differences when implementing efforts to improve asset management practice. Therefore, this research aimed to develop an adaptable and flexible operational property asset management framework for local authorities in England and Scotland that is capable of reflecting local authority differences.

To achieve this aim, the research has followed and accomplished the following four specific objectives. The research objectives are dealt with individually in the sections that follow and their level of attainment is appraised.

10.3 OBJECTIVE 1 – to undertake a critical review of literature on the concept of asset management, its development and implementation

To realise this objective, an understanding of the following three key issues highlighted in work in chapter 2 was essential. The issues are, firstly, review of literature to examine the issues associated with existing property management practice and their implications prior to the adoption of asset management by English and Scottish local authorities. Secondly, an explanation of the concept of asset management including its theoretical underpinning was

provided. Finally, literature was reviewed to examine the concept of asset management including its origins, development, and trends both in the UK and internationally.

Examination of real property management practice prior to the introduction of asset management revealed that local authorities adopted a reactive property management approach which is narrowly focused and fragmented. The fragmented nature of property management resulted in a number of property management related problems because properties were not efficiently and effectively managed. Recognition of the benefits of asset management was the catalyst for its increasing adoption by local authorities.

Review of literature indicated that the concept of asset management is founded on strategic management theory and adopts a strategic planning approach to management of land and buildings. The approach integrates *strategic property considerations* and *property services*. Strategic property considerations relate to corporate property decisions that ensure that the land and building asset base is optimally structured and aligned with corporate goals and objectives. Property services comprise facilities management and estate management services which operationalise the strategic property objectives. Both deliver the strategic asset management objectives by undertaking the professional, technical and management work necessary to ensure that property is in the condition, form, layout and location desired.

In terms of its origins, asset management is considered to have originated either from privatised utilities or the oil and gas sectors. The review of literature suggests that the trend in asset management development in the UK has been driven by external and internal factors. The external factors are rooted in New Public Management (NPM) and include central government policies; budgetary pressures; recognition of the financial payoff to better asset management; and accounting reforms. Apart from NPM initiatives, commissioned reports on asset management have also been instrumental in leveraging asset management development. The internal factors, on the other hand, are the problems associated with the existing reactive approach to property management.

There are also notable trends in asset management development in other parts of the world, especially in New Zealand, Australia and the United States of America. The development of asset management in New Zealand was prompted by the need to tackle the massive fiscal problems and an inefficient economy that was negatively affected by extensive local authority involvement in economic activities. In Australia, on the other hand, the need to comply with financial accounting reporting requirements contributed to asset management development in local authorities. The impetus for the emergence of asset management in the USA is as a result of the growing public and consumer scepticism and demands for greater accountability from the government bodies responsible for major capital investments in infrastructure and service provision.

10.4 OBJECTIVE 2 - to undertake a critical review of literature on property management in the public sector.

To realise this objective, the focus was to critically review the contribution that asset management approach has made towards engendering effective and efficient operational property management. The contribution was evaluated in terms of the extent to which local authorities had implemented asset management practice. This was in order to establish the current status of asset management in English and Scottish local authorities. The evidence suggests that despite increased adoption of asset management by local authorities, there are still issues that are limiting effective asset management implementation and practice.

For instance there remains limited awareness *about the role of property as a strategic resource*. In addition, where asset management practice has been adopted there remains ineffective performance management frameworks. The limitations associated with available frameworks are due to inconsistent methodology in data collection, ineffective benchmarking arrangements, ineffective or undeveloped property management information systems, operational data not always used to support decision-making, out of date or inappropriately held property data, and inappropriate or insufficient key performance indicators.

Asset management implementation is also impacted due to a lack of corporate culture of asset management and inadequate corporate property management arrangements. Inadequate corporate property management arrangements are as a result of lack of cross functional asset management structure, structure not being at board level and absence of corporate approach to property ownership. Weak leadership support from elected members and senior officers are also issues that have limited effective asset management implementation and practice. The ineffectiveness of asset management implementation and practice is also as a result of poorly developed asset management planning. Poor planning is characterised by ineffective quantification of costs and benefits on a whole life cycle cost basis, out of date asset management plans as well as there being weak linkages between corporate, service and asset management plans.

Lack of culture of challenging the rationale for holding property and therefore the failure to rationalise property portfolio has also contributed to ineffective asset management implementation and practice. This has contributed to the rise in vacant and surplus property as well as marginal improvements in space per capita.

Weak option appraisal, staff unskilled in asset management, minimal improvements in property condition and suitability as well as insufficient maintenance and repair have all adversely impacted on asset management implementation and practice.

Finally, despite availability of a number of asset management frameworks, these have a number of weaknesses especially not being able to reflect different local authority needs. There is need therefore for the development of an appropriate asset management framework tailored to the needs of local authorities and targeted at operational property management.

10.5 OBJECTIVE 3 – to develop a conceptual framework of operational property asset management for English and Scottish local authorities

A conceptual framework for operational property asset management in English and Scottish local authorities was developed. The framework development was important for the study as it helps to indicate how those involved in operational property asset management practice

perceive the concepts associated with asset management practice and relationships between them. In effect the developed framework guided the whole course of the study. It did so by providing an organising structure which was used to develop questions and questionnaires for generating data from interviews and self-administered questionnaires. In addition the framework aided the interpretation of generated data from these sources.

A four stage approach was adopted in developing the conceptual framework for this study. The initial stage was dealt with in chapter four and the remaining three steps were covered in chapter five. The initial stage dealt with the identification and definition of asset management concepts. Asset management concepts had been identified and defined based on theory, existing frameworks and a review of literature. Review of literature indicated that strategic management theory is the appropriate theory upon which asset management is based but specifically modelled on a strategic planning model. It is supported by other organisational management theories. An examination of existing asset management frameworks identified the Total Asset Management process (TAMP) as the most suitable framework for this study based on its popularity and establishment in practice. Literature review revealed that asset management is a strategic concept that integrates strategic planning and asset management planning elements supported by tools and techniques. Each of the elements consists of a number of concepts or processes. The implementation of these processes results in outcomes such as efficient and effective asset management performance which then feed through to improved service delivery.

The identified and defined concepts, based on the strategic management and organisational management theories, review of literature as well as examination of existing frameworks were then consolidated. These comprise the strategic planning component which is the policy element, the asset management planning which comprises the operational element of asset management, as well as the tools and techniques supporting the two elements.

The three remaining stages dealt with in chapter five were exploration and examination of relationships between concepts; description of the developed framework; and operationalisation of the concepts. Exploration and examination of relationships between

concepts involved the preparation of a causal or concept map to identify the causal logic of the operational property asset management framework. The logic of the developed framework starts with Strategic Asset Management as the main driver for change and improvement in asset management practice and asset performance. Strategic Asset Management should guide the focus on Strategic Planning and Asset Management Planning. The Strategic Planning and Asset Management Planning are translated into asset management processes covering asset management policy and asset management practice. Once asset management processes are properly undertaken on property assets and throughout the local authority organisation, this will reflect on asset and organisational performance results or outcomes in terms of efficient and effective use of property and eventual improved service delivery.

The operationalisation of the identified and defined concepts involved development of a system for measuring asset management performance in terms of processes and outcomes. In order to reflect different circumstances unique to individual local authorities, the measurement system needed to be robust and dynamic. Benchmarking was adopted as the most suitable performance measurement system. The system is capable of being applied to any particular local authority. In addition, it is sufficiently robust as it is balanced in its approach and focuses on both strategic as well as tactical performance measurement.

10.6 OBJECTIVE 4 – to develop a methodology for the application of an asset management framework for local authorities in England and Scotland

The development of the methodology for asset management framework involved developing the research methodology, testing the conceptual framework, analysis of the findings, developing and validating the model.

10.6.1 Developing The Research Methodology

As a result of exploring the philosophical stances that could underpin the research, the pragmatic ontological position and the interpretivist epistemological stances were identified

to be appropriate. On the basis that a pragmatic approach guided the study, a sequential exploratory mixed method design commencing with qualitative and then followed by quantitative approach was adopted. The phenomenology and survey approaches were the basis for conducting semi-structured interviews and issuing of large scale survey questionnaire which were used to gather qualitative and quantitative data respectively.

The developed instruments were pretested in a pilot study. Regarding sampling, stratified and convenient sampling was adopted for the survey approach while non-probability snow ball sampling technique was utilised for the phenomenology approach. The responses from academics and practitioners indicated that the developed questions captured asset management conceptualisations. The pilot study findings also suggested that amongst all the three types of stratified local authorities namely rural, semi-rural and urban authorities, asset management practice limitations still existed. These limitations were mitigating full realisation of the gains that can arise from best practice asset management.

10.6.2 Findings from Qualitative Analysis of the Data

Semi-structured face to face interviews were conducted as a means of investigating the *current operational property asset management practices* and for collecting data to *inform the development of the framework*. The interview participants were drawn from eight local authorities representing rural, urban and semi-rural authorities. The generated data was analysed using deductive content analysis approach and pattern matching procedure. The following key findings emerged:

- while local authorities have implemented a strategic asset management board level structure, they do not integrate estates and facilities services
- leadership is inadequate to support asset management activities relating to direct properties but with strong support for indirect properties

- The lack of a corporate landlord approach in most authorities limits the development of asset management effectiveness
- Development of asset management plans is driven by the need to comply with statutory requirements
- Asset management capabilities are ineffective
- Effective asset management information systems that support decision making are limited
- The deliberate development of non-asset strategy solutions remains ineffective
- Option appraisal, development of supporting business cases and integration of whole life cycle costing remains weak
- Asset management strategy implementation is limited by inadequate finances, staff constraints and weak leadership support.
- Performance management arrangements are weak due to ineffective and poorly developed external and internal benchmarking arrangements. This limits the monitoring and reviewing of asset management activities
- The minimal level of improvements in terms of efficient and effective use of property assets achieved has been driven largely by the success of rationalisation programmes focussed on indirect properties to generate capital receipts.
- Effectiveness in harnessing ICT to introduce new working practices, especially *flexible working*, is limited.
- In almost all local authorities there is limited success implementing cross service working, co-location and partnering
- The need to comply with EPC legislation is driving the adoption of technological measures designed to improve energy efficiency and water usage.
- Where there have been some asset management improvements, rural authorities have done relatively better than urban ones with semi-rural authorities the least effective. The finding underscores the presence of variable organisational culture.

10.6.3 Findings from Quantitative Analysis and Factor Analysis

The qualitative analysis brought out partial findings to explore the factors that contribute to the development of an adaptable and flexible asset management framework. The findings informed the follow on quantitative study where the identified factors were assessed as to their level of importance by applying quantitative measures. To achieve this, a survey was carried out targeted at asset management practitioners. The aim was, firstly, to gather information on their thoughts and experiences regarding asset management improvements. Secondly, to elicit practitioners' perceptions on the factors that enable effective asset management implementation. Finally, to establish underlying factors that account for a flexible and adaptable asset management framework and which local authorities should consider in implementing asset management practice.

Assessment of the identified factors revealed that they were either extremely important, important or of average importance. As a result of the large number of factors involved, these had to be reduced to a limited number. Factor analysis was therefore conducted so that the factors could be evaluated in terms of the most critical underlying factors which local authorities should consider in implementing asset management practice and therefore critical in the development of the framework. The factors were subjected to principal components analysis (PCA) and by adopting the cumulative percentage of variance rule, six components were identified. The extracted components are labelled Support; Strategy Development; Information; Monitoring, Control and Review; Performance Measurement; and Measurement Techniques.

The alignment of the *Support Factor* variables clearly indicate that availability of leadership support, clear asset strategy direction, resources adequacy, the creation of an enabling environment in the form of senior management support and cross functional team structures at board and operational levels are critical to effective asset management implementation.

The second identified underlying factor was termed *Strategy*. It indexes six variables, namely ‘Utilisation of demand management strategy’, ‘asset based strategies’, ‘implementation strategy’, ‘asset management plan’, ‘integrated implementation strategy’, and performance quantification’. The factors indicate the significance of setting clear strategies for identification of asset and management performance shortfalls, strategy for meeting identified performance shortfalls, strategy for implementation of asset and non-asset strategy solutions, and strategy for reviewing performance of implemented solutions.

Information was the next factor identified and labelled. The most important variables which indexed this factor included ‘Sufficiency assessment’, ‘Suitability assessment’, Asset costs tracking’, ‘Information supports decision making’, ‘Availability of a property management system’, Asset performance assessment’, ‘Asset management capabilities evaluation’ as well as ‘condition assessment’. The variables that cluster this factor indicate the importance of capturing information about key data sets supported by an effective management information system. Such a properly developed system is necessary to inform management decision making.

The fourth factor was called *Monitoring, Control and Review*. The items that indexed this factor include ‘Comprehensive property review programme’, ‘Benchmarking of KPIs’, ‘Financial and Non financial appraisal’, ‘Performance Review Based on KPIs’, ‘Continuous asset management performance review’, and Strategic approach to office utilisation’. The cluster of items suggest the importance of an asset management arrangement system for monitoring, controlling and reviewing performance.

The penultimate factor was identified and labelled *Performance Measurement System*. The variables that loaded on this factor comprised: ‘Benchmarking arrangements’, ‘Colocation and joint service delivery’, ‘PESTEL assessment and asset implications’, ‘Utilisation of Benefit Cost Analysis’ and ‘Multi-criteria analysis’. The items that coalesce around this factor indicate a performance measurement system for monitoring and controlling asset and asset management performance.

Measurement Techniques was the sixth factor. The following variables indexed the factor: ‘Property Costs Awareness’, ‘Common project management methodology’, ‘Utilisation of KPIs to measure performance’, ‘Accountable Capital programme delivery’, and ‘Asset Demand Forecasting Techniques’. The group of items are the suggested techniques to measure various aspects of asset management implementation including performance and processes. An adaptable and flexible asset management framework therefore, is one characterised by:

- Existence of a board level asset management structure;
- Cross functional asset management teams to operationalise asset management activities;
- Enabling environment with strong leadership support, capable staff in asset management, and adequate resources;
- Corporate leadership and elected member support for asset management for direct and indirect operational properties;
- Effective management information system that supports decision making;
- Strong corporate landlord approach; and
- Effective performance management system.

Such a framework is capable of recognising local authority differences and variable organisational cultures and therefore is the most appropriate arrangement for improving asset management practice in English and Scottish local authorities.

10.7 VALIDATION OF THE FRAMEWORK

The developed framework was validated for external and internal validation as well as for reliability. The developed framework was validated for two main reasons. Firstly, to determine whether the constructs and methodological approaches utilised in developing the framework were appropriate. Secondly, to establish the reliability and generalisability of the

findings. Results of the validation process, therefore, were meant to verify the extent to which they lent support to the reliability and robustness of the developed framework.

10.7.1 External Validity of the Results

The feedback of practising experts was used for external validation of the framework. The experts' consensus opinion on the significance of the framework was that it was adequate, complete, comprehensible and cost effective. Some experts suggested some minor changes to the developed framework but all were in favour of the framework. The endorsement is indicative that the framework is a positive contribution to improving operational property asset management implementation in English and Scottish local authorities.

10.7.2 Internal validity of the Results

The framework was assessed for internal validity by establishing construct validity. Construct validity was demonstrated by a factor analysis on the items of each factor by calculating Cronbach's alpha coefficient. The internal validity of the variables for each factor revealed a strong Cronbach's alpha coefficient in excess of 0.70 indicating strong reliable variance on the subscale of each factor.

10.7.3 Reliability

The reliability of the framework was established by calculating the questionnaire's internal consistency. Like internal validity this was also demonstrated by calculating Cronbach's alpha coefficient. The results showed a Cronbach's alpha coefficient of 0.962, indicating that the developed questionnaire was internally consistent and therefore reliable. Furthermore, the reliability of the overall research process was evaluated. It has been demonstrated that the research stages from data collection process, coding, data preparation process, analysis and presentation of results can be easily followed and replicated. This demonstrates verification of the research and therefore its reliability.

10.8 RESEARCH LIMITATIONS

As is the case with all research, there are limitations with aspects of the research methodology, the data analysis techniques adopted and interpretation of results especially when attempting to make generalisations based on empirical or analytical research findings.

For the large scale questionnaire survey, the targeted sample population consisted of practicing asset, property and facilities managers in local authorities representing England and Scotland excluding the rest of the United Kingdom. The names were drawn from current Municipal Yearbook and Services Directory and a response rate of 23% was achieved which could be regarded as modest on which to base generalisation of findings. However, as had been argued elsewhere (section 8.4.2) the sample size was adequate for the statistical tests performed.

In the case of local authority interviews, the number and variety of local authority interviews have been determined by the Author to represent the different types, sizes, and geographical location of local authorities in England and Scotland. Nonetheless, for reasons of resource and time constraints the number of interviews conducted remains limited. Consequently, this introduces a limitation to the research to the extent that there will always be unexplored views and practices. Any attempt, therefore, to make widespread generalisations of findings based exclusively on interviews requires careful consideration.

10.9 RECOMMENDATIONS FOR FURTHER RESEARCH

Regarding questionnaire surveys, future research could widen the survey to all public organisations including local authorities in Northern Ireland and Wales, central government departments, government agencies, devolved governments while maintaining the same aim and objectives. The widening of the research scope would be useful to gain wider experience from different approaches to asset management practice. As for local authority interviews, future research could involve more local authorities, while maintaining the same research focus and argument. By involving more local authorities the research would benefit from asset management practices of diverse organisations as the subject being studied

relates to local authority organisations of different structures that support the same operational property portfolio.

10.10 ORIGINAL CONTRIBUTION TO KNOWLEDGE OF THIS

RESEARCH

There are three main practical elements to this research, two input elements and one output. The two input elements are the empirical research elements carried out, namely the total of sixteen local authority interviews and questionnaire survey. The output element of the research is the developed framework for implementing operational property asset management practices. All three research elements have, to varying extents, made some contribution to knowledge.

Firstly, regarding the local authority interviews, these were conducted with selected local authority property asset management practitioners conveniently selected and based on the type of local authority and the geographical areas within the UK regions whether in Scotland or England so that the majority of the councils were represented. The second part of the empirical research was the questionnaire survey. According to the Author's knowledge, the research is the first to focus on English and Scottish local authorities only as target participants and to exclude all other local authorities. The survey returns provided an indication of the level of progress in applying asset management principles in their operational property management practices. The targeted aggregation of research participants was chosen to ensure the appropriate variability in order for the Author to subject the research to the most diverse viewpoints possible within the limited number of interviews selected. It is appreciated that the approach is not unique but nonetheless the outcome is regarded as novel and the collected data and its analysis contribute to knowledge.

The developed asset management framework is an original effort which acts as a tool for implementing effective asset management practice in the management of operational properties in English and Scottish local authorities and other local authorities elsewhere.

Even though the developed operational property management framework is specific to English and Scottish local authorities, it is also potentially useful as a tool for other local authorities in the UK and elsewhere.

The developed framework is flexible, adaptable and intended to recognise the diverse nature of local authorities including their variable organisational cultures. A major contribution to knowledge of this study, therefore, is that it has developed an appropriate asset management framework that acts as a tool for implementing effective asset management practice as can be utilised and flexibly adapted by different local authorities for improving operational property asset management practice, especially by local authorities in England and Scotland. The developed framework aimed to use the asset management framework as a remedy to be adopted and adapted to address the asset management problems in local authorities in England, Scotland and elsewhere. The study along with the developed framework is very comprehensive and addresses real identified shortcomings in current operational property management.

Furthermore, the developed framework can inform and aid the development of asset management policy and practices in local authorities in England and Scotland or similar public sector organisations in other parts of the UK or the world. In addition, the developed framework contributes to the literature of asset management by identifying, integrating and appropriately presenting the critical factors for effective implementation of asset management practice.

10.11 CONCLUSIONS

The overall conclusion that can be drawn from the research reported in this thesis is that it has fully realised its aims and objectives. The existing problems of asset management practice in Scottish and English local authorities were thoroughly investigated. Asset management as an approach that is capable of mitigating the problems was also explored. The importance of the factors contributing to some of the property management problems, such as reactive management, lack of leadership support, ineffective corporate landlord

approach, were highlighted. Furthermore, the importance of the factors contributing to the development of the framework was assessed based on the opinions of asset management practitioners, who are expected to be the end users or decision makers on the implementation of the framework. Finally, the development of an adaptable and flexible operational property asset management framework through the research has provided the basis for improving the process and outcome of asset management practice. The model is robust and can be utilised and flexibly adapted by different local authorities.

APPENDICES

Appendix A: Published sources of Asset Management Guidelines in the UK

Year	Date	Guidance	Author
2000	April	Hot Property: Getting the best from local authority organisation assets	Audit Commission
	August	Beginning and Developing a Corporate Asset Management Process	Department of the Environment, Transport and the Regions (DETR)
2001	September	A Guidance to Asset Management Planning in Wales	Consortium Local authority organisation Wales (CLAW)
2003	March	Supplementary Guidance to Asset Management Planning in Wales	CLAW
2004	December	Towards better management of local authority assets: A report to the Chancellor of the Exchequer	Sir Michael Lyons
2005	January	Asset Management under Best Value Advisory Note: Local authority in Scotland Act 2003	Best Value Task Force
	June	Joint Premises Toolkit	Scottish Government
	August	Guidelines developed by the Royal Institution of Chartered Surveyors (RICS) and the Office of the Deputy Prime Minister (ODPM)	RICS and ODPM
2006	April	Improving Property Asset Management in the Central Civil Government Estate	University of Leeds for the Office of Government Commerce (OGC)
	October	Capital Planning and Option Appraisal – A Best Practice Guide for Local authority organisation's	Chartered Institute of Public Finance and Accountancy (CIPFA) Local authority Directors of Finance
	November	High Performing Property	Office of Government Commerce
2007	May	High Performing Property Implementation Plan	Office of Government Commerce
	May	Making assets work – the Quirk Review of community management and ownership of public assets	Barry Quirk for the Department for Communities and Local authority
	November	Improving the efficiency of central government's office property	National Audit Office
	December	Accounting for the Common Good Fund: A Guidance Note for Practitioners	Local authority organisation (Scotland) Accounts Advisory Committee
2008	January	Local authority Asset Management Guidelines (suite includes separate guidance for senior decision-makers and how to get started quickly)	RICS
	February	Building on Strong Foundations	Department for Communities and Local authority
	March	Property Management in Scotland's Local authorities – Moving Forward	Improvement Service
	May	Improving the efficiency of central government's use of office property	House of Commons – Committee of Public Accounts
	October	A guide to asset management and capital planning	CIPFA Local authority Directors of Finance Section

Appendix B: Published sources of Asset Management Guidelines in Australia

Organisation	Current Practices	Models and Tools
Queensland (2002) Department of Public Works	<ul style="list-style-type: none"> • Strategic Asset Management Guidelines • AMS: QBIS (Queensland Building Information System) <ul style="list-style-type: none"> ▶ On-line data collection and query assistance ▶ Capability to analyse all asset data, reliable and current source of information 	<ul style="list-style-type: none"> • Risk Management, Value Management, Life Cycle planning, Management of Projects • Asset Management Policies and Support tools: <ul style="list-style-type: none"> ▶ Capital works management framework tools ▶ Maintenance management framework tools ▶ Use of internet technology ▶ Post occupancy evaluation, Condition assessment, Functionality assessment ▶ Ecological Sustainable Development
Queensland (2002)	<ul style="list-style-type: none"> • Government Asset Management System (GAMS) (a web-based knowledge management system with reference to legislation, policies, better practice guidelines and information systems). 	<ul style="list-style-type: none"> • Database of asset information; Online community involvement; Use of internet technology
Victoria (1996)	<ul style="list-style-type: none"> • Asset management series and guidelines: Assessing condition of constructed assets 	<ul style="list-style-type: none"> • Guidelines and tools to aid Asset Management Series with examples
NSW (2002) Dept of Public Works & Services	<ul style="list-style-type: none"> • Asset.gov (online tools for management of Government assets “from cradle to grave,” including support for planning, project delivery maintenance and disposal) 	<ul style="list-style-type: none"> • Online data monitoring; Life cycle assessment tool (LcAid – Life Cycle Design Aid); Use of internet technology
NSW Government Asset Management Committee (2000)	<ul style="list-style-type: none"> • Total Asset Management (TAM) <ul style="list-style-type: none"> ▶ The Asset Strategy Plan ▶ The capital investment asset strategy plan ▶ The asset maintenance strategy plan ▶ The asset disposal strategy plan 	<ul style="list-style-type: none"> • Sustainable Development, Heritage Assets, Demand Management • Life-cycle costing, Economic Appraisal • Performance Evaluation, Post Implementation Review • Asset information, Private Sector participation • Value Management, Risk Management
South Australia (1999)	<ul style="list-style-type: none"> • Strategic Asset Management Framework (Asset Management Policy Series) 	<ul style="list-style-type: none"> • BLAMS (Building and Land Asset Management System)

Western Australia	<ul style="list-style-type: none"> • Asset Management Services 	<ul style="list-style-type: none"> • Building Condition Assessment Methodology; Western Property
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Source: Audit Scotland (2009); Shah et al (2004)

Appendix C: A sample of Asset Management Guidelines

New South Wales Treasury	Department for Education & Employment	Federal Real Property Local authority organisation	Cambridgeshire County Local authority organisation	Consortium of Local authority organisation in Wales (CLAW)	Lyons Report	Institute of Asset Management
a) Services & Corporate Goals	a) Introduction	a) Introduction	a) Introduction	a) Introduction & Context	a) Understanding Existing Asset Base	a) Service Levels
b) Asset Strategies	b) Aims & Objectives	b) Mission & Strategic Goals	b) Cambridgeshire's Context	b) Corporate Asset Policy	b) Forecasting Future Asset Requirements	b) Future Demand
c) Asset Performance Measures & Targets	c) Scope of AMP	c) Acquisition of Real Property Assets	c) Organisational Arrangements for Corporate Asset Management	c) Changes in the External Environment & Implications for Property	c) Service Delivery & Asset Functionality	c) Life Cycle Management Strategic Plans
d) Risk Management Strategies	d) Timescale	d) Operations of Real Property Assets	d) Consultation	d) Service Delivery & Accommodation Needs	d) Asset Disposal	d) Financial Summary
e) Capital Investment Strategy	e) Roles & Responsibilities	e) Disposal of Unneeded Assets	e) Data Management	e) Likely Future Requirements	e) Asset Utilisation	e) Asset Management Practices
f) Asset Maintenance Strategy	f) Local Policy Statement	f) Appendices	f) Performance Management & Monitoring	f) Existing Portfolio & Current Performance	f) Asset Revenue Potential	f) Improvement & Monitoring
g) Asset Disposal Strategy	g) Assessing existing Premises		g) Programme & Plan Development & Implementation	g) Review & Challenge	g) Asset Acquisition & Programme Plan	
	h) Identifying Needs		h) Performance Information	h) Options Appraisal		
	i) Determining Priorities		i) Conclusion	i) Asset Management Programmes		
	j) Feasibility Studies & Option Appraisal		j) Appendices	j) Appendices		
	k) Implementation, Review and Evaluation					

RICS / ODPM Guidelines 2005	CIPFA	Scottish Executive	Audit Commission in Wales	Audit Scotland
a) Corporate Vision & Strategy and its property implications	a) Introduction & Context	a) Vision Statement	a) Corporate / Improvement Plan (including corporate property and objectives and property PI's)	a) Property Strategy, Policy and Plans
b) Corporate and Property Goals and objectives and the Democratic Corporate process	b) Strategic Objectives / Issues	b) Assessment of Current Position	b) Stakeholder Input and Government	b) Structure, Roles and Responsibilities
c) Integrated Resources and Service Management Framework	c) Assessment of Current Position	c) Environmental Scanning	c) Input	c) Working with Service Areas
d) Business Process for Assets	d) Performance Measures	d) Aims and Objectives	d) Capital and Revenue Strategy	d) Data collection processes
e) Capital and Revenue Planning and Accounting for Assets	e) Summary of Need and Review of Future Requirements	e) Making the Strategy Happen: Covers the following items	e) Prioritised Property Schemes	e) Performance management and reporting
f) Structure and Roles / Responsibilities	f) Option Appraisal	f) Roles and Responsibilities	f) Asset Management Plan Preparation: includes the following steps:	f) Property Review
g) Inclusion and engagement / Consultation with Stakeholders	g) Programme Development	g) Developing the Asset Management Plan (6 step process – define objectives; assess current position; consider options; develop plan; implement plan; monitor, review and evaluate plan).	g) Property Aims objectives and strategies	g) Implementation
h) Implementation and Review	h) Evaluation and Feedback	h) An Overview of Asset Management Implementation Programme	h) Data Management	
i) Performance Management and Data	i) Conclusions	i) Time	i) Key Areas and options for change	
j) Capacity Building	j) Further Development Work	j) Monitoring Progress, Review and Performance Evaluation	j) Financial information	
	k) Appendices		k) Statement of current portfolio and conditions surveys	
			l) Performance management	
			m) Preferred options	
			n) Programme Development	
			o) Programme implementation	
			p) Action Plan	

Source: Audit Scotland (2009)

Appendix D: Profile of Interviewees

No.	Interviewee	Local Authority	Job of Interviewees	Background Information
1	A	1 Rural	Strategic Asset Manager	<i>A non-metropolitan county in the West Midlands region of England. County Councils have a variety of functions including: education, social services, highways, fire and rescue services, libraries, waste disposal, consumer services, and town and country planning.</i>
	B	1 Rural	Corporate Director for Asset Management	
	C	1 Rural	Head of Estates	
2	D	2 Urban	Corporate Director	<i>A city and metropolitan borough in South Yorkshire runs most local services such as schools, social services, waste collection and roads.</i>
3	E	3 Semi-rural	Head of Property and Asset Management	<i>A metropolitan borough in North West England runs most local services, such as schools, social services, waste collection and roads.</i>
	F	3 Semi-rural	Corporate Director	
4	G	4 Semi-rural	Property Asset Manager	<i>A non-metropolitan district council in a non-metropolitan county which has 7 other districts. Is responsible for local planning and building control, local roads, council housing, environmental health, markets and fairs, refuse collection and recycling, cemeteries and crematoria, leisure services, parks, and tourism.</i>
5	H	5 Urban	Senior Property Officer	<i>^aA large city council in the Scottish central belt.</i>
	I	5 Urban	Head of Operational Property Asset Management	
6	J	6 Rural	Strategic Asset Manager	<i>^aThe council covers a vast rural area, some islands and smaller towns to the west of Scotland.</i>
	K	6 Rural	Head of Property	
7	L	7 Urban	Strategic Asset Manager	<i>^aA large city council in north east Scotland.</i>
	M	7 Urban	Head of Operational Asset Management	
8	N	8 Semi-rural	Asset Management Section Head	<i>^aA small semi-urban authority in the west of Scotland with history of low economic opportunities and social deprivation due to closure of heavy industry.</i>
	O	8 Semi-rural	Head of Property Management	

Appendix E: Strategic Planning Interview Questions

SECTION A: BACKGROUND

Question 1

Introductory Remarks and an Explanation of the interview purpose

Question 2

The interviewee will be asked to confirm their position and role in the organisation.

SECTION B: STRATEGIC PLANNING

B1: Enablers of Asset Management

** Enablers of asset management relates to those things that need to be done early in the asset management process and critical success factors that are needed to support the process*

Question 3

How would you describe the level of *organisational and leadership commitment* and support to asset management?

Question 4

What would you say are the type of *capacity building arrangements* that exist in your organisation to support asset management?

B2: Vision, Mission and Objectives

Question 5

Please explain how corporate property managers ensure that they clearly articulate to their staff the need for developing a property strategy

Question 6

How do you make sure that property asset implications of your organisation's corporate goals and objectives are clearly understood and form the basis for developing property strategy?

B3: Asset Knowledge

Question 7

Do you have a Property Management information system (PMIS)? If Yes, please describe the type of data your System captures?

Question 8

How do you assess and generate knowledge about your asset's condition; suitability; capacity / sufficiency; operating and running costs; asset criticality / risk; as well as environmental performance and sustainability of assets?

Question 9

How do you use the generated information needed to support and inform asset management decision making?

B4: External and Internal environmental analysis (SWOT Analysis)

Question 10

What external factors do you monitor in order to assess any opportunities and threats that might affect the performance of your asset portfolio?

Question 11

Would you say that those engaged in asset management work have adequate resources (e.g. right people; adequate funding) and how do you ensure that is the case?

B5* Service Level Gap / Strategic Task

*Service level gap relates to establishment and quantification of asset and management capability performance shortfalls

Question 12

Do you have an Asset management performance system?

Question 13

How do you establish the performance of your property assets and asset management capabilities of those involved in asset management work? How do you quantify any asset and management capability shortfalls (strategic task or service level gaps)

SECTION C: ASSET MANAGEMENT OUTCOMES

C1. Efficient and effective use of property assets

Question 14

To what extent would you say your organisation has rationalised its operational property portfolio holdings since asset management was implemented?

Question 15

Explain the extent to which your organisation's asset management practices have impacted on any of the following and whether you consider that it has succeeded: *annual operating costs; the level of required maintenance; space utilisation; and recycling of receipts within capital schemes*

C2. Improved service delivery

Question 16

To what extent would you say there have been improvements to facilities in terms of condition, suitability, sufficiency and environmental performance?

Question 17

What would you say have been the impact of your organisation's asset management practices on any of the following: *new working practices (e.g. open space, flexible working, hot desking); cross-service working; co-location and/or partnership working; accessibility of services; compliance with legislation such as Disability Discrimination Acts (DDA), Health and Safety Acts; usage of services by having good quality properties; and environmental Sustainability of property holdings (energy usage; solid waste; water usage)*

Appendix F: Asset Management Planning Interview Questions

SECTION A: BACKGROUND

Question 1

Introductory Remarks and an Explanation of the interview purpose

Question 2

The interviewee will be asked to confirm their position and role in the organisation.

SECTION B: ASSET MANAGEMENT PLANNING

B1. Asset Strategy Formulation

Question 3

Please explain the techniques you use to establish asset demand?

Question 4

Describe the strategies you use to address asset performance shortfalls?

B2. Strategy Selection / Option Appraisal

Question 5

Describe the approach adopted in appraising financial and non financial considerations of capital strategy options

B3. Asset Strategy Implementation

a) Corporate Property Management Arrangements

Question 6

How effective is the documented Asset Management Plan in guiding the implementation of devised asset strategy

Question 7

Do you consider that there exists an officer at senior management level who effectively champions a corporate and strategic approach to capital and asset planning? Overall, how would you rate the corporate property management arrangement?

Question 8

How effective is the available project management arrangement in terms of its structure, organisation and leadership capabilities?

Question 9

To what extent do you consider elected members are engaged with property asset management including their involvement in regularly reviewing performance?

b) Property Management Arrangements

Question 10

How would you describe the clarity with which operational property management responsibilities are set out at a corporate and service level

Question 11

Please describe the operational property asset management arrangements including structure, composition, leadership and resourcing

B4. Performance Monitoring and Control

Question 12

Do Key Performance Indicators (KPIs) giving indications of performance for both property assets and management of property assets exist?

Question 13

Explain how you utilise Performance asset management framework to ensure that there is continuous improvement to asset management performance

SECTION C: ASSET MANAGEMENT OUTCOMES

C1. Efficient and effective use of property assets

Question 14

To what extent would you say your organisation has rationalised its operational property portfolio holdings since asset management was implemented?

Question 15

Explain the extent to which your organisation's asset management practices have impacted on any of the following and whether you consider that it has succeeded: *annual operating costs; the level of required maintenance; space utilisation; and recycling of receipts within capital schemes?*

C2. Improved service delivery

Question 16

To what extent would you say there have been improvements to facilities in terms of condition, suitability, sufficiency and environmental performance?

Question 17

What would you say have been the impact of your organisation's asset management practices on any of the following: *new working practices; cross-service working; co-location and/or partnership working; accessibility of services; compliance with legislation; usage of services; and environmental Sustainability of property holdings*

Appendix G: Survey Questionnaire

SECTION A: BACKGROUND INFORMATION

1) Please select the type of local authority which best describes your organisation

Please tick (✓) the appropriate box.

- County Council
- Metropolitan
- District Council
- London Borough
- English Unitary Authority
- Scottish Unitary Authority

2) Please state the name of the local authority for which you work

3) Which of the following best describes your role

- Asset Manager / Corporate Property Manager
- Estates / Property Manager
- Facilities Manager
- Other (Please explain)

4) Please indicate how long you have been involved in operational property asset management work in your organisation

- Over 20 years
- 16-20 years
- 11-15 years
- 6-10 years
- Up to 5 years

5) Please indicate how long you have been involved in operational property asset management work outside your organisation

- Over 20 years
- 16-20 years
- 11-15 years
- 6-10 years
- Up to 5 years

6) Please rate the importance of the following factors in influencing asset management performance (choose one option per row)

	Not Very Important	Not Important	Average Importance	Important	Extremely Important
• Leadership (Elected members and Service Heads) Support for asset management	1	2	3	4	5
• Asset Management Capabilities (Resources adequacy)	1	2	3	4	5
	1	2	3	4	5

<ul style="list-style-type: none"> Corporate landlord arrangement 					
<ul style="list-style-type: none"> Vision, Mission, and Setting of Objectives (<i>Corporate Objectives inform asset management Objective</i>) 	1	2	3	4	5
<ul style="list-style-type: none"> Management Information System captures relevant data which aids management decision making 	1	2	3	4	5
<ul style="list-style-type: none"> Political, Economic, Social, Technological, Environmental and Legal Influences on asset management 	1	2	3	4	5
<ul style="list-style-type: none"> Asset Management Plan 	1	2	3	4	5
<ul style="list-style-type: none"> Business Case supporting formulated Asset Strategy 	1	2	3	4	5
<ul style="list-style-type: none"> Option Appraisal 	1	2	3	4	5
<ul style="list-style-type: none"> Asset Strategy Implementation 	1	2	3	4	5
<ul style="list-style-type: none"> Performance Monitoring and Control 	1	2	3	4	5
<ul style="list-style-type: none"> Asset Audit and Review 	1	2	3	4	5
7) How would you rate the following factors in terms of Importance in influencing asset management performance (choose one option per row)					
	Not Very Important	Not Important	Average Importance	Important	Extremely Important
<ul style="list-style-type: none"> Leadership (Elected members and Service Heads) Support for asset management 	1	2	3	4	5
<ul style="list-style-type: none"> Asset Management Capabilities (Resources adequacy) 	1	2	3	4	5
<ul style="list-style-type: none"> Corporate landlord arrangement 	1	2	3	4	5
<ul style="list-style-type: none"> Vision, Mission, and Setting of Objectives (<i>Corporate Objectives inform asset management Objective</i>) 	1	2	3	4	5
<ul style="list-style-type: none"> Management Information System captures relevant data which aids management decision making 	1	2	3	4	5
<ul style="list-style-type: none"> Political, Economic, Social, Technological, Environmental and Legal Influences on asset management 	1	2	3	4	5
<ul style="list-style-type: none"> Asset Management Plan 	1	2	3	4	5
	1	2	3	4	5

<ul style="list-style-type: none"> • Business Case supporting formulated Asset Strategy 					
<ul style="list-style-type: none"> • Option Appraisal 	1	2	3	4	5
<ul style="list-style-type: none"> • Asset Strategy Implementation 	1	2	3	4	5
<ul style="list-style-type: none"> • Performance Monitoring and Control 	1	2	3	4	5
<ul style="list-style-type: none"> • Asset Audit and Review 	1	2	3	4	5
SECTION B: STRATEGIC PLANNING					
B1: *Enablers of Asset Management					
Please rate the following elements in terms of their Importance in influencing asset management performance in your organisation. <i>Please choose one option per row. If you feel any item is missing please add in the box</i>	Not Very Important	Not Important	Average Importance	Important	Extremely Important
*Explanation: <i>Enablers of asset management relates to those things that need to be done early in the asset management process and critical success factors that are needed to support the process</i>					
<ul style="list-style-type: none"> • Organisational and leadership commitment to asset management 	1	2	3	4	5
<ul style="list-style-type: none"> • Asset Management Capabilities (Resources adequacy – right people, funding, Information Management System) 	1	2	3	4	5
<ul style="list-style-type: none"> • Other (please specify) 					
B2: Vision, Mission and Objectives					
<ul style="list-style-type: none"> • Leadership clearly articulates the need for developing a property asset strategy 	1	2	3	4	5
<ul style="list-style-type: none"> • Understanding of a local authority's goals and objectives and their property asset implications 	1	2	3	4	5
B3: Asset Knowledge					
<ul style="list-style-type: none"> • Property Management Information System (PMIS) 	1	2	3	4	5
<ul style="list-style-type: none"> • A PMIS collects and generates information needed to support and inform asset management decision making 	1	2	3	4	5
<ul style="list-style-type: none"> • Assets condition is regularly assessed and graded against them 	1	2	3	4	5
<ul style="list-style-type: none"> • Assets are regularly assessed as to their Suitability to support current and future service delivery 	1	2	3	4	5
<ul style="list-style-type: none"> • Assets regularly assessed as to their capacity or sufficiency whether are under or over utilised now or likely to be in the future 	1	2	3	4	5
<ul style="list-style-type: none"> • Asset register contains regularly tracked costs of asset creation, revenue and refurbishment 	1	2	3	4	5
<ul style="list-style-type: none"> • Asset register captures data on environmental performance and sustainability of assets 	1	2	3	4	5
Other (please specify)					
B4: External and Internal environmental analysis (SWOT Analysis)					

Please rate the following elements of SWOT Analysis in terms of their Importance in influencing asset management performance in your organisation. <i>Please choose one option per row. If you feel any item is missing please add in the box</i>					
a) The organisation monitors and assesses the present and expected future state of political, economic, social, environmental, technological and sustainability issues and the potential to affect performance of the asset.	1	2	3	4	5
b) The organisation monitors and assesses the actual and potential collaborators and forces affecting collaboration and joint service delivery					
c) The organisation has adequate resources (e.g. right people; adequate funding)	1	2	3	4	5
d) The organisation has an Asset management performance system (Benchmarking Arrangements)	1	2	3	4	5
B5* Service Level Gap / Strategic Task					
Please rate the following elements of Service Level Gap in terms of their Importance in influencing asset management performance in your organisation. <i>Please choose one option per row. If you feel any item is missing please add in the box</i> <i>*Service level gap relates to establishment and quantification of asset and management capability performance shortfalls</i>					
a) Asset performance is established by evaluating asset condition, suitability, sufficiency, accessibility and whole life cost of asset	1	2	3	4	5
b) Asset management capabilities is determined by evaluating asset management processes, adequacy of resources, asset management performance system, and asset management culture.	1	2	3	4	5
c) Service statements are used to quantify asset and management capability shortfalls (strategic task or service level gaps)	1	2	3	4	5

APPENDIX H: Research Report and Validation Questionnaire

VALIDATION OF OPERATIONAL PROPERTY ASSET MANAGEMENT MODEL

School of the Built Environment
Maxwell Building, University of Salford,
Manchester

Dear Sir / Madam

A QUESTIONNAIRE FOR VALIDATING A FRAMEWORK FOR THE MANAGEMENT OF OPERATIONAL PROPERTIES IN LOCAL AUTHORITIES

The purpose of issuing this questionnaire is to generate and evaluate experts' opinions on the attached model. The model has been developed with the intention of assisting asset management practitioners involved in implementing asset management. The model is an outcome of the research to develop an adaptable and flexible framework for managing operational properties in English and Scottish local authorities. The model consists of logical inter-relationships of process factors for all the components of asset management. The process factors are appropriately defined and explained. The explanation clarifies how the model can be implemented to aid asset management improvements. The model is, in effect, a toolkit which will assist asset management practitioners to undertake asset management practice with an approach likely to result in improvement in the efficiency and effectiveness of asset management.

The validation of the developed model, through this questionnaire, is assessed by taking into consideration the following: its significance to local authorities and other public sector organisations in general, applicability in practise and adequacy in addressing the asset management problems confronting practitioners and other relevant stakeholders involved in asset management implementation.

The questionnaire is in three (3) sections. Section A seeks to obtain information on your background; Sections B and C ask for your opinions or comments on general and specific aspects of the model, respectively. In order to help you in completing the questionnaire, it would be useful if you familiarised yourself with the attached model (figure 9.3). In addition, it would be equally useful if you were to the information about the approach undertaken in developing the model and how it is intended to be applied.

Please return the completed questionnaire to the E-mail address below. If you would like any further information about the research, please let me know.

Yours faithfully,

Malawi Ngwira

Doctoral Research Student

School of Built Environment, University of Salford

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CONCEPTUAL FRAMEWORK DEVELOPMENT

A conceptual framework for this study was developed based on theory, reviewed literature and an examination of existing frameworks. These helped to identify and define the concepts associated with asset management. Asset management has four components namely, strategic planning, asset management planning, tools and techniques, and outcomes. The practices and processes of asset management, whether at strategic planning or asset management planning levels, are supported by a range of tools and techniques. The outcomes are the end product of asset management practices and processes which if successfully deployed result in efficient and effective asset management. The developed conceptual framework and its associated concepts are shown as figure 9.2.

ASSET MANAGEMENT CONCEPTUAL FRAMEWORK

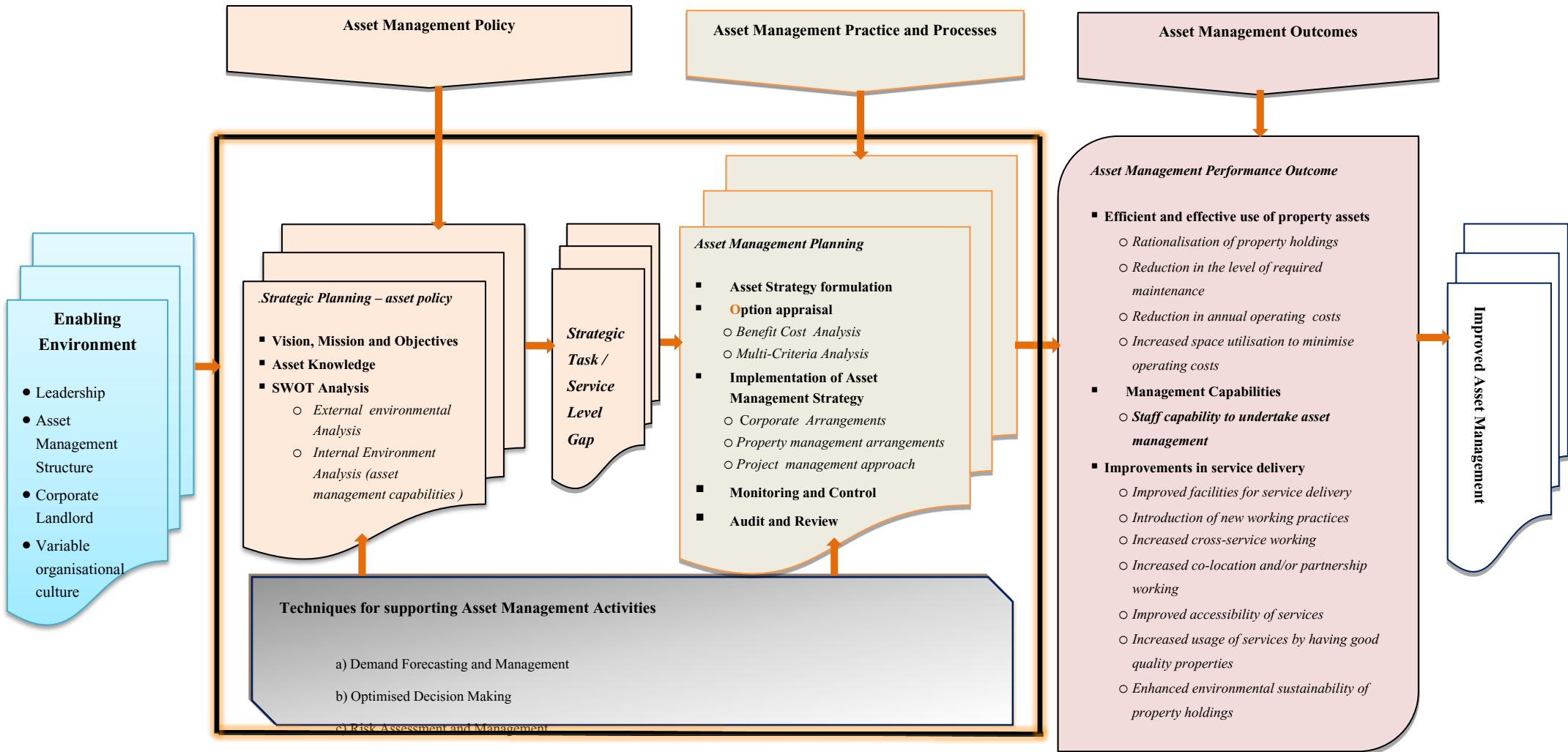


Figure 9.2: Asset Management Conceptual Framework

The development of the conceptual framework is based on the logical connection between identified and defined asset management concepts. The review of literature also helped identify a number of problems that local authorities face associated with asset management practice at all stages of asset management practice. The problems are shown in Table 9.3.

Table 9.3: Summary of Asset Management Problems

Problems at Strategic Planning Level	Problems at Asset Management Planning level	Problems realising desired Outcomes
<p>1. Asset Management Structure</p> <ul style="list-style-type: none"> • Inexistence of integrated facilities and property / estates management functions` • Absent or weak corporate landlord approach <p>2. Asset management capabilities</p> <ul style="list-style-type: none"> • Ineffective leadership support from elected members and service heads • Ineffective management information systems • Resource inadequacies in terms of numbers and capabilities of staff • Asset management culture not embedded • Lack of cross functional asset management teams • Lack of asset management capacity building training programmes <p>3. Opportunities and Threats</p> <ul style="list-style-type: none"> • Reactive reactions to PESTEL <p>4. Asset knowledge</p> <ul style="list-style-type: none"> • Problems capturing key data sets such as accessibility and sufficiency • Ineffective asset management information systems that support decision making <p>5. Strategy Gap</p> <ul style="list-style-type: none"> • Weak or inexistence of formal consultation process of external and internal stakeholders to identify asset gap 	<p>6. Strategy Formulation</p> <ul style="list-style-type: none"> • Weaknesses or ineffectiveness in preparation of business cases that support asset strategy solutions • Lack of formal utilisation of demand management strategies as options for closing service gaps <p>7. Option Appraisal</p> <ul style="list-style-type: none"> • Benefit Cost analysis is utilised mostly to assess initial capital cost. • Lack of utilisation of whole life cycle approach to financial planning • Multi-criteria analysis to evaluate non-financial considerations is hardly utilised <p>8. Strategy Implementation</p> <ul style="list-style-type: none"> • Resource inadequacies whether monetary or staff capable • Cross functional project management structures not developed • Lack of development of project management guidelines that are applied <i>consistently</i> across the organisation <p>10. Monitoring and Control</p> <ul style="list-style-type: none"> • Majority of councils not belonging to benchmarking clubs • Few local authorities carry out external benchmarking • Internal benchmarking not fully utilised 	<p>11. Efficiency and effectiveness of use of property assets</p> <ul style="list-style-type: none"> • rationalising their <i>indirect</i> • Ineffectiveness in rationalising their <i>direct properties</i> • Need for continued reduction in backlog maintenance • Need for continued improvement of asset accessibility • Need for continued improvement of condition of the estate • Need for continued reduction in in operating costs of estate • increased space utilisation • Need for continued improvement in improvement in suitability <p>12. Service Delivery</p> <ul style="list-style-type: none"> • Limited effectiveness in introduction of new working practices such as <i>flexible working</i> • Limited effectiveness in cross service working, • Limited effectiveness in co-location and partnering with other community service providers

DEVELOPED OPERATIONAL PROPERTY ASSET MANAGEMENT MODEL

The developed conceptual framework was empirically evaluated through expert interviews and survey questionnaires. The objective of the interviews was to assess the framework asset management practice and process factors and their logical relationships. Following evaluation of the conceptual framework, the operational property asset management model, shown as figure 9.3, was then developed. The logical flow of the model and the identification and inter-relationship amongst asset management processes is explained in a separate section (pages 384-391). The three page Questionnaire is on pages 391 -393.

OPERATIONAL PROPERTY ASSET MANAGEMENT MODEL

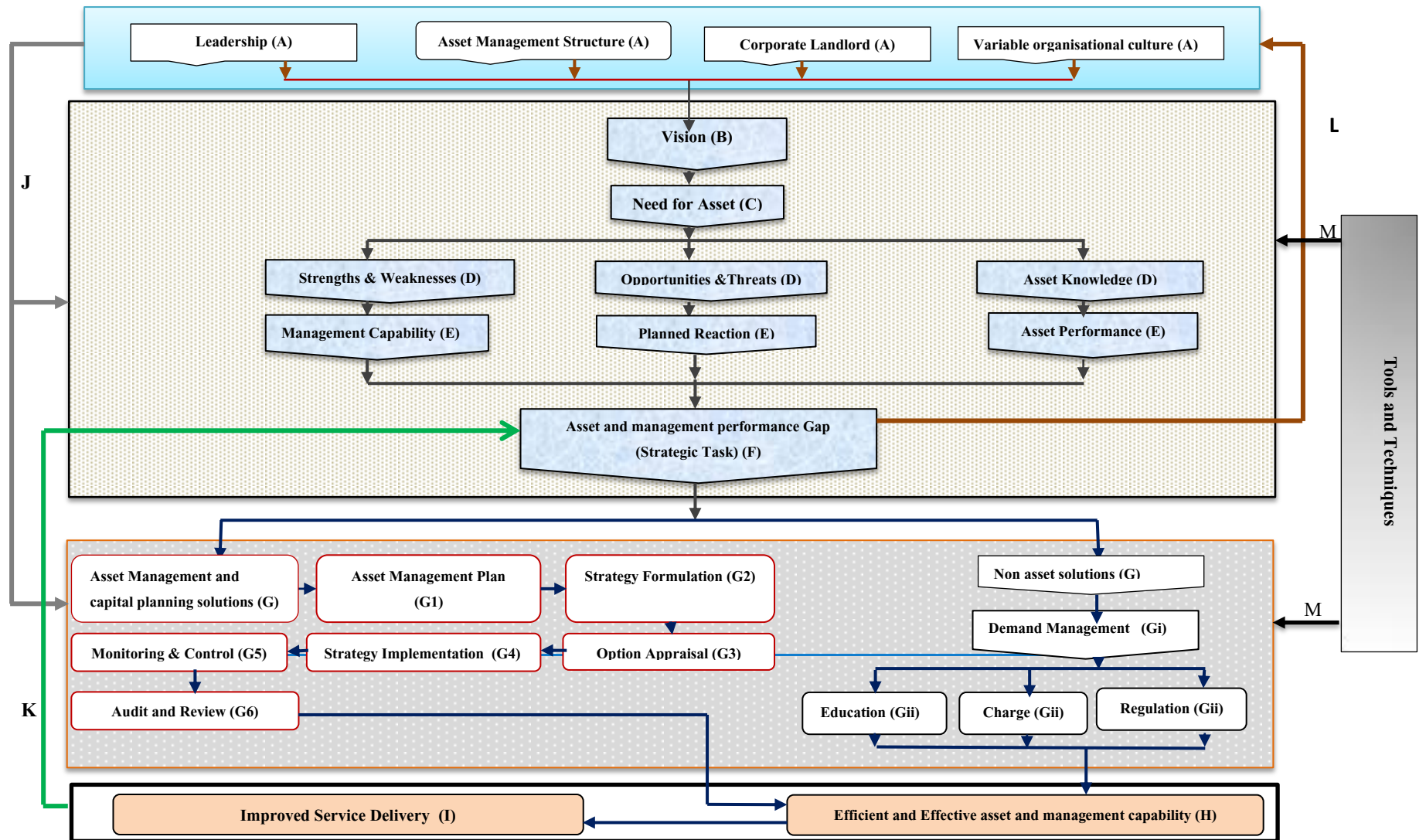


Figure 9.3: Asset Management Process Model

MODEL EXPLANATION

EXPLORATION AND EXAMINATION OF RELATIONSHIPS BETWEEN MODEL CONCEPTS

Asset management is a strategic concept that integrates strategic planning and asset management planning elements supported by tools and techniques. For asset management to be effective all these elements need to operate in an enabling environment. Each of the elements consists of a number of concepts or processes which if effectively applied will result in improved asset management performance. In this section the model's concepts are explored and examined in order to provide a causal map and to clarify the causal logic of the model. The perceived relationships between groups of concepts and individual concepts are indicated in a series of lines and arrows. The box diagrams represent the concepts. Also explained is the mechanism by which the concepts are supported by an enabling environment.

1. STEP A (ENABLING ENVIRONMENT)

In order for the concepts that make up the processes of strategic planning, asset management planning and the tools and techniques that support the processes to be fully effective they need to operate in an enabling environment. Asset management enabling environment is about the local authority putting in place the essential activities that support asset management process. These are the activities that should be implemented:

1.1 Asset management structure (Step A): A local authority should put in place an asset management structure that resides at board room level and headed by a corporate officer

1.2 Corporate landlord (Step A): all operational properties, direct and indirect ones, should be controlled from the centre and not by services or departments.

1.3 Variable organisational culture (Step A): there should be in place a culture of continuous asset management improvement process. In addition the organisation needs to embed asset management culture across the organisation.

1.4 Leadership support (Step A): the Senior officers at corporate level including service heads and elected officials should fully support and be committed to asset management process. Leadership support should include having an asset management champion at the highest level.

2. STRATEGIC PLANNING

The group of concepts surrounding strategic planning concept are the policy actions and are about understanding the overall organisational objectives, and from these deriving property objectives. The key concepts that make up strategic planning are: mission, vision and objectives; asset knowledge; external and internal environmental factors acting on the organisation. All these concepts act to highlight management capability shortfalls and asset performance shortfall. The shortfalls are the derived property objectives also known as service level gap or strategic task. The identity of the concepts, their logical inter-relationships involved in the derivation of property objectives is represented in figure 9.4.

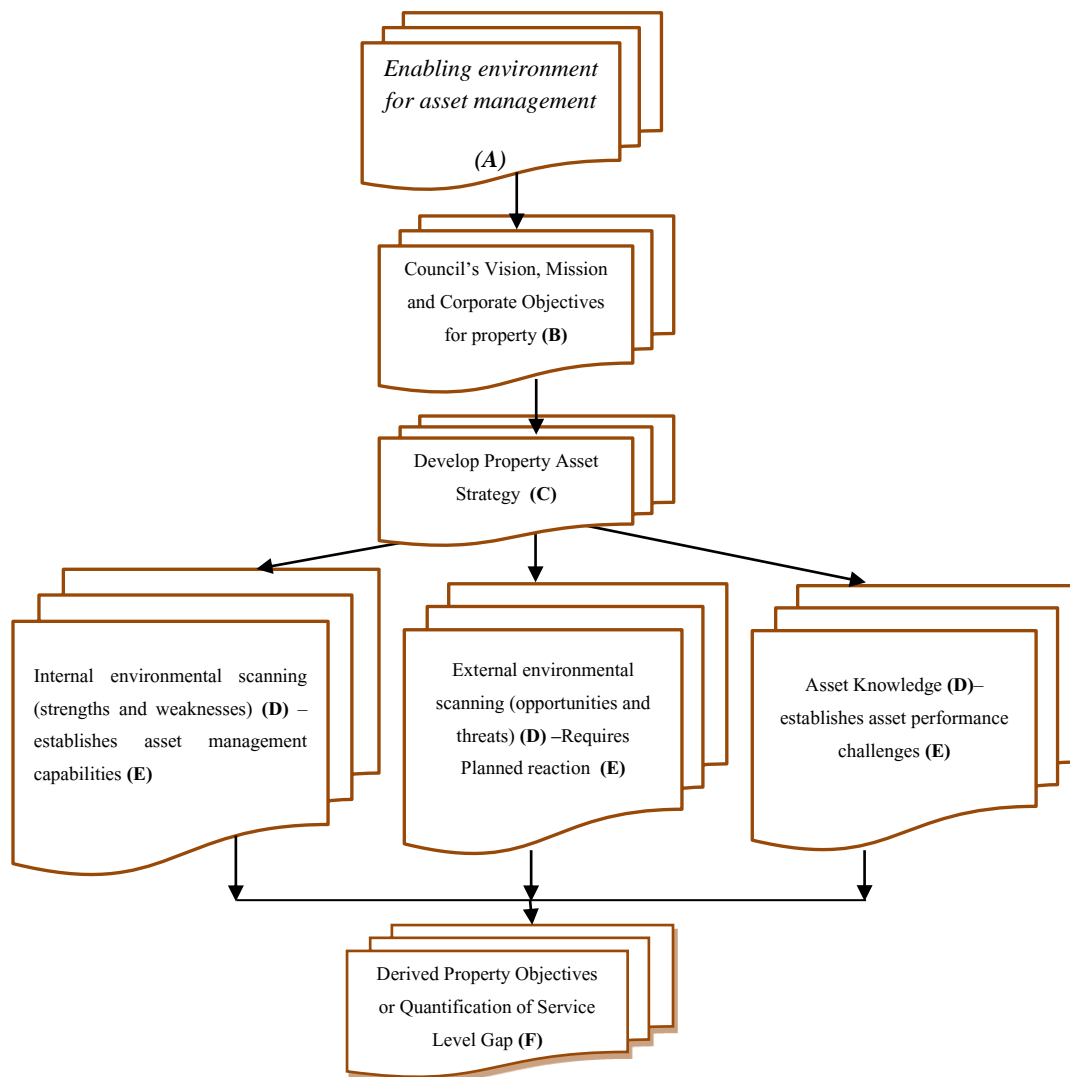


Figure 9.4: Strategic Planning and Derivation of Strategic Task

2.1 STEP B: Vision, Mission and Objectives: The local authority should have a vision statement whose role should be to articulate the *need for developing a property asset strategy (Step C)*. This requires that the local authority's goals need to be clearly understood, together with their property implications. Goals that are so set naturally should lead to the development of specific objectives for the management of assets which satisfy broader council objectives. In order for the local authority to be able to fulfil the need for managing property assets it should have a clear knowledge about its asset base, its own internal capabilities (strengths and weaknesses), mechanism for reacting to external influences (opportunities and threats) and be able to quantify performance shortfalls. These aspects are further explained below as steps to be followed.

2.2 STEPS D and E: Internal Environmental Scanning (Strengths and weaknesses): There should be a continual process of assessing the skill set of staff (**Step D**) to identify their management capabilities to deliver asset management activities (**Step E**). In order to build asset management capacity of staff a local authority should set up asset management training programmes.

2.3 STEPS D and E: External Environmental Scanning (Opportunities and Threats)

The local authority should monitor major political, economic, social, technological, environmental and legal forces acting on the organisation (Step D). The property implications of these external forces should be anticipated and acted upon in a planned approach (Step E).

2.4 STEPS D and E: Asset Knowledge

The local authority should have a programme of assessing existing property assets and accommodation for their suitability to support the its existing business, and any future demand. This should lead the local authority to develop knowledge about its asset portfolio. In order to develop such knowledge the following should occur:

- capturing relevant data which drives asset management. Such data include condition, suitability, sufficiency, accessibility, revenue costs, value, environmental performance and sustainability
- having in place a properly designed asset management information system (MIS) that supports decision making (**Step D**)

- The local should make that the available MIS is capable of converting captured data into information that can be used to assess existing property assets and accommodation for their suitability to support (a) property management function; and (b) monitor asset performance (**Step E**).

2.5 STEP F: Service Level Gap

Through SWOT analysis and knowledge about assets it then becomes possible to establish whether there are any shortfalls with regard to asset performance or management capabilities. The identified shortfalls are the ones that need to be quantified as they then become the strategic tasks or service level gaps that need to be met. The local authority should carry out the following processes in order to identify and quantify the service level gap:

- Consult external and internal stakeholders to help understand users' needs and wants
- Measure current asset or management performance
- Set desired performance or future levels of service target
- Calculate service level gap. This is the difference between desired and current performance levels.

3. ASSET MANAGEMENT PLANNING

The Asset Management Planning concept is about planning for closing the identified service level gap.

3.1 STEP G: Solutions for closing the Service Level Gap: The council should devise either asset based or non asset based solutions to close the asset performance or management capability shortfall.

STEP G1: An asset management plan: The council should embark on asset management planning exercise in order to close the identified gap. Asset management planning should be done by developing an asset management plan. An asset management plan should involve developing integrated capital plans or strategies for

closing the asset performance gap. The developed asset management plan should then be operationalised through the processes of strategy formulation, option appraisal, strategy implementation, monitoring and controlling of the implemented strategy and finally audit and review (figure 9.5).

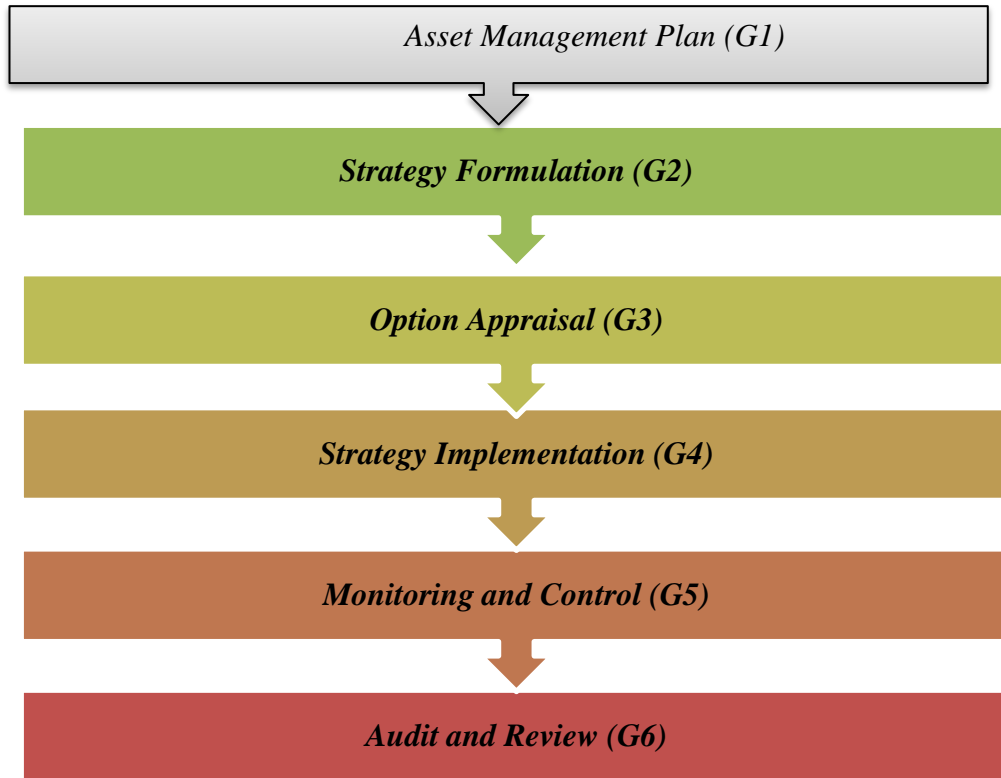


Figure 9.5: Asset Management Planning Process Elements and their inter-relationship

STEP G2: Strategy Formulation: The process of closing the identified gap should commence by the formulation of asset or non-asset strategies.

- Asset strategies should include capital investment; asset maintenance; asset disposal; and workspace and accommodation plans.
- Non-asset solutions should include demand management options (**Step Gi**) such as restriction of use (**Step Gii**) , incentivisation of asset use (**Step Giii**), and educating asset users (**Step Giv**).

STEP G3: Option Appraisal: Optimised decision techniques should be used to appraise and select an optimal option. Two optimised decision techniques should be used namely,

Benefit Cost Analysis supported by whole life cycle approach to evaluate financial aspects of options and multi-criteria analysis (MCA) *to assess non-financial considerations.*

STEP G4: Strategy Implementation: The selected option should then be implemented supported by having in place corporate, management and project management arrangements. The necessary activities associated with any of these arrangements are as follows:

a) Corporate Level Arrangements

- There should be full integration of asset strategy implementation corporate and service plans
- Capital projects decisions should be based on a clear business case, including options appraisal and whole-life costing
- There has to be a corporate approach to prioritisation of capital projects
- There should exist a culture of challenge in relation to asset management

b) Property Management Practice Arrangements

- There should be clearly set out of property management responsibilities at a corporate and service level
- The property management function should be adequately resourced
- The roles and responsibilities for asset strategy implementation should be clearly assigned
- The council should set up a cross functional asset management team led by a property professional

c) Project Management Arrangements

- There should be in place an identifiable project manager responsible and accountable for delivery of capital programmes
- There should be in place an identifiable person responsible and accountable for monitoring and supervision of asset management programme
- The council should develop a common project and programme management methodology which should be consistently applied across the organisation
- The council should have a strong project management culture

STEP G5: Monitoring and Control: The implemented strategy should be monitored and controlled for performance by specifying performance measures for property and management. In order for the system to be effective, the council should:

- Make sure that there exists a suite of KPIs based on benchmarking club
- Ensure that property asset performance and management practice are benchmarked against KPIs
- Make sure that property portfolio is reviewed and evaluated against KPIs for current performance and KPI targets

STEP G6: Audit and Review: The process of audit and review involves setting up of performance targets and comparing with current performance to set targets for performance improvements and that the improvements are continuous. The council should undertake the following specific actions in order to have an effective audit and review process:

- Asset management practices should be reviewed and evaluated against KPIs for current performance and KPI targets
- Workplace and accommodation should be reviewed and evaluated against KPIs for current performance and KPI targets

4. **ASSET MANAGEMENT OUTCOMES (H and I)**

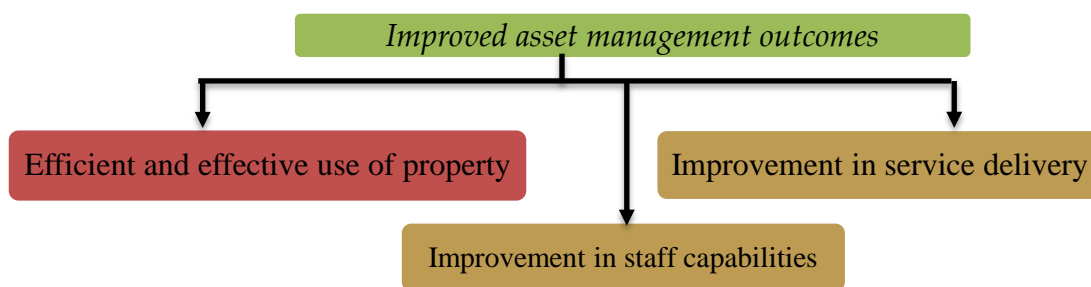


Figure 9.6: Asset Management Outcomes

STEPS H and I: The impacts of the activities and actions of strategic planning and asset management planning are evidenced through outcomes. The local authority should ensure that it effectively carries out the processes (A to G) in order to realise the outcomes. Asset management outcomes should be about efficient and effective use of property of property

assets and improved capabilities of staff to deliver asset management activities (**Step H**) which if realised should lead to improvement in service delivery (**Step I**) (figure 9.6).

STEP J: The local authority should make sure that there is an enabling environment which supports practice activities at strategic and asset management planning levels.

STEP K: The local authority should close the performance shortfall through improved service delivery, improved staff performance or having an efficient and effective asset portfolio and practice processes.

STEP L: If the performance gap is not closed then the process should be revisited by going back to reassess the enabling environment and then following through the other processes thereafter.

5. STEP M: TOOLS AND TECHNIQUES

The local authority should utilise commonly used tools and techniques to support both strategic planning and asset management planning processes. The tools and techniques include: demand forecasting and management; and optimised decision making which includes benefit cost analysis, multi-criteria analysis and whole life cycle costing.

VALIDATION QUESTIONNAIRE

Section A: Background of Respondent

You are being kindly asked to assist completing the questionnaire. In case you need more spaces please note that you can expand the boxes.

Name of Respondent:.....

Profession:

Qualification(s):

Current job designation:

Years of experience in the property / asset management sector:

Section B: General Impression on the Model (Please tick as appropriate)

<p>Please answer the following questions. To help you answer the questions, it is essential that you familiarise yourself with the model provided (figure 9.3 and pages 385 to 392). To what extent do you consider that the model addresses an important problem in asset management practice?</p>
--

Yes, quite important	
Yes, but not important	
No, it would make no difference	
Not sure of its importance	
Please provide any comments	
2. In your opinion, to what extent do you consider the model's usefulness in assisting asset managers, estates managers and facilities managers in asset management implementation and practice?	
Yes, it is highly useful	
Yes, it is useful	
No, it is not useful	
Not sure of its usefulness	
Please provide any comments	
3. In your opinion, is the model clear and easy to understand?	
Yes	
No	
4. If you answered 'No' to Q3, please explain by referring to particular elements of the model which you consider might cause problems to its use?	
5. What is your opinion on the cost effectiveness of the model in terms of its application in real life asset management practice?	
Given our current resource base, it would be too expensive to implement	
Given our current resource base, it would not be too expensive to implement	
Any resource requirements are out weighed by the benefits of utilising the model	
Please provide any comments	
6. Please provide your opinion by selecting from one of the following three options and comment, if necessary, about the model's layout and description.	
The model's description and layout is comprehensive	
The model's description and layout is adequate	
The model's description and layout is poor	
I am unsure about the model's description and layout	
Please provide any comments	
7. Do you consider that there are additional areas of importance necessitating inclusion or modification of the model?	
Yes	
No	
Unsure	
8. If Yes to Q7, please specify:	
Section C: Impression on the Model's Processes, Tools and Techniques	
9. What is your opinion on processes used for implementing asset management policy and practice?	

The processes are very suitable	
The processes are suitable	
The processes are not suitable	
I am unsure of the suitability of the processes	
10. What is your opinion on the <i>techniques and tools</i> for supporting asset management policy and practice processes?	
The techniques and tools are very suitable	
The techniques and tools are suitable	
The techniques and tools are not suitable	
I am not sure of the suitability of the techniques and tools	
Please provide any comments	
11. What is your opinion on the set of criteria used in evaluating asset management outcome?	
The sets of criteria are very suitable	
The sets of criteria are suitable	
The sets of criteria are not suitable	
I am not sure of the suitability of the sets of criteria	
Please provide any comments	
12. Please indicate, by answering “Yes” or “No” whether, in your opinion, any other significant criteria should have been included.	
Yes	
No	
Unsure	
13. If you have answered ‘Yes’ to Q12, please identify the list of criterion that should have been included.	
14. If you have any additional comments or suggestions for improving the model, please provide these.	

End of questionnaire

I would like to thank you for taking the time to complete the questionnaire. I also would like to take this opportunity to reassure you that your anonymity and confidentiality are guaranteed.

If you can please return the questionnaire once completed to: Malawi.ngwira@gcal.ac.uk

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