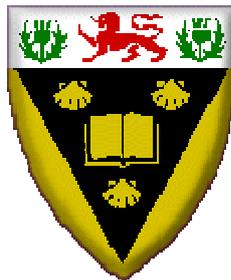


RHODES UNIVERSITY



An Investigation of a Framework for the Implementation of Service Management in the Information and Communication Technology Sector

A thesis submitted in fulfilment of the requirements for the degree of

MASTERS OF COMMERCE

of

RHODES UNIVERSITY

by

ROBERT VICTOR BENYON

JANUARY 2006

Abstract

Service Management (SM) is an integrated, cyclical and collaborative approach to the management of service requirements and levels. It involves the definition of client expectations, the satisfying of those expectations and the perpetual refining of the business agreement (Sturm 2001). SM in the ICT sector is a comprehensive process that extends beyond the development of Service Agreements (SAs). A number of identifiable steps constitute the progressive implementation of a managed services environment, the key components of which are a readiness to provide services, the accurate elicitation, management and satisfying of client requirements and the continual improvements to the business relationship.

Unfortunately, a number of SM initiatives fail. These failures can be attributed to a lack of SM understanding, the absence of a fully implemented SM strategy, poor communication and people issues.

This research describes an investigation of SM implementation. A number of recognised frameworks are explored and critically analysed. The common strengths of these frameworks and the results of an exploratory pilot study are used to construct an SM implementation framework. This framework is then tested empirically by means of an online survey, and revised in the light of the results of this survey.

The framework comprises two distinct phases, namely a Foundation phase and a Managed Services phase. The Foundation phase comprises 8 critical preparatory activities that take a service provider to state of readiness to provide and manage ICT services. The Managed Services phase comprises 5 key cyclical steps for the management of ICT services, including Planning, Analysis, Design, Implementation and Review.

Acknowledgements

I would like to thank the following people for their contribution to this research.

My sincerest appreciation and gratitude are reserved for my supervisor, Professor David Sewry. The extent of his support and encouragement are only surpassed by his meticulous attention to detail and deep insight into the subject matter. I am a most fortunate recipient of his supervisory skill and experience. For his encouragement, ideas, comments and criticisms, I am most grateful.

This research was conducted in conjunction with that of Rob Johnston's exploration into Service Agreements. Rob enjoys wisdom beyond his years and I am most grateful to have had his input into this work. His relaxed, yet dedicated approach towards this journey provided for periods of concerted effort and others for the enjoyment of the scenery. His friendship and collegiality are fantastic gifts to receive.

To all the staff and students in the Information Systems Department who tolerated me, I do appreciate your unwavering support and encouragement. If you are judged by the company you keep, I am in very good standing.

This work was undertaken in the Distributed Multimedia Centre of Excellence at Rhodes University, with financial support from Telkom, Business Connexion, Converse, Verso Technologies, THRIP and the National Research Foundation.

My family, and in particular, Kate, have been pivotal to my motivation to complete this endeavour. Kate, your unconditional love and support make me who I am and give me the strength and resolve to face life's challenges.

I acknowledge that all references are accurately recorded and that, unless otherwise stated, all work contained herein is my own.

Robert Benyon

Table of Contents

- Chapter 1: Introduction 1
 - 1.1 Introduction 2
 - 1.2 The Problem and its Setting 2
 - 1.3 The Scope of the Research 4
 - 1.4 The Statement of the Problem 5
 - 1.5 Research Methodology 5
 - 1.6 Summary of Results 5
 - 1.7 Thesis Organisation 7

- Chapter 2: Service Management Overview 10
 - 2.1 Introduction 11
 - 2.2 Managing Service Levels 11
 - 2.3 Definition of Service Management 12
 - 2.4 The Evolution of Service Management 16
 - 2.5 Elements of Service Management 17
 - 2.5.1 Service Agreements (SAs) 17
 - 2.5.2 Operational Level Agreements (OLAs) 18
 - 2.5.3 Underpinning Contracts (UCs) 19
 - 2.5.4 Effective Reporting 19
 - 2.5.5 Service Offering 20
 - 2.5.6 Enabling Toolset 20
 - 2.5.7 A Service Catalogue 21
 - 2.6 Service Management and the Organisation 21
 - 2.7 The Importance of Service Management 23
 - 2.8 The Benefits of Service Management 25
 - 2.9 Return on Investments in Service Management Solutions 27
 - 2.10 Current Service Management Problems 32
 - 2.10.1 Misinformation and Misunderstanding 33
 - 2.10.2 Service Agreements 34
 - 2.10.3 Reporting 34
 - 2.10.4 Semantic Disparity Problem 35

- 2.10.5 People Issues 35
- 2.10.6 Fluid Business / Static Service 37
- 2.10.7 Inefficient or Non-Existent Change Management 37
- 2.10.8 Disunity 37
- 2.10.9 The Deception of Customer Satisfaction 37
- 2.10.10 The Legacy of Failure 38
- 2.11 Successful Service Management 38
 - 2.11.1 Successful Mapping of Services to Client Requirements 39
 - 2.11.2 Sustained Provision of Services 39
 - 2.11.3 Mutually Beneficial Client / Provider Relationship 39
 - 2.11.4 Shared Strategy 40
- 2.12 A Framework for Service Management 40
 - 2.12.1 Key Components of a Service Management Framework 42
- 2.13 Conclusion 43

- Chapter 3: Service Management Implementation Frameworks 45
 - 3.1 Introduction 46
 - 3.2 Lewis’ Three Phases of Service Management 46
 - 3.2.1 The Author 46
 - 3.2.2 Nature of the Phases 46
 - 3.2.3 Details of the Phases 46
 - 3.2.4 Conclusion 52
 - 3.3 Lewis and Ray’s Seven Steps to Service Management 52
 - 3.3.1 The Authors 52
 - 3.3.2 Nature of the Steps 53
 - 3.3.3 Details of the Steps 53
 - 3.3.4 Conclusion 54
 - 3.4 Brittain and Matlus’ Road Map for ICT Service Management 55
 - 3.4.1 The Authors 55
 - 3.4.2 Nature of the Road Map 55
 - 3.4.3 Details of the Road Map 55
 - 3.4.4 Conclusion 57
 - 3.5 Sturm’s Management of Client Requirements 57

- 3.5.1 The Author 57
- 3.5.2 Nature of the Model 57
- 3.5.3 Details of the Model 58
- 3.5.4 Conclusion..... 59
- 3.6 Microsoft’s Service Management Implementation Cycle..... 60
 - 3.6.1 The Authors..... 60
 - 3.6.2 Nature of the Implementation Cycle 60
 - 3.6.3 Details of the Implementation Cycle..... 60
 - 3.6.4 Conclusion..... 64
- 3.7 The ITIL Service Management Process 64
 - 3.7.1 The Author 64
 - 3.7.2 Nature of the Process..... 65
 - 3.7.3 Details of the Process 65
 - 3.7.4 Conclusion..... 82
- 3.8 The ICT Service Management Forum’s SM Business Processes 83
 - 3.8.1 The Author 83
 - 3.8.2 Nature of the Processes 83
 - 3.8.3 Details of the Processes..... 83
 - 3.8.4 Conclusion..... 84
- 3.9 Features of the Frameworks 84
 - 3.9.1 Common Threads 84
 - 3.9.2 A Systems Development Lifecycle-Based Framework 86
- 3.10 Analysis of Frameworks..... 89
 - 3.10.1 Analysis of Lewis’ Phases..... 89
 - 3.10.2 Analysis of Lewis and Ray’s Steps 92
 - 3.10.3 Analysis of Sturm’s Model 96
 - 3.10.4 Analysis of Microsoft’s Implementation cycle 97
 - 3.10.5 Analysis of the ITIL Process 99
 - 3.10.6 Analysis of the *itSMF* Processes..... 102
- 3.11 Summary 104
 - 3.11.1 Preparation 104
 - 3.11.2 Planning..... 104
 - 3.11.3 Analysis..... 105

- 3.11.4 Design..... 105
- 3.11.5 Implementation..... 105
- 3.11.6 Review..... 105
- 3.12 Conclusion..... 106

- Chapter 4: Exploratory Pilot Study 107
 - 4.1 Introduction 108
 - 4.2 Respondents 108
 - 4.3 Exploratory Pilot Study Questions 109
 - 4.3.1 Demographics..... 109
 - 4.3.2 Respondent Service Management Experience and Standard 109
 - 4.3.3 Service Management Success 109
 - 4.3.4 Factors That Contribute to Unsuccessful Service Management 110
 - 4.3.5 Barriers to Implementing or Improving Service Management 110
 - 4.3.6 Important Components of Service Management..... 110
 - 4.3.7 Service Management Skills and Staff 111
 - 4.3.8 Effective Communication and SM Success 111
 - 4.3.9 Questionnaire Delivery 111
 - 4.4 Results of the Exploratory Pilot Study..... 111
 - 4.4.1 Demographics..... 112
 - 4.4.2 Respondent Service Management Experience 117
 - 4.4.3 Service Management Success 120
 - 4.4.4 Factors That Contribute to Unsuccessful Service Management 123
 - 4.4.5 Barriers to Implementing or Improving Service Management 132
 - 4.4.6 Important Components of Service Management..... 133
 - 4.4.7 Service Management Skills and Staff 138
 - 4.4.8 Effective Communication and SM Success 146
 - 4.5 Analysis of the Results of the Exploratory Initial Study..... 146
 - 4.5.1 Respondent Service Management Experience and Standard 147
 - 4.5.2 Service Management Success 147
 - 4.5.3 Factors That Contribute to Unsuccessful Service Management 148
 - 4.5.4 Barriers to Implementing or Improving Service Management 148
 - 4.5.5 Important Components of Service Management..... 148

- 4.5.6 Service Management Skills and Staff 149
- 4.5.7 Effective Communication and SM Success 149
- 4.6 Interviews 149
 - 4.6.1 Interviewee Demographics 149
 - 4.6.2 Interviews 152
 - 4.6.3 Summary of Interviews 157
- 4.7 Summary of the Exploratory Pilot Study 157
 - 4.7.1 Respondent Service Management Experience 157
 - 4.7.2 Successful Service Management Implementation 158
 - 4.7.3 Service Management Staff Skills 158
- 4.8 Conclusion 159

- Chapter 5: Theoretical Framework for the Implementation of Service Management 160
 - 5.1 Introduction 161
 - 5.2 A Service Management Framework 161
 - 5.2.1 Phase 1: Foundation 163
 - 5.2.2 Phase 2: Managed Services 172
 - 5.3 Conclusion 177

- Chapter 6: Design of the Empirical Study 179
 - 6.1 Introduction 180
 - 6.2 Hypotheses 180
 - 6.3 Perceived Successful Service Management 181
 - 6.4 Methodology 186
 - 6.4.1 Online Questionnaire 187
 - 6.4.2 The Relationship between Factors, Hypotheses and Questions 188
 - 6.5 Conclusion 190

- Chapter 7: Results of the Empirical Study 191
 - 7.1 Introduction 192
 - 7.2 Respondents 192
 - 7.3 Demographics 192
 - 7.4 Service Management 198

- 7.4.1 Service Management Strategy..... 198
- 7.4.2 Perception of Service Management..... 200
- 7.3.4 Service Management Planning..... 209
- 7.3.5 Management of Client Requirements..... 211
- 7.3.6 Service Management Monitoring and Reporting..... 214
- 7.4 Hypothesis Tests 216
- 7.5 Conclusion..... 229

- Chapter 8: Analysis of the Results of the Empirical Study..... 230
 - 8.1 Introduction 231
 - 8.2 Participant Demographics 231
 - 8.3 Analysis of the Service Management Factors 232
 - 8.4 Summary of the Results of the Empirical Study 236
 - 8.4.1 Service Management Implementation Strategy 236
 - 8.4.2 Service Management Preparation..... 236
 - 8.4.3 Service Management Planning..... 236
 - 8.4.4 Management of Client Requirements..... 236
 - 8.4.5 Service Agreements..... 237
 - 8.4.6 Service Monitoring and Reporting..... 237
 - 8.5 Conclusion..... 237

- Chapter 9: Revisions to the Service Management Implementation Framework..... 238
 - 9.1 Introduction 239
 - 9.2 Impact of the Empirical Study 239
 - 9.3 Framework Revisions..... 241
 - 9.3.1 Foundation Phase 241
 - 9.3.2 Managed Services Phase 242
 - 9.3.3 The Graphical Framework 244
 - 9.4 Conclusion..... 244

- Chapter 10: Conclusion..... 246
 - 10.1 Introduction 247
 - 10.2 Contributions of the Research..... 247

10.3 Future Research.....249

10.4 Concluding Remarks250

References251

Bibliography.....256

Appendices263

 Appendix A: Results of the Initial Pilot Study Survey264

 Appendix B: Survey Questions271

 Appendix C: Results of the Empirical Study279

List of Tables

Table 1: SM Implementation Frameworks..... 88

Table 2: Geographic Location of Respondents 112

Table 3: Industry or Employment of Respondents..... 113

Table 4: Job Title of Respondents..... 114

Table 5: Years of Involvement in SM..... 115

Table 6: Size of Respondents Organisation 116

Table 7: Extent of SM Understanding..... 117

Table 8: Time SM Strategy Has Been in Place..... 118

Table 9: Standard upon Which SM is Based..... 119

Table 10: Satisfaction with SM Capabilities..... 120

Table 11: Need to Improve SM Capability 121

Table 12: Frequency of Unsuccessful SM Initiatives 122

Table 13: Contribution of a Poorly Developed SM Strategy to Unsuccessful SM..... 123

Table 14: Contribution of Inadequate Preparation to Unsuccessful SM..... 124

Table 15: Contribution of a Lack of Planning to Unsuccessful SM 125

Table 16: Contribution of Understanding of Client’s Requirements to Unsuccessful SM..... 126

Table 17: Contribution of Poorly Developed SAs to Unsuccessful SM 127

Table 18: Contribution of Lack of Supporting Processes to Unsuccessful SM..... 128

Table 19: Contribution of Poor Customer Relationship Management to Unsuccessful SM 129

Table 20: Contribution of Poor Communication to Unsuccessful SM 130

Table 21: Contribution of Problems with Reporting to Unsuccessful SM 131

Table 22: Significant Barriers to SM 132

Table 23: Important Part of SM 133

Table 24: Importance of the Appointment of Service Level Manager 134

Table 25: Importance of the Development of a Service Catalogue 135

Table 26: Importance of Identifying SM Team 136

Table 27: Importance of Documenting Client’s Requirements 137

Table 28: Importance of Project Management Skills..... 138

Table 29: Importance of Communication Skills 139

Table 30: Importance of Customer Relationship Management Skills 140

Table 31: Importance of Time Management Skills..... 141

Table 32: Extent of Project Management Skills..... 142

Table 33: Extent of Communication Skills 143

Table 34: Extent of Customer Relationship Management Skills 144

Table 35: Extent of Service Management Skills..... 145

Table 36: Effective Communication and SM Success 146

Table 37: Interview Location 150

Table 38: Industry Sector 150

Table 39: Job Title..... 151

Table 40: SM Factors and Supporting Conditions 181

Table 41: Online Questionnaire 186

Table 42: Geographic Location of Respondents 193

Table 43: Industry or Employment of Respondents..... 194

Table 44: Job Title of Respondents..... 195

Table 45: Years of Involvement in SM..... 196

Table 46: Size of Respondents Organisation 197

Table 47: Extent of SM Implementation..... 198

Table 48: Time SM Strategy Has Been in Place..... 199

Table 49: Satisfaction with SM..... 200

Table 50: Mapping Services to Client Requirements..... 201

Table 51: SM Relationships Terminated Prematurely 202

Table 52: Frequency of SM Extensions 203

Table 53: The Level to Which the SM Reports 204

Table 54: Competency of Service Managers 205

Table 55: Up-To-Date Service Catalogue 206

Table 56: Availability of Service Catalogue 207

Table 57: Number of Services in the Service Catalogue 208

Table 58: Service Management Teams 209

Table 59: Composition of Teams 210

Table 60: Understanding of Client Requirements..... 211

Table 61: Documentation of Client Requirements..... 212

Table 62: Service Agreements as an Obstacle 213

Table 63: Monitoring of Services..... 214

Table 64: Reporting of Services..... 215

Table 65: The Aggregate Dependent Variable.....217

Table 66: Spearman Rank-Order Correlation218

Table 67: Results of the Hypothesis Testing.....219

Table 68: Hypothesis 4 Tested Against the Individual Variables.....221

Table 69: Hypothesis 10 Tested Against the Individual Variables.....224

Table 70: Hypothesis 12 Tested Against the Individual Variables.....225

Table 71: The Impact of the Empirical Study on the Proposed Model.....240

List of Figures

Figure 1: Components of SM (Sturm 2001)..... 14

Figure 2: The People, Process and Technology of SM (ITIL 2003)..... 15

Figure 3: Timeline of the Evolution of SM (Lewis 1999) 16

Figure 4: The Importance of Improving Organisation’s SM Capabilities (Blum 2002)..... 36

Figure 5: The Biggest Challenges to Implementing and/or Improving SM (Blum 2002) 36

Figure 6: Geographic Location of Respondents..... 112

Figure 7: Industry or Employment of Respondents 113

Figure 8: Job Title of Respondents 114

Figure 9: Years of Involvement in SM..... 115

Figure 10: Size of Respondents Organisation 116

Figure 11: Extent of SM Understanding 117

Figure 12: Time SM Strategy Has Been in Place..... 118

Figure 13; Standard upon Which SM is Based 119

Figure 14: Satisfaction with SM Capabilities 120

Figure 15: Need to Improve SM Capability..... 121

Figure 16: Frequency of Unsuccessful SM Initiatives 122

Figure 17: Contribution of a Poorly Developed SM Strategy to Unsuccessful SM 123

Figure 18: Contribution of Inadequate Preparation to Unsuccessful SM 124

Figure 19: Contribution of a Lack of Planning to Unsuccessful SM 125

Figure 20: Contribution of Understanding of Client’s Requirements to Unsuccessful SM..... 126

Figure 21: Contribution of Poorly Developed SAs to Unsuccessful SM..... 127

Figure 22: Contribution of Lack of Supporting Processes to Unsuccessful SM..... 128

Figure 23: Contribution of Poor Customer Relationship Management to Unsuccessful SM 129

Figure 24: Contribution of Poor Communication to Unsuccessful SM..... 130

Figure 25: Contribution of Problems with Reporting to Unsuccessful SM 131

Figure 26: Significant Barriers to SM 132

Figure 27: Important Part of SM 133

Figure 28: Importance of the Appointment of Service Level Manager 134

Figure 29: Importance of the Development of a Service Catalogue 135

Figure 30: Importance of Identifying SM Team 136

Figure 31: Importance of Documenting Client’s Requirements 137

Figure 32: Importance of Project Management Skills	138
Figure 33: Importance of Communication Skills	139
Figure 34: Importance of Customer Relationship Management Skills	140
Figure 35 : Importance of Time Management Skills	141
Figure 36: Extent of Project Management Skills	142
Figure 37: Extent of Communication Skills.....	143
Figure 38: Extent of Customer Relationship Management Skills.....	144
Figure 39: Extent of Service Management Skills.....	145
Figure 40: Effective Communication and SM Success.....	146
Figure 41: Interview Location.....	150
Figure 42: Industry Sector.....	151
Figure 43: Job Title	152
Figure 44: SM Framework	162
Figure 45: The Relationship between SM Factors, Questions and Hypothesis	189
Figure 46: Geographic Location of Respondents.....	193
Figure 47: Industry or Employment of Respondents	194
Figure 48: Job Title of Respondents	195
Figure 49: Years of Involvement in SM.....	196
Figure 50: Size of Respondents Organisation	197
Figure 51: Extent of SM Implementation	198
Figure 52: Time SM Strategy Has Been in Place.....	199
Figure 53: Satisfaction with SM.....	200
Figure 54: Mapping Services to Client Requirements	201
Figure 55 : SM Relationships Terminated Prematurely.....	202
Figure 56: Frequency of SM Extensions.....	203
Figure 57: The Level to Which the SM Reports	204
Figure 58: Competency of Service Managers	205
Figure 59: Up-To-Date Service Catalogue.....	206
Figure 60: Availability of Service Catalogue.....	207
Figure 61: Number of Services in the Service Catalogue	208
Figure 62: Service Management Teams.....	209
Figure 63: Composition of Teams.....	210
Figure 64: Understanding of Client Requirements	211

Figure 65: Documentation of Client Requirements 212

Figure 66: Service Agreements as an Obstacle 213

Figure 67: Monitoring of Services 214

Figure 68: Reporting of Services 215

Figure 69: Dependent Variable Histogram 217

Figure 70: Reporting and Satisfaction 226

Figure 71: Reporting and Mapping Services 227

Figure 72: Reporting and Premature Termination 227

Figure 73: Reporting and Extended Contracts 228

Figure 74: Reporting and Percieved Successfulness 229

Figure 75: The Service Management Framework 244

Chapter 1: Introduction

This chapter introduces the research. The context of the research is presented, as well as the statement of the problem. The results of the research are then presented, together with details of the organisation of the thesis.

1.1 Introduction

Sturm and Erickson-Harris (2003) define Service Management (SM) as the process of setting, measuring and ensuring the maintenance of service goals. SM helps enterprises make sure that the key targets for service success are being met. SM is a process for delivering services that constantly meet the client's requirements. Performance management is the key function of SM and includes the definition, measurement and assessment of services, as well as the setting and monitoring of service objectives. Allied to these functions are the associated activities of reporting, client dialog, Customer Relationship Management (CRM) and negotiating Service Agreements (SAs). It is believed that good SM leads to the refinement and improvement of services.

Boardman (2001) and Sturm (2002b) suggest that part of managing services involves gaining customer loyalty and support. In order to do so, they suggest that managing relations with customers is an integral part of network and systems management. They further declare that this management is customer driven. Sturm (2002b) adds that SM benefits include achieving higher client satisfaction and delivering greater value to the business.

1.2 The Problem and its Setting

The ICT industry is maturing after the widely publicized stock market crash of the late 1990's and early 2000's. Part of this maturation has been driven by consumers who are becoming more conscious of their requirements and are demanding more accountable levels of service from ICT suppliers. In order to respond to these changes in the ICT market, companies are being pressured into improving their levels of service management. Sturm (2000) believes that SM is not new or revolutionary; it is an integrated way of thinking about people, services and context.

Successfully managing ICT services is represented by an environment where the service provider and client enjoy the benefits of a relationship that is sustainable and is beneficial to both parties. For successful SM, the following indicators are relevant:

- The service provider accurately maps the services to the client's requirements
- There is a sustained provision of services
- The relationship between service provider and client is of mutual benefit

- The service provider and client share a common strategy

SM is, however, not without problems:

- Boardman (2001) suggests that while the benefits of integrated management of service levels are significant, the foundations on which it is built are increasingly fractured and lacking in standards support. Sturm (2000) further cautions that while SM, including Quality of Service (QoS), SAs and service assurance, are currently topical in ICT circles, a great deal of misinformation surrounds the topic.
- Managing service levels in ICT has traditionally been initiated by two parties entering into a Service Agreement (SA). This process begins with two parties negotiating a documented legal contract that dictates the basis for defining services, managing services and mechanisms for dealing with deviations from the agreement. For example, when a company decides to outsource its network management to a third party, a SA defining the network services is negotiated and signed. Included in this SA are clauses defining which of the services are to be managed, to what mutually acceptable levels, and what penalties or rewards are due when these agreed service levels are not met or exceeded. Yallop and Morgan (2003) suggest that the way to derive the optimal benefit in the outsourcing of a function is to develop the relationships between vendors and customers. Furthermore, while contracts do not build relationships, it is the drafting of effective SAs that foster these relationships. Levine (2003) agrees that SM is founded on good relationships between clients and providers, suggesting that SM is part of an evolutionary process towards Service Quality Management (SQM).
- The development of SAs is problematic (Sturm, 2002). While clients may be conscious of their expectations of services, they only define them in negotiating SAs. Many ICT service providers are also unsure of what level of service they are capable of delivering. These difficulties can be alleviated by having an underlying SM strategy. SM can be successful without SAs, yet SAs in the absence of SM are meaningless (Sturm, 2000).
- Sturm (2002) acknowledges that reporting to customers about performance is a key monitoring aspect of SM. He suggests that most of today's reporting is worthless as ICT is usually filled with technical data that has little value to the customer. He recognizes that this

reporting can be done in real-time or periodically, suggesting that real-time reporting should be the first priority

- In a recent global online survey conducted among a cross section of ICT professionals and managers by International Network Services, Blum (2003) determined that there has been limited improvement in satisfaction with SM capabilities from 1998 to 2002. 96% of respondents in this survey registered the importance of improving the organization's SM capabilities as "Very" or "Somewhat" important. According to this study, people issues are the biggest challenge to implementing and improving SM. In describing people issues, he includes training, workflow and role definition. Furthermore, processes such as trouble shooting, escalation and documentation were identified as the second biggest challenge (Blum, 2003).

The true value of ICT can only be realised when its services provide solutions that are both practical and reliable. In order to achieve this, these services need to be well managed. This improvement in management will promote the credibility of the industry while improving customer loyalty and satisfaction. These will ultimately combine to allow the ICT industry to mature and regain much of the ground lost in the late 1990's and early 2000's.

1.3 The Scope of the Research

This research focuses on the implementation of Service Management. The deliverable of this research will be a framework for the SM implementation in ICT. This framework will be developed on the foundations of an exploration of SM, the critical review of current frameworks and a survey of practitioner's opinions. The resulting framework will provide ICT Management practitioners with a generalist approach to the successful implementation of SM.

While the research recognises that there are financial implications associated with implementing SM, both in terms of costs and benefits, these are not perused in the research. The associated costs and benefits, for the purposes of this research are recognised, but fall outside of the scope of this project.

1.4 The Statement of the Problem

The purpose of this research is to investigate a framework for the implementation of Service Management in the Information and Communication Technology sector. The framework will provide an organisation, which is embarking on a SM initiative, with the necessary guidelines to successfully implement SM.

1.5 Research Methodology

The following steps will be undertaken:

1. A general study of SM will be performed to place the research in context.
2. A study of current frameworks for the implementation of SM will be conducted. From this study, a list of areas of importance will be developed.
3. An exploratory pilot study will be conducted amongst ICT professionals in the South African ICT sector. The respondents will be drawn from the membership of the South African Charter of the Information Technology Service Management Forum (*itSMF*). This will focus on these areas of importance and expand upon them.
4. An implementation framework, based on the analysis thus far, is developed. It maps the implementation phases and steps identified and the SM implementation process.
5. An empirical study utilising an online survey will be designed and conducted. The study will test the identified areas of importance. The respondents will again be drawn from the membership of the *itSMF* – South Africa.
6. The results of the empirical study will inform changes to the framework developed in step four.

1.6 Summary of Results

The results of this research are summarised as follows:

Successful SM is dependent on:

- The presence of a fully implemented SM strategy
- The appointment of a competent service manager
- The existence of an up-to-date and fully available service catalogue

- The presence of a designated SM project team that is composed of members from both organisations
- The comprehensive understanding and documenting of the client’s requirements
- The real-time monitoring of service levels

Successful SM implementation comprises two phases:

Phase 1: Foundation Phase

The Foundation phase comprises the preparatory activities that place the organisation in a position of readiness to provide and manage services. These activities are:

- Appoint or nominate Service Management staff
- Define Service Management scope and objectives
- Quantify activities, resources, funding and quality criteria
- Identify risks
- Raise awareness of Service Management
- Develop a Service Catalogue and pro-forma SA
- Identify support tools, especially for SA monitoring
- Set incident priority levels and escalation paths

Phase 2: Managed Services Phase

The Managed Services phase is characterised by a lifecycle of activities that are required when implementing an individual SM project. These activities are:

- Planning
 - Meet with client
 - Establish SM project team
 - Raise awareness of SM Project
- Analysis
 - Identify client’s business processes
 - Review client’s existing services
 - Identify the services to support those business processes

- Develop a blueprint of the client's service requirements
- Design
 - Negotiate and create SA
- Implementation
 - Deploy SA
 - Real-time monitoring of service levels
 - Service level reporting
- Maintenance
 - Review service levels
 - Establish priorities and plan for change
 - Fine tune or reengineer business processes and/or services

1.7 Thesis Organisation

This thesis is organised into ten (10) chapters.

Chapter 1: Introduction

This chapter introduces the research. Contextual background information and the rationale for the research are provided. The summary of results and a discussion of the thesis organisation are also contained within this chapter.

Chapter 2: Service Management Overview

This chapter explores SM from various aspects. In doing so, it recognises the importance of a managed service environment. In order to provide a working foundation, a definition of SM is provided. The evolution of Service Management (SM) is explored, as is the justification for and benefits of a successfully implemented SM programme. SM is further examined with reference to the organisation, within enterprise networked environments, the returns on investments and a business case for SM. The problems associated with SM are identified, as are the indicators of a

successful SM programme. Finally, the future of successful SM is considered in terms of an implementation strategy.

Chapter 3: Current Service Management Implementation Frameworks

This chapter analyses several service management frameworks. The chapter concludes by identifying the key components of current SM implementation framework.

Chapter 4: Exploratory Pilot Study

This chapter details an exploratory pilot study in which key aspects of SM identified in chapters 2 and 3 are further explored by means of an online survey and interviews. The survey instrument is discussed and the results of the survey are presented and analysed with respect to SM and SM implementation frameworks. The complete results of the exploratory pilot study can be found in Appendix A.

Chapter 5: Theoretical Framework

This chapter uses the investigation of SM development of chapter 2, the analysis of current implementation frameworks of chapter 3 and the results of the exploratory pilot study of chapter 4 as the basis for a framework for the implementation of SM. The chapter presents the framework graphically and discusses it in detail.

Chapter 6: The Design of the Empirical Study

This chapter details the design of the empirical study. The empirical study is intended to explore further the framework proposed in the previous chapter. The chapter details the hypotheses that the empirical study is intended to explore and the survey instrument. A copy of the survey can be found in Appendix B.

Chapter 7: The Results of the Empirical Study

This chapter presents the results of the empirical study. The chapter presents the results of the survey after which the hypothesis tests results are presented. Detailed results of the empirical study can be found in Appendix C.

Chapter 8: Analysis of the Results of the Empirical Study

This chapter analyses the results of the empirical study and discusses the impact that they have on the research and the theoretical SM implementation framework.

Chapter 9: Service Management Implementation Framework

This chapter details the revisions made to the framework as a result of the empirical study.

Chapter 10: Conclusion

This chapter concludes the research. It discusses the contributions of the thesis and presents possible further research areas.

Chapter 2: Service Management Overview

This chapter presents an overview of Service Management (SM). A definition of SM is provided, followed by an exploration of the evolution of SM and the justification for and benefits of a successfully implemented SM programme. These benefits are explored with reference to the organisation, against returns on investments in SM and a business case for SM. The problems associated with SM are identified and explored. Successful SM is identified and defined. Finally, the future of successful SM is considered in terms of an implementation strategy.

2.1 Introduction

The Information and Communication Technology (ICT) sector continues to experience evolutionary change, as it redefines itself after the well publicised stock market crash of the late 1990's. This crash occurred at a time where ICT initiatives were characterised by “over-promise and under-deliver”. Many organisations lost a great deal of money, having invested heavily in ICT services that were unable to meet or satisfy their requirements. Consequently, organisations are now demanding improvements in the quality of services offered by ICT providers. This demand for the improvements in services is not limited to outsourced ICT services, but includes those services provided internally within an organisation (in-sourced ICT services)

In an attempt to improve service levels, service providers and clients are entering into Service Agreements (SAs). In some cases, clients are drafting agreements with their own ICT departments. In other cases, clients are outsourcing their ICT requirements to third parties. In both cases, the management of service levels is of pivotal importance.

Unfortunately, many of these service initiatives fail or do not result in improvements in service levels. Service Management (SM) is the integrated approach to the management of these ICT requirements and service levels.

2.2 Managing Service Levels

Transactions involving the trading of services require mechanisms that manage service levels. While acceptable service levels promote further transactions, poor service levels are likely to result in the termination of the affected transactions. If the provided services do not meet the client's expectations, further transactions between the two parties are unlikely to occur. Ensuring that services meet, and perhaps exceed, the client's expectations, requires accurate and constant management. Further trading of services is negatively affected if the management of those service levels is deficient or absent. In today's ICT environments the offering of such services with an agreed service levels becomes more and more important (Hanneman, Sailer and Schmitz, 2004) and (Mahajan, A, Ramanathan A and Parashar, M 2004)

Before service levels can be managed, they have to be set. In order to establish these service levels, the provider's capabilities and the client's expectations need to be aligned. This process

requires the acknowledging the provider's capacity and the identification of the client's requirements, and then marrying these in an environment that promotes the development of a sustainable business relationship. Once these levels have been set, the two parties can identify the processes and mechanisms for SM.

Additionally, in order to manage service levels, a mutual undertaking to develop the foundations of a partnership, that meets the needs of both parties, is required. This undertaking serves to develop the foundations upon which a single service transaction can develop into a sustainable business relationship. The effective management of service levels is therefore of fundamental importance in any business relationship that is based on the sustained trading of services.

2.3 Definition of Service Management

Lewis and Ray (1999) suggest that SM refers to the process of negotiation, SA articulation, checks and balances, and reviews between provider and client regarding the services and service levels that support the client's business process. They recognise business processes as ways a company coordinates and organises work activities, information and knowledge to produce a valuable commodity. An example of a Business Process (BP) is where an investment firm depends on its web servers and network infrastructure to allow customers to trade stocks with their web browsers. The BP in this example is labelled "Web-based stock trading". In the light of this, they suggest that a service is any component, application, or medium upon which the business process depends. They further suggest that a service parameter is a measurable quantity that is an index of the health of the service. An example of a service parameter at an application level includes response time and jitter (where jitter is any variation in response time). At a network medium level, examples of service parameters include bandwidth, load and bytes in/out. They regard a service level as a mark by which to qualify the acceptability of a service. An SA, according to Lewis and Ray (1999), is therefore a contract between a provider and a client documenting the business processes as well as the supporting services, service parameters, acceptable/unacceptable service levels, and liabilities on the part of the provider and the client, and actions to be taken in specified circumstances.

In describing SM, Sturm (2001), however, places less focus on SAs and more on the client. In taking a broader approach, he suggests that successful SM involves the definition of client

expectations, the satisfying of those expectations and the perpetual refining of the business agreement. This pragmatic approach is echoed by Brittain and Matlus (2002) who suggest that SM is the process of negotiating, defining and maintaining service levels for ICT service. In their definition of SM, Mingay and Govekar (2002) combine these elements and suggest that SM is the process of defining, negotiating, agreeing, implementing, monitoring and managing the levels of client service, with the targets being documented in SAs.

Sturm and Erickson-Harris (2003) regard SM as the process of setting, measuring and ensuring the maintenance of service goals. SM helps enterprises make sure that the key targets for service success are being met. SM is a process for delivering services that constantly meet the client's requirements. Sturm and Erickson-Harris (2003) further acknowledge that performance management is the key function of SM and this includes the definition, measurement and assessment of services, as well as the setting and monitoring of service objectives. Allied to these functions are the associated activities of reporting, client dialog, CRM and negotiating Service Agreements (SAs). It is believed that good SM leads to the refinement and improvement of services.

The International Engineering Consortium view SM as the set of people and systems that allow the organisation to ensure that agreed service levels are being met and that the necessary resources are being provided efficiently, Blum (2003). Sturm (2001) agrees, further separating systems into technology or tools and processes. Erickson-Harris (2003) regards SM as a means for managing technology according to business goals and objectives. Using SM, Information and Communication Technology (ICT) organisations commit to a given level of service and measure performance against that commitment thereby helping to reduce operational expenses and improving the contribution of ICT in building corporate revenue.

Boardman (2001) and Sturm (2002) suggest that part of managing service levels involves gaining customer loyalty and support. In order to do so, they suggest that the managing relationships with customers are an integral part of network and systems management. Sturm (2002) adds that SM benefits can be divided into two key points; namely achieving higher client satisfaction and delivering greater value to the business. For enterprises and vendors to be successful, however, network and systems management must improve significantly (Boardman

2001). Sturm (2002) further suggests that SM can provide a competitive differentiator, leading to increased market share and improved customer loyalty.

Blum (2003) defines SM as the set of people and systems that allow the organisation to ensure that agreed service levels are being met and that the necessary resources are being provided efficiently. While this approach identifies the relationship between people and systems in the management of service levels, it makes no provision for the scaling of the services. Sturm (2001) originally suggested that this relationship exists between people and systems, further separating systems into technology or tools and processes, as depicted in Figure 1.

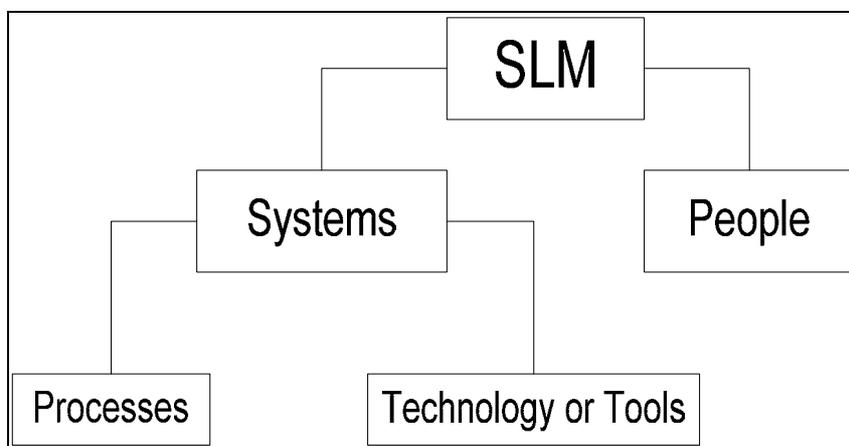


Figure 1: Components of SM (Sturm, 2001)

The ICT Infrastructure Library (ITIL) (2003) suggests that SM is the process of planning, co-ordinating, drafting, agreeing, monitoring and reporting on SAs, as well as the on-going review of service achievements to ensure that the required and cost-justifiable service quality is maintained and gradually improved. SAs provide the basis for managing the relationship between the provider and the customer. SM, in turn, involves people, processes and technology ITIL (2004b). People considerations include culture, attitude, beliefs and skills. Processes include service support and delivery, whilst technology includes all infrastructure and tools. An important central controlling structure integrates people, process and technology, providing strategy, steering, direction and integration as depicted in Figure 2.

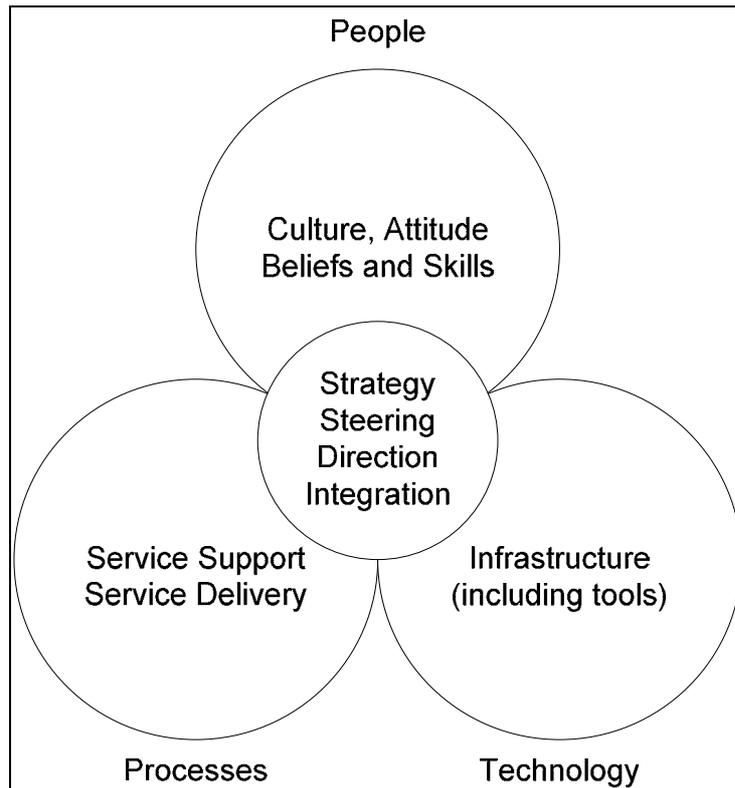


Figure 2: The People, Process and Technology of SM (ITIL, 2003)

Hautamäki, Lahteenmäki and Rimpilä (2004) acknowledge the aspects of SM recognised by ITIL (2004), but include the financial accountability of SM in their definition. SM is the disciplined, proactive methodology and procedures used to ensure that adequate levels of service are delivered to service users in accordance with business priorities and at acceptable cost. While they recognise the need to ensure levels of service, they neglect the importance of the client and the role of collaboration between client and provider.

The above definitions of SM contain a number of identifiable threads. Certain elements are common in these definitions, while in some cases the order is different. The most common factors that permeate through the definitions are that SM is a process involving both client and provider. This process includes eliciting, understanding and satisfying requirements, leading to the development of a business relationship between client and provider.

For the purposes of this research, SM is defined as:

SM is a cyclical and collaborative process. It is initiated by the verification of the service provider's capacity to manage services. This is followed by a process of: understanding and defining a client's requirements; negotiating, creating, deploying

and refining SAs; real-time monitoring and reporting of service levels. This is done within a framework of accountable costs, continual service level improvements and perpetual development of the business relationship.

2.4 The Evolution of Service Management

In charting the evolution of SM in an enterprise networking environment, Lewis (1999) acknowledges that it has been a progressive development. The origins of SM are in device management, and its progress can be traced through network, systems and application management to enterprise management. Lewis (1999) recognises that SM did not evolve out of enterprise management, suggesting rather, that enterprise management is now beginning to include SM. This evolution from device management to enterprise management has witnessed the ever increasing involvement of the client. In device management, the focus was on hardware while client involvement was negligible. The levels of client involvement increased through network and systems management and are now recognised as a cornerstone of SM. Figure 3 depicts the evolution of SM.

1975	Device management (DM)
1990	Network management (NM) Systems (NMS)
1991	Traffic Management (TM) Systems (TMS)
1992	Systems Management (SM) Systems (SMS)
1994	Applications Management (AM) Systems (AMS)
1996	Enterprise Management Systems (EMS)
	Where $EMS = NM + TM + SM + AM$
1998	EMS to further include SM
2000	EMS to further include Business Process Management System (BPMS)

Figure 3: Timeline of the Evolution of SM (Lewis, 1999)

While acknowledging the evolution of ICT, Brittain (2002), suggests that after two decades of distributed computing, organisations are laden with a complex matrix of ICT hardware and software that have been added to a mix of mainframe tools and latent technology. In doing so, Brittain (2002) recognises the difficulties created by the lack of client involvement in device and network management.

2.5 Elements of Service Management

LaBounty (2004) suggests that the primary goal of every ICT Service organisation should be to provide services that are aligned with and in support of a business's strategy and objectives. Since many of today's businesses operate in a dynamic environment, this goal has become increasingly elusive. The only way ICT Service organisations can continue to hit the moving target of supporting business needs is by having SM in place.

While SM is an overriding process, LaBounty (2004) recognises six key elements that impact on the success of SM. These six principles, according to LaBounty (2004) are:

1. Service Agreements
2. Operational Level Agreements
3. Underpinning Contracts
4. Reporting
5. Service offerings (Service Catalogue)
6. Technology and toolsets

2.5.1 Service Agreements (SAs)

A critical requirement for SM is for the client and provider to establish SAs. SAs are flexible and adaptable contracts that are directly aligned with business goals. SAs are becoming a necessary component of ICT and are contracts that specify the performance parameters within which a network service is provided (Muller 1999).

An SA is a legally binding document between two parties that specifies the conditions of the business relationship between them. According to Verma (1999), an SA is a precise statement of the expectations and obligations that exist in a business relationship between two organisations: the service provider and the client.

According to the International Engineering Consortium (2000), SAs are contracts between service providers and clients that define:

- the services to be provided,

- the metrics associated with these services,
- the acceptable and unacceptable service levels,
- the liabilities on the part of the service provider and client, and
- the actions to be taken in specific circumstances.

Caine (1997) explains the term "Service Level Agreement" is used variably, including to refer to the whole SA. This could be somewhat confusing and misleading because the expression "Service Level Agreement" places the emphasis on the level at which the services are to be provided, and it often happens that other important contractual and commercial/business issues (and their legal ramifications) are overlooked.

Without SAs in place, the provider is offering to provide support at any time, under any conditions, without any limitations to the systems and services they have. It is difficult to meet the customers' service expectations effectively if there are no SAs in place. The processes associated with SAs include a methodology for introducing and implementing reasonable expectations between provider and the client they support. They establish a two-way accountability for service, which is negotiated and mutually agreed upon. SAs can go far toward building credibility for the service organisation, because they show how serious that organisation is about providing support. SAs can be the basis for evaluation and improving service levels on an ongoing basis, and they become the standard for communicating service expectations throughout an organisation. Many organisations understand the vital role of SAs. Some are, however, unaware or unwilling to dedicate the amount of resources required in maintaining them. SAs require a commitment to be officially reviewed on a regular basis by all stakeholders, and adjusted where business needs have changed.

2.5.2 Operational Level Agreements (OLAs)

SAs are not enough to ensure the timely delivery of service as needed by the business.

Operational Level Agreements (OLAs) need to be put in place between related ICT departments in order to unify ICT service delivery throughout and organisation prior to executing customer SAs. Operational Level Agreements establish specific technical, informational, and timeframe requirements needed for each ICT department to provide the services that will be delivered to the customer. For example, the email administrator might require specific information, as well as a

48-hour span of time to create a new email box for a new employee. This needs to be documented and approved by all impacted ICT departments before the Service Desk establishes an email provisioning SA with the customer. Without OLAs in place, SAs will frequently promise services that are impractical at best or impossible at worst. Clearly defined OLAs prevent un-kept promises to customers. Additionally, OLAs present a more united ICT service provider to the customer. On many occasions, the exercise of building thorough OLAs can iron out long-standing feuds that have been based on misunderstandings. Ultimately, OLAs hold each group accountable for their service, and also build understanding of each group's contribution to the overall delivery of service. Key performance objectives and internal incentives need to directly relate to OLA compliance. Since the entire goal of an ICT department is to service the business, well-defined OLAs should provide a template of objectives that show managers those activities that are most appropriate to monitor, report, and reward. Lastly, OLAs need to serve as a benchmark any time Service agreements need to flex to meet business requirements. If a specific service is required faster or differently by a business unit, the OLAs show exactly which groups need to be consulted, and which services provided by those groups ultimately affect the delivery of the desired service. If the providing group can agree to change how their service is delivered, then the SA can be changed, and the OLA can be altered accordingly.

2.5.3 Underpinning Contracts (UCs)

For any services that are provided by third-party vendors or service providers, Underpinning Contracts (UCs) need to be put in place. UCs are similar to OLAs in that they complete the chain of accountability and control for seamless service delivery. ICT service organisations may put contractual agreements in place with their third-party vendors, and convert the pertinent data into a UC that complements their entire SM process. As service needs change with the business units, ICT Service providers negotiate any changes with third-party vendors as needed, and modify the UC accordingly.

2.5.4 Effective Reporting

Reporting efforts need to complement the key measurements in SAs, OLAs, and UCs. Reports that show the overall SM performance must be communicated upward to ICT management, as well as to the customer's management. Effective SM reporting is the medium of communication that demonstrates the value of ICT and business alignment. A thorough understanding of ICT

service capabilities can help guide business planning. Conversely, ICT can scale back or enhance services to meet business needs on the horizon. Additionally, effective performance reporting can serve as an excellent management tool, as well as provide performance incentives to staff. Measuring and reporting the appropriate service indicators is important, particularly noting that performance reporting can efficiently modify service behaviour, provide incentive, and reward the achievers in a consistent fashion throughout ICT. The net result is a more satisfied and effective workforce.

2.5.5 Service Offering

As the ICT requirements of organisations has grown and developed over the years, there may not be a clear picture of all the services currently being provided, or to which customers each service applies. In order to establish a complete list of all ICT products and services currently provided, a clear definition of ICT Service Offerings should be produced. Such a catalogue should list all of the products and services being provided, as well as a summary of their characteristics and details on who supports each product or service. Though it seems a daunting task at first, developing and updating a detailed list of Service Offerings should include every service offered by ICT. This list is a pre-requisite for effective SM. As changes in the business environment and objectives occur, the Service Offerings should be updated as appropriate to reflect any differences to the services offered.

2.5.6 Enabling Toolset

Because SM is almost entirely based upon processes, many ICT service managers make the mistake of assuming that SM can be done manually and through effective communications alone. La Bounty (2004) recognises this as a common mistake and a leading reason why SM fails in organisations. SM is an ICT enterprise-wide initiative that is much too complex to monitor and maintain manually. The flow of data alone is much more than can be effectively managed manually. Proper SM creates a stream of data that shows the flow of every service transaction through the SM process. The level of service is then compared with the SA, OLA, and UC, where appropriate, and the pertinent data of the event is logged for reporting. The tool provides analytical data to analyze the environment on a real-time basis and raise alerts when service levels are in danger of slipping lower than the agreed-upon levels both for incidents measured individually and multiple incidents measured cumulatively over time. The benefits of SM are

negated, if it is implemented manually. The use of inferior enabling technology is a key delaying point for a successful implementation of SM. A robust toolset (including those for reporting), however, paves the way for the provider organisation to manage services.

2.5.7 A Service Catalogue

From a high level perspective, the objective of SM is to lead ICT service providers through the design of a Service Catalogue, the development of detailed service descriptions for their services, and the development of an SA for their major, mission-critical services that are well-defined, measurable, and in a negotiable state. These services are then documented in a Service Catalogue (ITIL 2004a).

From an ICT SM maturity perspective, the goals of a Service Catalogue are encompassed within the goals of SM. These are to:

- Detail an inventory of all ICT services that are provided to the organisation
- Enable an optimized, service focused organisation
- Describe and document a well-defined and effective set of tailored processes and methods that are supported enterprise-wide and are continuously improved
- Provide an integrated set of people, process, and technology that is well-established, can be integrated into the organisation, enterprise-wide, and continuously improved as needed

Specifically, one area that denotes SM maturity within ICT SM is the development and maintenance of a Service Catalogue that includes identifying and qualifying the types of services being provided and integrating service level objectives and agreements information that employs a business and customer service focus (ITIL 2003).

2.6 Service Management and the Organisation

Lewis (1999) recognises that many organisations are unsure of what SM is and what benefits they can anticipate from its successful implementation. Recognising that the sustained provision of services is dependant on the quality and management of those services, the arguments for embracing a process of SM are strong. Many organisations have acknowledged marked

improvements in their ICT, with respect to efficiency and effectiveness. Barriers to implementing SM include the lack of understanding of its relevance, as well as its applicability.

An information system is a set of interrelated components that collect, process, store and disseminate information for the purposes of decision making, coordination, control analysis and production of commodities in an organisation (Lewis 1999). A significant link can be forged between information systems and SM, noted especially when it is that business processes occur across an enterprise network which in itself is a service provided to the organisation.

Furthermore, if “service” is equated with “the purpose of an Information System”, a clear connection exists between SM and the business in general.

SM can be regarded as a set of disciplined, proactive methods and procedures that are used to ensure that adequate levels of service are delivered to users, in accordance with business priorities and at acceptable cost, in which case the relationships between service levels, business priorities and cost need to be managed (Sturm 2003).

Microsoft (2003) suggests that the main goal of SM is to improve the services available to the business in the long term and to resolve the service provision issues that currently exist. They further suggest that among the many benefits to the business, in addition to the improvement in service, is an increased knowledge of business expectations and improved cost management. This definition also recognises the need to manage the relationships between service levels, business expectations and cost.

Sturm and Erickson-Harris (2003) suggest that performance management is the key function of SM. Such performance management includes the definition, measurement and assessment of services, as well as the setting and monitoring of service objectives. Allied to these functions, the associated activities of reporting, client dialog, CRM and negotiating SAs are attached. They further believe that good SM leads to the refinement and improvement of services. Leonard (2002) recognises the importance of SM and the relationship to CRM. He declares that the poor relationships that exist between ICT professionals and clients leads to scepticism about the quality of service and support the ICT professionals can offer.

SM aligns business needs with delivery of ICT services (Microsoft 2003). It is further suggested that it provides the interface with the business that allows other Service Management Functions (SMFs) to deliver ICT solutions that are in line with the requirements of business and at an acceptable cost. They define the goal of SM as to successfully deliver, maintain and improve ICT services.

SM is a means for managing technology according to business goals and objectives (Erickson-Harris 2003). It is advocated that in using SM, organisations commit themselves to a given level of service and measure performance against that commitment, thereby helping to reduce operational expenses and improving the contribution of ICT in building corporate revenue.

Boardman (2001) and Sturm (2002b) propose that part of managing service levels involves gaining both client loyalty and support. In order to do so, they suggest that managing the relationships with clients is an integral part of network and systems management. They further declare that this management must be client driven. Sturm (2002b) adds that SM benefits are twofold; namely achieving higher client satisfaction and delivering greater value to the business. For enterprises and providers to be successful, however, network and systems management must improve significantly (Boardman 2001). Sturm (2002a) further suggests that SM can provide a competitive differentiator, leading to increased market share and improved client loyalty.

However, introducing SM into a business will not give an immediate improvement in the levels of services delivered (Microsoft 2003). It is as a long term commitment. Initially it is conceded that the service is likely to change very little, but over time, services will improve as targets are met and then exceeded.

2.7 The Importance of Service Management

Sturm, Morris and Jander (2000) acknowledge that for the improvement of ICT services, effective SM is a matter of survival. They recognise that SM is something that can benefit the user, the ICT service provider and the corporations in which they each work. They recognise that SM can temper the users' demands for a higher level of service, as well as hold ICT service providers accountable for delivering upon agreed levels of service. Recognising that outsourcing continues to be popular, they identify SM as a defensive strategy against the user dissatisfaction

that leads to outsourcing. Sturm *et al* (2000) and Hautamäki *et al* (2004) suggest the following six reasons why SM is important:

- **Client satisfaction**

Client satisfaction is the foremost reason for implementing SM as it:

- Necessitates dialog between ICT managers and their clients
- Forces clients to state clearly their requirements and expectations
- Sets benchmarks when client and provider agree on acceptable service levels
- Establishes dialogue channels which leads to improved reporting

However, SM cannot produce happy clients when service level commitments are not met. It is further suggested that SM significantly raises the overall levels of client satisfaction when commitments are met, and helps to improve the situation when targets are missed.

- **Managing expectations**

The introduction of SM makes it possible to avoid expectation creep. Effective documentation of user requirements in an SA serves as a braking mechanism. Additional changes require re-negotiation of the SA.

- **Resource regulation**

SM provides a form of governance over ICT resources, recognising that monitoring of services, by both client and supplier, to maintain the SAs, ensures early warning for any new capacity that might be required.

- **Internal marketing of ICT services**

When used correctly, SM not only helps ICT departments to deploy resources fairly, but can also be a great marketing tool. By ensuring ongoing, consistent levels of response time and availability, SAs provide a powerful way for ICT departments to inform clients of their good service levels. In doing so, they suggest that SM takes ICT out of the category of liability and puts it amongst the company's assets.

- **Cost Control**

In terms of cost control, SM can be a double-edged sword. While SM helps ICT departments to determine more accurately the appropriate level of service to provide, removing the guesswork that leads to excess, in some instances, the business case for SM may justify the additional cost of providing higher levels of service.

- **Defensive strategy**

ICT managers, like everyone, are motivated by self-interest, suggesting that it is clearly in the interests of ICT managers to implement an SM process. With SM in place, ICT service providers have a tool to use in defending themselves from user attacks. Clear documentation, well written SAs and metrics for measuring service levels remove any doubt as to whether or not objectives have been met.

Sturm, Morris and Jander (2000) further recognise SM as the continuous process of measuring, reporting, and improving the quality of service provided by ICT to the business. They acknowledge that in order to do this, the ICT service provider is required to understand each service it provides, including relative priorities, business importance, and which lines of business and individual users consume which service. They suggest that the primary consideration is to ensure that the service levels to be managed are measured and evaluated from a perspective that matches the business goals of the organisation.

2.8 The Benefits of Service Management

The ITIL (2003) recognise that improvements in service quality and reductions in service disruption as a result of effective SM can ultimately lead to significant financial savings. Less time and effort is spent by ICT staff in resolving fewer failures and ICT clients are able to perform their business functions without adverse impact. The following key benefits of SM are cited:

- ICT services are designed to meet service level requirements
- Improved relationships are fostered with satisfied clients

- Both parties to the agreement have a clearer view of roles and responsibilities, avoiding potential misunderstandings or omissions
- Specific targets are noted, against which service quality can be measured, monitored and reported
- ICT effort is focussed on those areas that the business thinks are key
- ICT and clients have a clear and consistent expectation of the level of service required
- Service monitoring allows weak areas to be identified, so that remedial action can be taken, thus improving future service quality
- Service monitoring also shows where client actions are causing the fault and so identify where working efficiency and/or training can be improved
- SM underpins provider management
- In some cases where services are outsourced, the SAs are a key part of managing the relationship with the third-party. In other cases, service monitoring allows the performance of providers to be evaluated and managed
- An SA can be used as a basis for charging and helps demonstrate what value clients are receiving for their money

The ITIL (2003) suggest that the cumulative effect of the benefits listed above leads to a gradual improvement in service quality and an overall reduction in the cost of service provision. In addition, they suggest that SM establishes, and keeps open, regular lines of communication between providers and clients. The beneficial impact of this should not be underestimated.

The ITIL (2004b) groups the benefits of service management (SM) into five categories, namely, business, financial, employee, innovation and internal.

- **Business Benefits**

The business benefits centre on the improvements in the quality, reliability and predictability of business operations. This leads to better working relationships and satisfaction between client and provider.

- **Financial Benefits**

Long term financial benefits are associated with a cost-justified ICT infrastructure. These include improved reaction time, preventative measures and service continuity expenditure.

- **Employee Benefits**

Employees have clearer role definitions. They experience increased motivation, job satisfaction and increased productivity. The ICT provider's reputation can also improve.

- **Innovation Benefits**

The clearer understanding of ICT requirements and service levels provides for greater flexibility and adaptability within services. Improvements are noticeable in the ability to recognise changing trends and to adapt quickly to new requirements and market developments.

- **Internal Benefits**

Associated with the improved metrics and management reporting are the improvements in information and its communication to decision makers. Clearer role definition and view of current ICT capabilities lead to process maturity, providing repeatable, consistent and self-improving benefits

Microsoft (2003) recommends implementing SM to produce measurable benefits to the organisation. These benefits include:

- Increased service quality
- Reduced cost
- Improved client satisfaction

2.9 Return on Investments in Service Management Solutions

ICT service providers face multiple challenges in ensuring the delivery of services across the networked infrastructure (Sturm *et al*, 2002). In order to recognise the return on an investment in managing service levels, Sturm *et al* (2002) consider the following key issues:

- **Client Satisfaction and Loyalty**

Given the increased levels of competition facilitated by the internet, the focus within ICT has shifted from improving the effectiveness within the corporation to improving the efficiencies as they apply to the corporation's supply chain. Enterprise Management Associates has identified client satisfaction and loyalty as areas that are increasingly more important for many enterprises and service providers (Sturm *et al*, 2002). Many providers are attempting to build relationships with their key clients that are more than just a provider and buyer relationship.

It is recognised that these newly found partnerships bring new challenges. A shift has occurred from improving the effectiveness within the corporation to improving efficiencies and effectiveness of a corporation's supply chain, sale channels and marketing efforts. This shift provides the vendor with the daunting task of ensuring that their solutions deliver against the requirements of all the businesses involved, as opposed to an application, server or group with the organisation.

- **Productivity**

Service degradation or outage influences the amount of time end users can work as well as their ability of a user to perform their tasks efficiently and productively. Work outages are both costly and time consuming. For example, Enterprise Management Associates found that it takes an average of 20 minutes for an end user to get to where they were before the application failed. They further acknowledge that degradations in service, commonly referred to as brownouts, occur more frequently than total service outages, and range from slowdowns to unacceptable response times. They recognise that quantifying the impact of brownouts on the bottom-line, drives home the importance of properly implemented management tools, suggesting that significant savings can be realised if degradations and outages are minimised or eliminated all together.

- **Proactive Planning**

Proactive planning is needed, in terms of capacity and future business applications, to ensure that the demands of the user community are met.

Many providers in the marketplace tout their proactive approach to management, which involves bringing visibility to the future needs or future problems of an organisation. Future needs can be in the form of understanding prospective business applications and workloads, as well as the services required to deliver these to the end user. The result of this proactive approach enables end users to ensure that adequate capacity is available when the need arises. They are also aware that being proactive in understanding when services will breach thresholds, allows end users to correct issues before they impact productivity and ultimately revenue. In doing so, this approach will allow for a more efficient use of capital and resources and can result in a planned approach to investing in ICT.

Sturm *et al* (2002) suggest that a proactive SM strategy offers a number of benefits to consider when calculating ROI and investment versus benefits. With SM, organisations will better understand the quality of the service it provides to end users and to the various lines of business. In addition, SM can help ICT service providers to optimise the service it provides to users by automating and centralising the control of business-critical applications and the underlying components, such as databases, server operating systems, middleware, networks and server hardware.

Sturm *et al* (2002) further acknowledge that SM enables ICT service providers to show increased business revenue, as a function of reducing outages and improving ICT service providers performance that directly affect business operations. Recognising that SM methods require ICT service providers to collect user and departmental requirements with due diligence, SM assists ICT service providers forecasting and planning, in order to meet future workload volumes and required service levels for seasonal, geographic or application-related variations in overall traffic loads. These same measured loads can also be better balanced and distributed amongst existing resources, getting the maximum use of existing components while still meeting service level requirements.

For carriers and service providers, Sturm *et al* (2002) suggest that SM can reduce or eliminate the penalties associated with broken contractual commitments, achieving and sustaining better availability and performance. They attribute SM for increases in shareholder value, recognising that SM helps eliminate headline grabbing outages that erode investor confidence. Recognising

that improved reliability can also translate into a competitive advantage, they suggest that service providers should approach SM with rigour.

With SM, enterprises can reduce the incidence of lost revenue either because internal transactions could not be completed, or because external clients could not access electronic catalogues or shopping carts (Sturm *et al*, 2002). SM ensures that business units or departments with more time-intensive ICT requirements pay accordingly, without relegating more strategic areas or functions to second-class status or endangering a smooth flow of business operation.

The costs associated with SM implementation fall into four key areas (Sturm *et al*, 2002):

- **ICT Personnel**

The costs of ICT personnel to plan, implement, monitor and report against agreed SAs

- **Software Costs**

The software costs incurred by developing the necessary tools to monitor, diagnose, manage, and report service quality, including problem notification.

- **Additional Hardware**

The costs related to any additional hardware, whether for more servers, workstations and/or specialised equipment for supporting SM.

- **ICT Management Overhead**

The costs incurred by ICT management in justifying SM to executive management, the procurement of software and hardware, recruiting and training ICT personnel and overseeing the SM function.

In quantifying the benefits when ICT resources fail or are inaccessible, a corresponding loss of business revenue usually occurs (Sturm *et al* 2002). The associated lost opportunity costs are also accompanied by other losses due to regulatory penalties and market share loss to competitors. It is also important to consider that the cost of downtime varies significantly by industry, acknowledging that financial services companies have extremely high costs associated with even the smallest disruption in service.

In quantifying the impact on business revenue, an understanding of the critical business systems and the associated revenue gained by those systems on an annual basis is required (Sturm *et al* 2002). This information can then be extrapolated to an hourly rate, and by assessing the increased service availability due to proactive SM, a corresponding benefit can be calculated.

SM benefits can also be demonstrated by showing the direct impact of outages and service degradations on end users, demonstrations of which also include the additional time that users are productive based on the increased availability (Sturm *et al* 2002). These improved productivity calculations and forecasts can further strengthen the case for proactive SM.

Sturm *et al* (2002) suggest that potential SM implementers can also use their newly gleaned data on future business applications, workloads and service levels to forecast the necessary ICT architecture and assets needed to deliver on those requirements. This guarantees that adequate capacity will be available and also supports a policy of just-in-time upgrades. This approach is accredited for providing for better use of capital, recognising that the net present value of deferring hardware purchases can be calculated along with any associated costs for maintenance charges for upgrading software licenses.

Proactive SM also leads to higher utilization levels of ICT components because of more accurate service quality measurement and the ability to balance workloads more efficiently across available resources (Sturm *et al* 2002). These improved levels of utilisation permit ICT service providers to defer the need for upgrading hardware and software. Being proactive can also encompass monitoring the service to anticipate and prevent problems.

True SM means going beyond the historical and reactive aspects of the process, suggesting that it requires becoming proactive and focussing on continuous service improvements. Being proactive means that an ICT service provider:

- Has developed a thorough, tested, comprehensive program for backup and recovery, including complete and tested disaster recovery.
- Monitors the service to anticipate and prevent problems.
- Thoroughly controls or meters the flow of demands for the service.

In quantifying the benefits from improved ICT staff productivity, an assessment of the deferred costs associates with increased productivity while maintaining or reducing staff size. They recognise that once that assessment has been completed, the savings are easy to calculate.

The benefits of a successfully implemented SM strategy are clearly evident for both the client and the provider. These benefits relate to the improvements in communication between clients and providers, increased levels of service and the refining of business practices. Employees of both the provider and client organisations experience increased productivity and motivation.

These benefits of SM can be grouped into two broad categories:

- **Improved customer relationship management**

SM leads to improvements in managing client's expectations and satisfaction. An effective SM strategy includes the relevant planning, procedures and practices that focus on the client and the satisfaction of their expectations.

- **Improved business practices**

SM provides a framework for improving service quality and reducing costs. The process also empowers ICT staff, as the focus on SM improves the marketing of the ICT services. It further facilitates an organisation's ability to respond resourcefully to the dynamic ICT environment.

It is clear that the reasons to implement an SM framework are substantial. The case for SM is convincing for both the provider and the client. The benefits of a successful SM programme ultimately impact on the bottom lines of the companies who implement it successfully. The improvements in customer relationships, the reduced costs and the improved business practices have significant financial benefits.

2.10 Current Service Management Problems

Boardman (2001) declares it unfortunate that many SM initiatives fail. Failure can be attributed to a number of factors, most prominent of which is the lack of knowledge and understanding that plagues SM. Ten identified problem areas impact negatively on SM, namely the confusion

surrounding the use and value of SM, the inappropriate application of SM, the manner in which services are measured and managed and the lack of skilled practitioners in the field.

2.10.1 Misinformation and Misunderstanding

Boardman (2001) suggests that while the benefits of integrated management of service levels are significant, the foundations on which they are built are increasingly fractured and lacking in standards support. Sturm (2000) further cautions that while SM, including Quality of Service (QoS), SAs and service assurance, are currently topical in ICT circles, a great deal of misinformation surrounds the topic. He suggests the cause of this misinformation and misunderstanding stem from five SM myths:

Myth 1: SA equals SM

Managers often mistakenly assume that SM is the same as SA. He acknowledges that SM can be successful without SAs, yet cautions, on the other hand, that SAs in the absence of SM are meaningless.

Myth 2: SAs will make users happy

SAs are not a panacea, recognising that an SA is a way to set expectations and communicate about the services that are being delivered.

Myth 3: SAs will result in higher service levels

By itself, an SA can not directly produce any changes in the levels of service delivery. He suggests however, that improvements in service levels sometimes coincide with the establishment of SAs. This he suggests is due to the paying of closer attention to services and the improvements in communication during the negotiation phase. He accredits the service management program with any resulting increases in levels of service.

Myth 4: Penalty clauses in an SA will guarantee service levels

Penalty clauses act as incentives to service providers as well as define appropriate compensation when service levels are not met. He contends, however, that in reality it is very difficult to negotiate penalty clauses that meet these two objectives.

Further suggesting that difficulty exists in extracting these penalties without the assistance of costly legal action.

Myth 5: SAs are not necessary when outsourcing ICT functions

In a study conducted by Enterprise Management Associates 59% of the companies interviewed do not have SAs with their outsourcing partners. He suggests that this level of trust is both naïve and could be considered as negligence on the part of the managers.

2.10.2 Service Agreements

The ITIL (2003) identify developing SAs as the most difficult problem that must be addressed. They declare that if the SAs are not consistently and accurately defined, documented and monitored, and regular reviews held, then potential service improvements are not realised and SAs may fall into disuse. They further acknowledge that it is more difficult to resurrect them or to re-launch SM. Consequently, it is far better to recognise the potential difficulties in advance by putting correct monitoring in place.

SAs establish a negotiated and agreed upon two-way accountability for service. They build credibility for the service organisation by indicating how serious they are about providing support. Yet while many organisations understand the vital role played by SAs, many are unaware or unwilling to dedicate the amount of resources required to maintain them (LaBounty, 2004).

2.10.3 Reporting

Reporting efforts need to compliment the important measurements in SAs. Reports that show the overall SM performance must be communicated upward to ICT management and ICT middle management, as well as to the customer's management (LaBounty, 2004). Effective SM reporting is the medium of communication that demonstrates the value of ICT and business alignment, serving as a management tool (LaBounty, 2004).

Reporting to clients about performance is a key monitoring aspect of SM (Sturm, 2002b).

Unfortunately, much of today's ICT reporting is of limited worth as the associated reports are

usually filled with technical data that has little, or no, value to the client. Reporting can be done periodically or in real-time, the latter enjoying first priority. A critical aspect of SM failures is a lack of attention given to the development of reporting structures.

2.10.4 Semantic Disparity Problem

Lewis (1999) acknowledges that while there are methods and challenges regarding SM, the crux of SM involves two competing strains the so-called Semantic Disparity Problem:

- Parameters that are easy for network specialists to measure do not translate well into parameters that are readily understood by ordinary clients.
- Parameters that are easily understood by ordinary clients are not easy for network specialists to measure.

It is suggested that there is little new in this distinction, crediting Albert Einstein's observation that "not everything that can be counted counts and not everything that counts can be counted".

2.10.5 People Issues

In a recent global online survey conducted among a cross section of ICT professionals and managers by International Network Services, Blum (2002) determined that there has been limited improvement in satisfaction has occurred with SM capabilities from 1998 to 2002. Notably, 96% of respondents in this survey registered the importance of improving the organisation's SM capabilities as "Very" or "Somewhat" important.

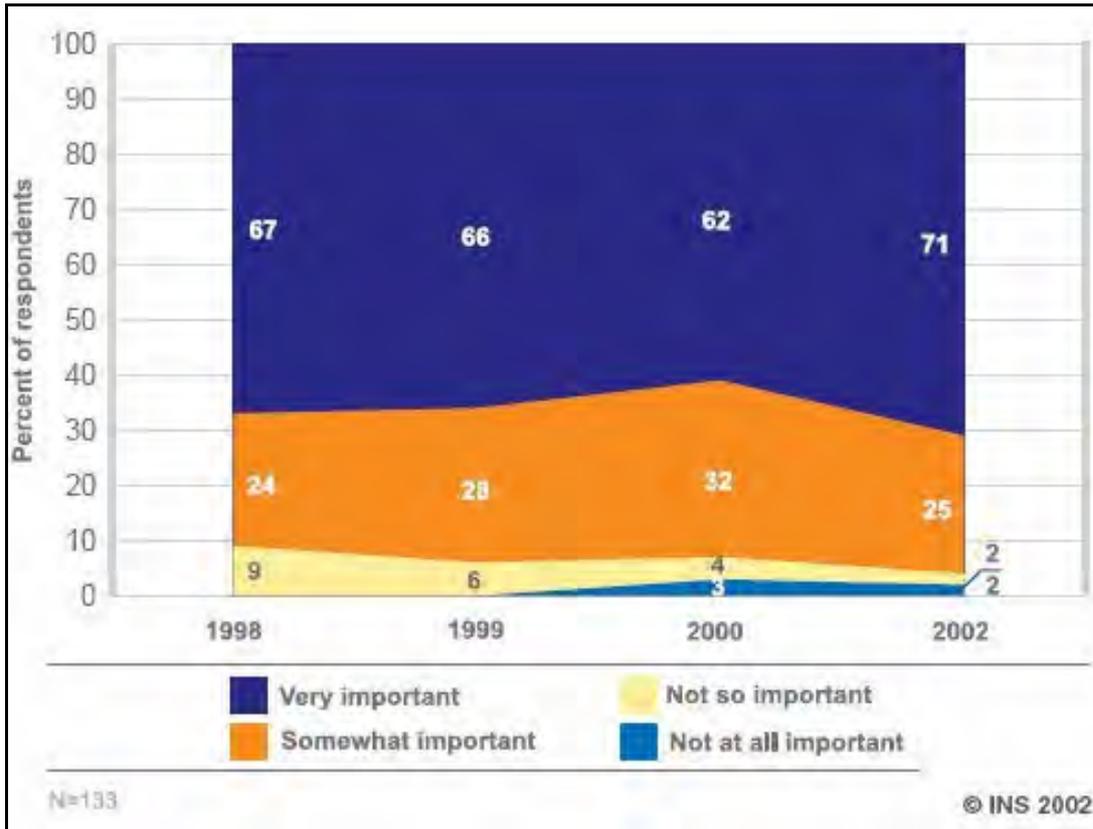


Figure 4: The Importance of Improving Organisation’s SM Capabilities (Blum, 2002)

According to this study, people issues are the biggest challenge to implementing and improving SM. In describing people issues, training, workflow and role definition are included. Blum (2002) regards processes such as trouble shooting, escalation and documentation as the second biggest challenge identified by respondents during the online survey.

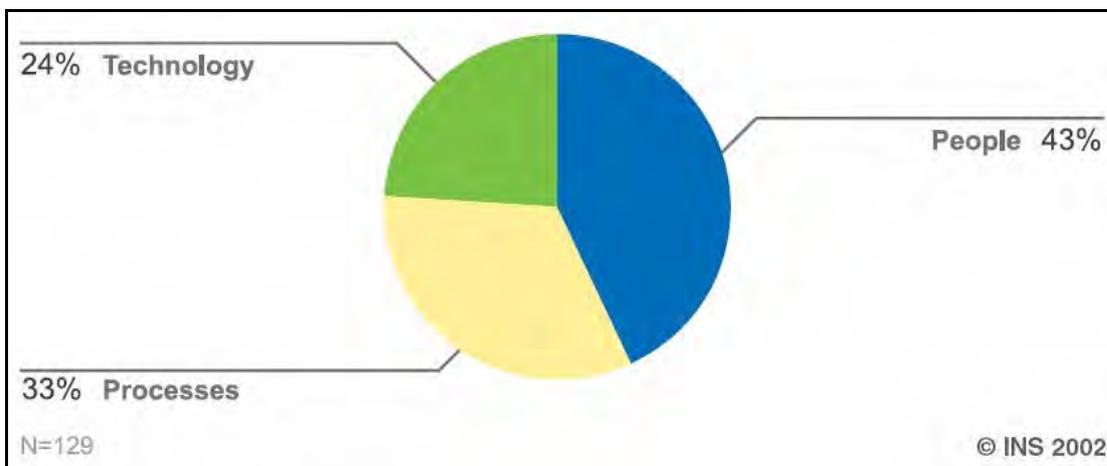


Figure 5: The Biggest Challenges to Implementing and/or Improving SM (Blum, 2002)

In asking why so many clients are unhappy with the quality and cost of ICT service delivery, Microsoft (2003) question whether service delivery is so bad, or the symptoms of poor communication between ICT service providers and their clients being manifested. They suggest that SM can indeed be used to improve communication.

2.10.6 Fluid Business / Static Service

The business processes that are supported by services are in a state of constant flux. Yet the provider has been offering the same services in the same way. The services offered previously may have become ill adjusted to the business needs, and have not kept pace with the change. The business, on the other hand, may have embarked on changes to stay competitive. The result has been a widening gap between the services offered and their usefulness to the business units.

2.10.7 Inefficient or Non-Existent Change Management

Change requests that come to ICT from the business units should be managed through a formal, customer-facing change management process. Often, however, internal ICT groups circumvented this formal process.

2.10.8 Disunity

The problem with change management is that it is often a symptom of a deeper cultural problem. Because there is no unified vision for ICT service and support, each group forms its own vision and ends up stepping on the vision and goals of the other groups. The result is that, over time, political barriers form that can lead to cumbersome procedures that are often burdened with a protective hidden agenda. As ICT groups hoard their knowledge, support often takes longer, and as a result, the true, united capabilities and service value of ICT are unknown to ICT or its clients.

2.10.9 The Deception of Customer Satisfaction

It is important to measure customer satisfaction at the service transaction level. This does not necessarily measure how well ICT services are aligned with business needs. Many ICT support managers, have been deluded by good customer satisfaction scores that dismiss them from the

hard work of forming true business alignment by engaging in continuous dialog with their customers.

2.10.10 The Legacy of Failure

Many organisations can attest to failed ICT Service Agreements (Sturm 2003). In these organisations, several identified SAs took months to create. The customers are most cooperative in telling ICT service providers what they need, and the service provider creates the SAs. The results are documents that are somewhat complex, requiring work to monitor and maintain. Additionally, these agreements called for a system of measurements that are meaningful for the business units, but require data from the ICT service provider that is time consuming to assemble. Eventually these SAs are tossed in a drawer and became dead documents. They are not monitored, and no continuous feedback process, to the stakeholders involved, is in place. The result is a lack of accountability between all the ICT departments involved. ICT service providers must establish a link between service performance and business performance.

2.11 Successful Service Management

Where SM is defined in Section 2.3, as the process of managing of client expectations, no indication is given of how the success of SM is identified. Unhappy clients, service failures, poor business relationships and poorly developed SAs would appear to be indicators of unsuccessful SM. For the purposes of this research, indicators of successful SM need to be identified and explored.

Successful SM involves the definition of client expectations, the satisfying of those expectations and the perpetual refining of this business agreement (Sturm 2001). While this approach is pragmatic and simple, it does not provide sufficient insight into what a successful service management strategy is. There is credence to this pragmatic approach however, as it identifies services with respect to a client and a provider. This approach additionally recommends the longevity of the association between client and provider by recognising the need to perpetually refine the business agreement. Where this approach is lacking is in the articulation of what each of these entail.

The key indicators of successful SM are the successful mapping of services to client requirements, the sustained provision of services, mutually beneficial client/provider relationship and a shared strategy.

2.11.1 Successful Mapping of Services to Client Requirements

A key ingredient of successfully providing services is recognising the services that can be provided and then mapping them to the client's requirements (ITIL (2004b)). SM helps ensure that ICT services are aligned to the business needs. This introspection is a fundamental building block of successful SM. A service provider who has not clearly identified and documented their service capabilities before attempting to map them to the client's requirements is least likely to successfully manager those services.

2.11.2 Sustained Provision of Services

In order for provided services to be successful, they need to constantly satisfy a requirement (Sturm 2003). If the requirements are not satisfied, then the provision of services is likely to be terminated. There is therefore a relationship between the success of service provision and the duration of the client / provider relationship. That is to say that as long as clients are being provided with services that meet their requirements, they will remain satisfied. Conversely, if the provision of services is not sustained, then this could be representative of unsuccessful service management.

2.11.3 Mutually Beneficial Client / Provider Relationship

The essence of the success of SM pivots around the nature of the relationship between client and provider (Lewis, 1999; Lewis and Ray, 1999; Brittain and Matlus, 2002; Sturm, 2003; ITIL, 2004 and *itSMF* 2003). Successful SM will be possible where this relationship has mutual benefit. Where benefit is mutual, the motivation to sustain the relationship is also mutual. This provides the foundation for a successful partnership built on a managed services environment.

2.11.4 Shared Strategy

A further foundation stone of a successful SM environment is the presence of a shared strategy. Partnerships are built on a shared vision or strategy that unites the two parties. If the service provider and the client share a common business strategy, the success of the managed services is likely to be more attainable (ITIL, 2004).

2.12 A Framework for Service Management

Drake (2000) suggests that many organisations have been restructuring and reorganising in recent years in an effort to address the ICT resource and productivity issues they face. These issues are linked to the cost of ICT and the continual need to upgrade their systems, as well as systems uptime and reliability. Organisational effort is also being expended in order to absorb the new technologies required to run the services being developed. These activities will continue to increase in the future as a result of the e-services industry. Neither of these efforts produces the required infrastructure stability and performance needed to compete in the emerging e-services marketplace without well-defined and measurable ICT processes (Drake, 2000). While the management of technologies and application components has been the traditional mainstay of ICT, most ICT service providers are realising that past and even current service delivery has less to do with the technologies, than it does with poorly designed or “missing” critical ICT processes (Drake, 2000).

LaBounty (2004) recognises that the goal of every ICT service organisation should be alignment and support of business strategy and objectives. The only way for ICT service organisations to continue to support business needs is by having SM in place. An SM framework provides the focus and objectives for all implemented technologies, for all steps and tasks assigned and for all delegated responsibilities necessary for providing service to the end user. An SM framework also includes the ICT management process that helps the organisation to provide continuously improving service levels for business services from an end-user’s perspective (BMC Software, 2004). The result of a carefully tooled, well-guided SM framework is improved quality with regard to the level of service provided, which then can be replicated successfully to other business services and business processes. Further, when followed, SM ensures that the lines of communication between ICT and business stay open as they continue to work together to improve and refine SAs as new business needs and priorities change, changes in the ICT

environment occur or the cost of providing established levels of service change (BMC Software, 2004).

Enterprise Management Associates (2002) recognise that SM is a process for delivering services that consistently meet client requirements. SM serves to help firms guarantee, deliver and improve specific application and systems response times for their ICT end users. Knowing where to begin is the challenge in implementing an SM strategy. ICT vendors now offer a variety of point products and solution suites with enough breadth and depth to fit narrowly focussed as well as comprehensive SM initiatives (Enterprise Management Associates 2002).

McKeen, Smith and Singh (2005) recognise that ICT capabilities are linked to business performance, yet acknowledge that well-defined procedures for engineering ICT capabilities to high standards are absent.

In order to establish and maintain successful SM, ICT managers need a well-defined process that is founded on a disciplined service culture (BMC Software, 2004). The clear business rules, proven tools, and methodologies provided by SM help drive ICT service operations toward alignment with the business (LaBounty, 2004; Sauer, Liu and Johnston 1999). Sturm, Morris and Jander (2000) and van Hemmen (2000) acknowledge that the successful implementation of SM is more than purchasing some software and placing a service contract on the desk of the department head. They acknowledge that it requires a strategy. This strategy has an organised and flexible plan for introducing SAs and working with them day to day to achieve maximum efficiency and savings. Enterprise Management Associates (2002) recognise that knowing where to begin with an SM implementation is a challenge, suggesting that mission critical applications are ideal candidates for starting on the SM path.

Planning is the key to the successful implementation of an SM solution (Enterprise Management Associates, 2002). The recognition and prioritisation of business goals are the first steps. This supports the approach of Lewis (1999) and Lewis and Ray (1999), where there is a need to understand the client's business processes. The successful implementation of an SM strategy requires the consideration and completion of a number of activities. While some authors have identified what they see as key SM components, others have focussed on processes and life cycles for SM. These have been separated into stages, steps, road maps and frameworks. There

is, however, a great deal of commonality in what these authors have recognised as the structure of an SM implementation framework. The majority of authors highlight the importance of negotiating and communicating with the client, the continuous nature of SM and suggest the perpetual improving and refining of SM, (Lewis 1999; Lewis and Ray 1999; van Hemmen 2000; Sturm 2003; Brittain and Matlus 2002; Microsoft 2003; ITIL 2003 and McKeen *et al* 2005).

2.12.1 Key Components of a Service Management Framework

The presence of an SM implementation framework is of fundamental importance to the success of any subsequent service management initiative. The following five (5) key components are recognised as important in such a framework.

- **Readiness to Provide Services**

The provider organisation must be ready to provide services (ITIL 2003). In order to do this, the provider organisation must have a detailed understanding of their service offerings, with respect, to their capacity to offer, manage and sustain services.

- **Eliciting Client Requirements**

The elicitation of client requirements forms the basis of the relationship between a service provider and a client, defining the terms of reference. Ensuring that the client's requirements are identified and acknowledged ensures that there is a basis for the development of a business relationship. This has been widely recognised as a fundamental component of any managed service environment.

- **Understanding, Managing and Documenting Client Requirements**

Management is most straightforward when the requirements are well understood and easily described, and also the means of satisfying them is clear (Janssen and Jona, 2004). The identification of requirements is part of the process. These requirements need to be understood by both the client and the provider. The management of client requirements includes the verification of the validity and business relevance of each requirement. The exact nature of the client's requirements and their relationships to business processes must be understood, managed and documented. This documentation is a process that is also undertaken by both the provider and the client. Requirements might be unclear,

might change over time and cannot readily be foreseen. As such the management of client requirements is not easy, as it requires considerable changes in organisational arrangements, coordination mechanisms, new processes and allocation of responsibilities (Janssen and Jona, 2004).

- **Satisfying Client Requirements**

Once the client's requirements are elicited, understood, managed and documented, the managed service environment can be identified. The next step in the process is to implement the services to satisfy the client's requirements.

- **Improvements in Services and Business Relationship**

The managed services environment should make provision for improvements in services. Initial service levels can be regarded as a benchmark against which improvements can continually be made. If a mutual commitment between client and provider is made to these improvements, the business relationship is also likely to improve.

2.13 Conclusion

The true value of ICT can only be realised when its services provide solutions that are both practical and reliable. In order to achieve this, these services need to be well managed. This improvement in management promotes the credibility of the industry while improving client loyalty and satisfaction. These will ultimately combine to allow the ICT industry to mature and regain much of the ground lost in the late 1990's and early 2000's.

Fundamental to SM is the collaboration between client and provider. This collaboration between the parties forms whilst service level expectations are set and develops into a relationship when service levels are being satisfied. This relationship is then developed further as each party is committed to refining the business agreement. The future development of SM lies in the recognition of the importance of a communicative relationship between client and provider. Successful SM is possible when providers, who are confident of their ability to manage levels of service, and clients who are aware of their service requirements, enter into such a communicative relationship.

In order to develop a business relationship based on a managed services environment, the implementation and management of these services needs to be structured and formalised. A common thread that permeates through the problems associated with service management points to the absence of a formal SM strategy and implementation framework. A further characteristic of these problems is the unsystematic approach that many organisations take towards the management of ICT services.

There are inherent costs when an organisation decides to implement a strategy. This is true of an SM implementation initiative. Further, the costs of implementing a strategy are ideally offset by the benefits derived from the successful improvements in business processes. Again, this is true of an SM implementation. The nature and origins of the costs in an SM implementation are recognised in this chapter, as are the potential benefits of a successfully implemented strategy. In the survey conducted by Blum (2002), these costs were not regarded as prohibitive to the implementation of SM. It is for this reason that this research identifies the costs and benefits associated with SM implementation, but does not explore them with respect to the design and nature of the implementation framework.

If organisations wish to successfully manage ICT service levels, they need to adopt a rigorous approach towards the implementation and success of service management.

Chapter 3: Service Management Implementation Frameworks

This chapter analyses several service management frameworks. It explores service management implementation steps and lifecycles. Lewis' three phases of SM, Lewis and Ray's seven steps to service management, Sturm's six minimal functions of service management and Brittain and Matlus' road map for ICT service management are analysed. Other approaches to SM that are analysed include Microsoft's service management implementation lifecycle, ITIL's service management framework and the itSMF's SM business processes. The chapter concludes by highlighting the commonalities and differences in these approaches.

3.1 Introduction

The successful implementation of an SM strategy requires the consideration and completion of a number of activities. In this chapter seven approaches to implementing SM are presented.

3.2 Lewis' Three Phases of Service Management

3.2.1 The Author

Dr. Lundy Lewis is Director of research at Cabletron Systems. He holds several patents in enterprise management and serves on the architecture board for the Spectrum Enterprise Management System.

Dr. Lewis is an adjunct professor at the University of New Hampshire and New Hampshire College, where he teaches graduate-level courses in artificial intelligence, computer information systems, object orientated methodology and software engineering.

3.2.2 Nature of the Phases

In order to maximise the chance of success in carrying out an SM program, Lewis (1999) suggests a three phase methodology that follows a series of well defined steps. While these steps are predicated on an enterprise network environment, it is generic, and therefore applicable in other contexts. These steps are comprehensive and cover the processes from eliciting the client's requirements through to the reviewing of SAs. These steps recognise the SA process as pivotal, suggesting that it is begun later in the penultimate step.

3.2.3 Details of the Phases

Lewis (1999) suggests that SM refers to the iterative process of (1) identifying business processes, (2) identifying the network services on which the business processes depend, (3) identifying service levels and agents that measure the services, (4) negotiating and articulating an SA, (5) producing service level reports and comparing them with the SA, and (6) fine-tuning the enterprise to deliver increasingly better services. This SM process is divided into three broad phases containing a total of ten steps.

Phase 1: Requirements and analysis

- Step 1: The provider and the client work towards a common understanding of the client's business processes.
- Step 2: The provider and client work toward a common understanding of the enterprise-related services that are required by the business processes.
- Step 3: The provider and the client work towards a common understanding of the service parameters and service levels for each service.

Phase 2: Design, unit testing, and integration testing

- Step 4: The provider makes an inventory of components: the topology of the network, the kinds of transmission devices and transmission media, the kinds of systems users are using, the kinds of applications the users are using, and the existing management processes.
- Step 5: The provider takes first steps toward matching services and components.
- Step 6: The provider takes first steps toward (1) demarcating component parameters by which to measure and (optionally) control the components and (2) mapping those parameters into service parameters.
- Step 7: The provider takes first steps toward (1) identifying agents to monitor and control components, (2) designing agent integration, and (3) experimenting with non-production prototypes.

Phase 3: Deployment

- Step 8: The provider moves the overall system into production and a baseline is established to produce the first service level report.
- Step 9: The provider and the client review the first service level report, and an SA is negotiated.
- Step 10: Full production proceeds, and service level reports and SAs are reviewed, followed through, and optionally renegotiated at the end of each time period.

3.2.3.1 Phase 1: Requirements and Analysis

This phase involves performing a preliminary study of a company's business processes and the service requirements. During this phase, technical details are disregarded – the goal is to produce a conceptual model of an ideal SM system.

Step 1: The provider and the client work towards a common understanding of the client's business processes.

In preparation for the first meeting, the provider should prepare themselves. It is important for the provider to be familiar with the general language of the client. For example, if the client's organisation is within the healthcare industry, then the provider should study up on healthcare. This promotes goodwill between both parties.

The outcome of this step is a simple list of terms or phrases that denotes each business process and includes a short description.

Step 2: The provider and client work toward a common understanding of the enterprise-related services that are required by the business processes.

First, it is important to distinguish between services that depend on the enterprise network and all that is included in it, as well as services that do not depend on the network. Second, it is important to apply simple names to the services. It is a well-known principle in software engineering that simple, commonsense naming up front will expedite all that follows.

The deliverable from Step 2 is similar to Step 1, with the addition of a short list of phrases that reflect each service required by each business process.

Step 3: The provider and the client work towards a common understanding of the service parameters and service levels for each service.

For any given service, there will be a multitude of possible parameters. The provider needs to know which parameters are important. Consider a simple analogy. For one package Delivery Company, perhaps speed is important. For another delivery company (one that specialises in

fragile cargo), care and caution are more important than speed. Generally, the provider has to identify the service parameters that have special relation to the goals of the business. It is important to remain non-technical and as though living in a perfect world. While this ideal SM structure may not be attainable, it keeps the project team focussed.

The output from Step 3 is similar to Step 2, and includes a list of short phrases that denote the service parameters and service levels of each service.

3.2.3.2 Phase 2: Design, Unit Testing, and Integration Testing

In this phase, the ideal SM model of phase 1 is carried into the real world in the face of environmental constraints such as network topology and component inventory. In addition, non-production prototypes are built and the capabilities of isolated and interrelated agents in the SM system are tested.

Step 4: The provider makes an inventory of components: the topology of the network, the kinds of transmission devices and transmission media, the kinds of systems users are using, the kinds of applications the users are using, and the existing management processes.

This step introduces the technical details. Typically, the person carrying out this step is a network specialist or systems analyst who has a fairly broad knowledge of the variety and functions of network machinery.

There are three useful rules of thumb for developing a high-level, comprehensive picture of the enterprise. To (1) convey the structure of the enterprise in a single picture, (2) making use of logical partitions of the enterprise and (3) testing whether a reasonable cognisant person can make sense of the picture within 30 seconds.

The output of this step is a high-level, comprehensive picture of the enterprise.

Step 5: The provider takes first steps toward correlating services and components.

A useful way to carry out this step is simply to lay out a particular service, as specified in Step 2, next to the picture as created in Step 4. Lines can be drawn from the service to the relevant subset of components in the picture.

The output from this step is a combination of Steps 2 and 4, namely a picture showing connections between a service and some subset of components in the comprehensive topography.

Step 6: The provider takes first steps toward (1) demarcating component parameters by which to measure and (optionally) control the components and (2) mapping those parameters into service parameters.

The goal of Step 6 is to figure out how to translate low-level component parameters into the service parameters identified in Step 3. The easiest way to do this is to declare that some component parameter is the service parameter, in which we have a one-to-one mapping between each parameter. A more advanced technique is to devise a function that takes as input a set of component parameters and outputs a composite value of the service parameter, in a many-to-one mapping.

The deliverable from this step is similar to that from the previous step, showing the component parameters for each component and the method that maps those parameters into service parameters.

Step 7: The provider takes first steps toward (1) identifying agents to monitor and control components, (2) designing agent integration, and (3) experimenting with non-production prototypes.

This step is tightly intertwined with Step 6. It involves the identification of agents (called managers), commercial or otherwise, that can indeed monitor the component parameters. This step also identifies the repository that will hold the data collected by the agents and reporting tools for displaying the data. The final aspect of this step is to start planning the integrating of the systems and to begin experimenting with prototyping. At this stage, a non-production SM system is in place, which tests the capabilities of isolated and integrated agents in the system.

The deliverables from this step are two fold. The first is an addition to that of Step 6, showing the particular agents that monitor and control component parameters, a database into which the data are put, and a reporting tool. Secondly, a large portion of the overall system should be actually working. Agents are in place and monitoring specific enterprise components and populating a database, and we should be able to produce some sample reports.

3.2.3.3 Phase 3: Deployment

This phase moves the non-production SM system into production. The system is run for a period of time to establish a baseline, after which an SA is negotiated. Finally, the full SM system is put into operation, producing service level reports in timely fashion and following through the instruction of the SA.

Step 8: The provider moves the overall system into production and a baseline is established to produce the first service level report.

The system is in place. A procedure to shut down the SM program, in the unlikely event of a bug, is identified. Regular service monitoring and reporting is undertaken to extract data for evaluation by both the client and the provider.

The outputs of this step are discussions, evaluations and documents reflecting what happened.

Step 9: The provider and the client review the first service level report, and an SA is negotiated.

In Step 2 the provider and client made a preliminary identification of the crucial services and service parameters. That understanding might have shifted somewhat by this time. This is therefore the right time to revisit the initial requirements to see to what extent they are being met. Further, this is the right time to negotiate acceptable and unacceptable marks of the service level parameters.

The deliverable from this step is an SA.

Step 10: Full production proceeds, and service level reports and SAs are reviewed, following through, and optionally renegotiated at the end of each time period.

The SA developed in Step 9 specifies pay-up time, typically on a monthly basis and following usual billing traditions. Thus, monthly service level reports can be considered the same as monthly bills or, in cases in which no monies, rewards, or penalties are specified in the SA, as simple progress reports.

The deliverable from this step is monthly service level reports.

3.2.4 Conclusion

Lewis (1999) successfully identifies the key components of SM, namely effective communication, using simple language and sequential and iterative phases. The importance of identifying business processes, as well as services and their measurement are recognised before the negotiation of SAs. The implementation of SAs is not suggested in the early stages of the process, but deferred until service level reports are being produced.

While fine tuning of the enterprise to improve services is recommended initially, no indication is given that the ten steps are cyclical. There is no visible return lead into Step 1 from Step 6. A further weakness of these steps is that Lewis (1999) works from an incorrect assumption that any improvements in services require modifications with the enterprise and not of the services or service parameters.

There is, however, no reference to any preparatory activities in these phases. This is a concern as these foundational activities impact the successful implementation of a managed services environment.

3.3 Lewis and Ray's Seven Steps to Service Management

3.3.1 The Authors

Dr Lunday Lewis corroborated with Pradeep Ray to produce these seven steps. Pradeep Ray is a Member of the Academic staff in the School of Information Systems Technology and

Management, University of New South Wales, Australia. He has a PhD in Computing Sciences from the University of Technology, Sydney (UTS), Australia, and Masters in Electrical Engineering from the Indian Institute of Technology, Kanpur, and a Bachelor of Electronics Engineering from BHU-IT, Banaras, India. He has more than ten years' experience in technical and management positions in International Information Technology Organisations.

3.3.2 Nature of the Steps

The steps proposed by Lewis and Ray (1999) build on those developed by Lewis (1999). The latter proposed steps suggest that the essence of the SM process is to first understand the business processes, and then to proceed to identify the measurable services that support the business processes. Once this identification is complete, the implementation of SM follows.

3.3.3 Details of the Steps

The SM process is regarded as iterative and consists of the following seven steps:

Step 1: Understand the Client's Business Processes

The provider begins to understand the business processes of the client. At this stage, it is important to apply simple names to the business processes, like “purchase supplies” or “sell product”.

Step 2: Understand Services that Support Business Processes

The provider needs to understand the underlying services required to support the business processes and to select the service parameters which provide an index of the health of the business process and to make sure that management tools are available that can collect and report upon the parameters over time.

Step 3: Set Service Parameters

The provider and client discuss and eventually agree upon suitable service parameters that reflect the health of the services, and therefore reflect the health of the business process.

Step 4: Set Monitoring Tools

The tools for service monitoring are put in place, and the provider provides a baseline over the selected parameters.

Step 5: Set Service Levels

The provider and client study the baseline report and determine levels that indicate acceptable and unacceptable business process performance. This work is articulated in an SA and signed by authorised parties.

Step 6: Monitor

Authentic monitoring and reporting is executed, typically on a monthly cycle, where both the provider and client may be liable subject to the terms of the SA. During the cycle the provider and client may access web-based reports to monitor progress.

Step 7: Review Business Process Requirements

At the end of each cycle, the provider and client return to step1 to review the business process requirements and make changes in the SA, if necessary.

3.3.4 Conclusion

In their seven steps, Lewis and Ray (1999) have built onto the work done by Lewis (1999). While taking a rather simplistic view of SM implementation, this does not detract from the fact that they have managed to identify the key aspects of SM. The approach identifies the importance of the provider immersing themselves in the client's business in order to understand the respective business processes that require services. In placing further importance on the involvement of the client, they acknowledge that the service provider must follow up this understanding with a formulated plan of action. In doing so, they have recognised the development of foundations for the development of a business relationship between client and provider.

Lewis and Ray (1999) recognise the importance of meetings between the client and provider. They do, however, seem rigid in their acknowledgement of when these parties must meet. These meetings are scheduled in Steps 1, 3, 5 and end of 6. While no reference is made to meetings outside of this schedule, no provision is made for meetings at other times. Other approaches also emphasise the importance of meetings between client and provider, yet are more flexible with regard to when these meetings take place.

3.4 Brittain and Matlus' Road Map for ICT Service Management

3.4.1 The Authors

Kris Brittain is a research director in Gartner Research. Richard Matlus is a vice president in Gartner Research.

3.4.2 Nature of the Road Map

In recognising that enterprises have become increasingly dependent on ICT, demanding a higher quality of service, Brittain and Matlus (2002) recommend the formation of an ICT service management strategy.

3.4.3 Details of the Road Map

The key components of this strategy include:

3.4.3.1 Plan

Begin with the end in mind. This reverse engineering approach requires identifying and defining services within a context relevant to the enterprise. In order to define services, the road map suggests performing analysis surveys, taking cognisance of the context of business imperatives and the end user. The planning phase is complete once ICT resources have been mapped to the required services.

3.4.3.2 Productise

As a result of the planning process, defined services are an amalgamation of the internal and external elements from the business and ICT perspective. These elements refer to those offered within the organisation, for example, the help desk, and those offered by an external provider, for example internet bandwidth. These need to be documented in SAs that are made up of service types, business applications, operational services and external services. Further, the metrics, escalation and entitlement for these element types need to be determined. SAs are documented as service commitments and communicated to the business units.

3.4.3.3 Deliver

The emphasis now moves to the execution of service delivery. In this phase, the organisation requires a focal point for the capturing and monitoring of problems, requests and processes related to the delivery of services identified in the SA. It is important for the organisation to have this focal point that coordinates and gathers all the SA metrics.

3.4.3.4 Review

The gathered data is only of value when it is compared with goals and historical data. Fundamental analysis is required to determine the areas of success and failure based on the metrics agreed in the SAs. A key factor, at this stage, is the standardisation of metrics and reporting. All service monitoring and reporting needs to comply with a common framework and be represented in a standard manner. Additionally, communication between all parties becomes a critical success factor as the organisation and the lines of business review the analysis on a consistent and ongoing basis.

3.4.3.5 Revise

In order to complete the process, organisations must be prepared to leverage the knowledge gained to improve the services. This can be attained through reevaluating defined services and enhancing processes and automation via technology. Effective service review and revision improves business performance and customer perception of ICT services.

3.4.4 Conclusion

Brittain and Matlus' (2001) approach towards SM is cyclical in nature. They confirm the need to plan, document, implement and refine. This road map confirms the importance of placing the focus on the client and satisfying the client's requirements.

The strength of this road map is the reverse engineering aspect of the planning phase. Like a road map implies, the origin and the destination, as well as the route are established before the journey is undertaken. The emphasis placed on planning as well as the importance of the method is the key to Brittain and Matlus' successful implementation of SM.

A further strength of this approach is the emphasis placed on reviewing and revising the process. The knowledge gained in the process is used as leverage for further improvements and enhancements to the management of services. This process is also credited with enhancing the business relationship between the client and provider.

The potential weaknesses relate to the gathering of data to be compared with targets stipulated in the SA. This potential weakness is negated by the emphasis placed on the review and revise steps that confirm SA flexibility, allowing for the development of the relationship between client and provider.

3.5 Sturm's Management of Client Requirements

3.5.1 The Author

For the past 25 years, Rick Sturm has been dedicated to the field of information technology. As a former Chief Architect for Network and Systems Management, he witnessed first-hand the challenges of enterprise management. At that time, management platforms were in their infancy. With the advent of the Internet, the landscape of managing enterprise computing and communications had forever changed.

3.5.2 Nature of the Model

Sturm (2001) is pragmatic in his identification of what SM is and what it must do. SM is the definition, satisfying and refining of a client's expectations. This open-ended approach is client-

centred and provides scope for the flexible implementation of an SM protocol. Sturm (2003) expanded on this pragmatic approach with a six step SM implementation model.

3.5.3 Details of the Model

Six minimal and sequential SM functions form the basis of a successful SM program.

Step 1: Define Parameters

The services that need to be managed must be determined. This is a complex process that forces an organisation to identify a service as well as the associated components and critical business objectives. These objectives should be evaluated in terms of service levels. Metrics for their measurement must also be identified and defined.

Step 2: Take Measurements

In order to measure performance, a set of baseline data must be established. While the basis of this data is determined in Step 1, it is not likely to be sufficient. This is due primarily to the fact that the data is based on a theoretical definition of services. This base line data can, at best, act as a guide against which actual performance can be measured and compared. This comparison can assist in the refinement of the baseline data.

Step3: Assess Service Capabilities

Once captured, the data needs to be analysed to understand the current state as well as to identify opportunities for improvement. This analysis of the measurements is compared to the data defined in the initial stage. This comparison provides information for the assessment of the service capabilities. Without this information, it is impossible to negotiate SAs.

Step 4: Set Objectives

Once the analysis of the information derived from Steps 1 through 3 is complete, Service Level Objectives (SLOs) can be established. SLOs define the level of service that is to be provided, as agreed by the parties involved. They are articulated in the context of business goals and contain

one or more service level indicators (SLIs). The negotiating of SAs is the best process for setting and refining objectives for service levels. Through the SA process, objectives are set jointly, resulting in something that is realistic, affordable, attainable and meaningful.

Step 5: Monitor Service Levels

Once the SLOs have been established, the service provider should take the steps to ensure that the SLOs are at least being met. The ongoing process of monitoring the actual levels of services being delivered and measuring them against the SLOs then begins.

Step 6: Refine and Improve Service Levels

A service provider should never be satisfied with any given level of service, even if that level completely satisfies its obligations to its clients. Effort needs to be aimed at continuous improvement of service levels. This serves to keep the provider ahead of the competition and adding value to the client.

3.5.4 Conclusion

Sturm's (2001) pragmatic approach towards SM is refreshing. Individual processes are not detailed, rather 5 steps, are identified, leaving the implementation up to the organisation and/or the Services Manager. The approach assumes a level of maturity in the organisation by leaving the implementation open to interpretation. An inexperienced SM implementer may therefore be unable to introduce a functional SM program, where an experienced service level manager may be able to operate within this flexible model. This simplicity is the strength of this approach as it implies a "stop thinking about SM and get on with doing it" attitude. It is a no-nonsense approach that rightly places the client as the focus of SM. A weakness of this approach is the assumption that all SM implementers have the fortitude and skill to successfully implement a program that they may not fully understand.

While Sturm (2003) successfully identifies the key steps in implementing SM, it is acknowledged that these functions assume that other associated activities are taking place in parallel. These activities include performance management, reporting, client dialog, negotiating

SAs and SLOs. In doing so, it is recognised that the client and provider should collaborate in defining service parameters.

Sturm (2003) suggests measuring service performance to establish baseline data. It is, however, acknowledged that this baseline data is best used as a guide against which actual performance can be measured. The strength of Sturm's (2003) model is that it is acknowledged that the assessment of service capabilities is done to identify opportunities for improvement. This approach favours the client and is the entry point for negotiating an SA. This bias towards the client is carried beyond the negotiating an SA.

Furthermore, service levels must be monitored and these levels must perpetually be refined and improved.

3.6 Microsoft's Service Management Implementation Cycle

3.6.1 The Authors

Jeff Yuhas is credited as the Program Manager and Dinah Turner as the Lead writer in this Microsoft (2003) approach to SM. A number of additional people are listed as contributors to the SM implantation lifecycle. They are drawn from across Microsoft and include the following portfolios: Test Manager, Quality Assurance Manager, Technical Writers, Technical Editors and Production Editor.

3.6.2 Nature of the Implementation Cycle

Microsoft (2003) recognises that SM guides the operational frameworks aligns them to the requirements and expectations of the business. They suggest that when ICT understands the organisation's expectations, it can focus on meeting them. Implementing SM, according to Microsoft (2003) should follow a cycle of defining, confirming, agreeing, monitoring, reporting and reviewing.

3.6.3 Details of the Implementation Cycle

Microsoft (2003) suggests the following seven steps to implement SM.

3.6.3.1 Create a Pilot Area

The pilot sees the implementation of SM in a small to medium sized department by documenting the services available, creating a service catalogue and introducing SAs. This defines, manages, monitors and reports on a selected service. If the pilot succeeds, it can be applied to other services within the organisation.

It is important to involve the management and staff of the pilot area. This participation helps to improve buy in, as does the use of discovery workshops, as well as feedback and review sessions.

The completion of a baseline of existing services within the pilot area as well as conducting workshops to ascertain services required, delivered and consumed forms the foundation for the creation of a service catalogue.

3.6.3.2 Create a service catalogue

Once defined, the pilot area should be surveyed with interviews, workshops and other discovery exercises in order to identify what services are being consumed. A record of the relevant information related to the service should be kept. This record of services enhances the service catalogue. A service catalogue documents all the services, details of which include:

- Priority of tasks
- Effect on employees
- Number of users
- Service components used in the delivery of the service
- Any third-party provider or support contracts

The information recorded in the service catalogue should be used as a reference in the implementation of the other processes for SM. This record is essential to the other processes, as it documents the services that will be managed.

The information in the service catalogue is also used in order to create draft SAs; building further to more complex agreements once the simple processes have been validated. Initially,

state what can be measured and associated reports for these agreements. It is important to establish the SA measurements, as well as any time and costs that may be associated with producing the measurement report.

3.6.3.3 Set Service Level Objectives

When setting SLOs, measure what the business is asking for. Include process measurements such as: rating client satisfaction, returning phone calls, and response to queries. Identify possible ways in which existing technology within the organization can be used to assist in these measurements.

There are complex component chains that result in the delivery of a service, suggesting the possibility of agreement on a final objective for the service as long as the service delivery of this objective can be measured over the end-to-end chain of components. If the service delivery of this objective cannot be measured, it is recommended that it should not be agreed on unless an alternative can be found.

Although it is important to acknowledge the business requirements and endeavour to report on them, it is also essential to ask why these objectives, or this SA, or this measurement, are important. Answers to questions like these may reveal that the business wants something different, or that the business needs can be provided by a different service.

3.6.3.4 Create Operating Level Agreements

An operating level agreement covers the delivery of services which support the ICT organisation in their delivery of services. In order to create SAs that are in line with the objectives, operating level agreements should be created, ensuring that ICT teams respond when an operating level agreement is breached or when monitoring or reporting indicate problems.

3.6.3.5 Review Underpinning Contracts

Contracts with external service providers should be reviewed in order to ensure that any service levels stipulated in these underpinning contracts agree with the SA requirements. This review can consider any new requirements, or that any new requirements can be aligned with any

existing contracts as long as there is no business requirement regarding changing external contracts.

3.6.3.6 Use Real-Time Monitoring

Using the service catalogue and SAs for a department, reports can be designed and scheduled, and if required, real-time monitoring of the SA criteria should be conducted. It is important to take note of the thresholds, alerts, notifications, and actions for real-time monitoring of criteria. These should be considered and service performance measured against them. The reports produced from historical data and the monitoring function can then be confirmed at the required intervals during a service level review with the representative from the pilot department.

3.6.3.7 Perform Service Level Reviews

The reviewing of an SA provides an opportunity to assess performance against SA objectives and, more importantly, to gather perceptions and opinions from business representatives on any perceived change in service during the period of the SA pilot. It is proposed that if service levels were perceived to have been breached, and have not been highlighted by the service review or reports, that this would indicate that there might be issues with the criteria of the SA and objectives.

Business representatives should be engaged to identify any issues from the previous period as well as any current issues that may need to be addressed before the next review. These issues might include providing additional resources to support new services or service levels if these resources were not considered at the outset of the agreement period.

Should issues arise from an SA review, or during informal discussions, then a review of the SAs and updating them in line with the Change Management process should take place. The reviewing of the reporting requirements of the SA should be done on a regular basis and reports that are no longer relevant should be eliminated.

SM reports and reviews should be adaptable and reflect business needs. This will ensure that any changes are added to the internal service catalogue, agreements, and reporting and review processes. Keeping these records up-to-date adds value to the SM process.

3.6.4 Conclusion

The strengths of the Microsoft's (2003) implementation cycle of SM implementation are the pilot study, the service catalogue and the level of association in the setting of service level objectives, creating service level agreements and performance reviews. Of concern, however, is the lack of detail on how to implement the pilot study. This drawback is difficult for an inexperienced service level manager to overcome, who requires guidance through the introductory phases of SM implementation.

In doing a pilot study, the need for collaboration between all the affected parties is identified. The additional benefit of this pilot study, if successfully implemented, is the creation of a service catalogue. If the pilot study is successful, the project is expanded across the enterprise. The information from the service catalogue is then used as the foundation for the development of an SA.

The value of the implementation cycle's real-time monitoring is crucial in an SM environment. Not only does this provide accurate up-to-date information, but it can also be used for preventative action when problems are identified early. Another advantage of this form of monitoring is the value and added credibility of the service level reviews.

3.7 The ITIL Service Management Process

3.7.1 The Author

The ITIL (Information Technology Infrastructure Library) is an approach to ICT Service Management. The ITIL provides a cohesive set of best practice, drawn from the public and private sectors internationally. It is supported by a comprehensive qualification scheme, accredited training organisations, and implementation and assessment tools. The best-practice processes promoted by ITIL supports and are supported by the British Standards Institution's Standard for ICT Service Management (BS15000).

The ITIL is the only consistent and comprehensive documentation of best practice for ICT Service Management.

The ethos behind the development of ITIL is the recognition that organisations are becoming increasingly dependent on ICT in order to satisfy their corporate aims and meet their business needs, this leads to an increased requirement for high quality ICT services. The ITIL provides the foundation for quality ICT Service Management. The widespread adoption of ITIL guidance has encouraged organisations worldwide, both commercial and non-proprietary, to develop supporting products as part of a shared ITIL Philosophy.

3.7.2 Nature of the Process

The ITIL (2003) suggest that SM is essential in any organisation so that the level of ICT service needed to support the business can be determined and monitored to identify whether the required service levels are being achieved – and if not, why not. Furthermore, SAs that are managed through the SM process provide specific targets against which the performance of the ICT organisation can be judged.

3.7.3 Details of the Process

A definite SM process exists that must be planned, implemented, executed and controlled. These translate into 4 stages:

1. Establish SM function

- a. Initial Planning Activities
- b. Plan Monitoring Capabilities
- c. Establish Initial Perception of the Services
- d. Implement or Review Underpinning Contracts and Operational Level Agreements

2. Implement SAs

- a. Produce a service catalogue
- b. Expectations Management
- c. Plan the SA Structure
- d. Establish Service Level Requirements and Draft SA
- e. Wording of SAs

- f. Seek Agreement
- g. Establish Monitoring Capabilities
- h. Review Underpinning Contracts and Operational Level Agreements
- i. Define Reporting and Review Procedures
- j. Publicise the Existence of SAs

3. Manage the ongoing process

- a. Monitoring and Reporting
- b. Maintenance of SAs, Contracts and Operating Level Agreements
- c. New Services

4. Periodic Reviews

- a. Service Review Meetings
- b. Service Improvement Programme

3.7.3.1 Establish SM Function

In order to plan the SM process, the following activities should take place:

Initial Planning Activities

If there is no SM program or structure in place, a number of preliminary activities must be planned. These include:

- Appointment or nomination of a Service Level Manager and necessary supporting staff
- Production of a mission statement for SM
- Definition of the objectives and scope of the function
- An awareness campaign to win support for the function and to advise people how and when they might be affected
- Definition of roles, tasks and responsibilities
- Quantification of activities, resources, funding and quality criteria
- Identification of risks
- Planning of a service catalogue and an SA structure
- Drafting of a pilot SA format or pro-forma SA

- Identification of support tools, particularly for SA monitoring
- Setting and agreeing incident priority levels and escalation paths, with clients, internal management and external providers

Plan Monitoring Capabilities

The importance of adequate capabilities for monitoring SAs cannot be overstressed. Current monitoring tools and techniques must be reviewed. The monitoring capabilities are established during the implementation of SAs.

Establish Initial Perception of the Services

Before embarking on the introduction of SM, it is worthwhile to attempt to evaluate the client's current perception of service levels, so that later the effectiveness of the SA might be judged. This may also assist in determining the pace at which to proceed and the prioritisation of services to be addressed. Should a client's perception of service be poor, then the pace of implementation should be quicker. Specific services that the client has perceived to be poor need to be placed higher on the priority list.

Be aware that the senior managers who are paying for the services may not be the ones who use them on a daily basis. It is therefore necessary to gather perceptions at all levels within the client community. It is often the case that the operators of a system have totally different perception from the management, particularly where each is following a different agenda.

Implement or Review Underpinning Contracts and Operational Level Agreements

An underpinning contract is a contract with an external supplier covering delivery of services that support the ICT organisation in their delivery of services. Plans must be made to review or implement such contracts with external providers and operating level agreements with internal providers to ensure that underpinning services support the SA targets.

3.7.3.2 Implement SAs

When planning activities have been completed, the following activities must be undertaken to implement SM:

Produce a service catalogue

In order to create an accurate picture of the services provided to the clients, it is recommended that an ICT service catalogue is produced.

Services are defined as one or more ICT systems which enable a business process. It is a good idea to define a hierarchy of services with the service catalogue, by qualifying exactly what type of services they are (business, infrastructure, network or application).

The service catalogue may initially consist of a matrix, table or spreadsheet. Some organisations integrate and maintain their service catalogue as part of their configuration management database. By defining each service as a configuration item and, where appropriate, relating these to form a service hierarchy, the organisation is able to relate events such as incidents and requests for changes to the service affected, thus providing the basis for service monitoring via an integrated tool.

A service catalogue can also be used for other service management purposes. It can be used for performing a business impact analysis, as part of ICT service continuity planning, or as a starting place for workload management. The cost and effort of producing the catalogue is therefore easily justifiable. If this is done in conjunction with prioritisation of the business impact analysis, then it is possible to ensure that the most important services are covered first.

Manage Expectations

From the outset, it is wise to try and manage the client's expectations. This means setting proper expectations in the first place, and putting a systematic process in place to manage expectations going forward, as $\text{satisfaction} = \text{expectation} - \text{perception}$. SAs are just documents and in themselves do not materially alter the quality of the services being provided. A degree of patience is therefore needed and should be built into expectations.

Where charges are being made for the services provided, this should modify customer demands. Where direct charges are not made, the support of senior business managers should be enlisted to ensure that excessive or unrealistic demands are not placed upon the ICT provider by any individual of the client group.

Plan the SA Structure

Using a catalogue as an aid, SM must plan the most appropriate SA structure to ensure that all services and all clients are covered in a manner best suited to the organisation's needs. There are three options to consider:

Where an SA covers one service, for all the users of that service, a service based SA is often used. This may appear fairly straight forward. However, difficulties may arise if the specified requirements of different clients vary for the same service, or if characteristics of the ICT infrastructure mean that different service levels are inevitable. In such cases, separate targets may be needed within the one agreement. Difficulties may also arise in determining who should be the signatories to such an agreement.

A client based SA is an agreement with an individual client group, covering all the services they use. Clients often prefer such an agreement, as all of their requirements are covered in a single document. Only one signatory is normally required, which simplifies the issue.

Some organisations have chosen to adopt a multi-level SA structure. The most common of which is a three-layer structure. These levels are corporate, client and service. The corporate level covers all the generic SM issues appropriate to all clients within the organisation. These issues are less volatile and so updates are less frequently required. The client level covers all SM issues relevant to the particular customer group, regardless of the service being used. The service level covers all SM issues relevant to the specific service, in relation to the specific client group. This structure allows SAs to be kept to a manageable size, avoids unnecessary duplication and reduces the need for frequent updates.

Establish Service Level Requirements and Draft SA

Once the SA structure has been agreed, a first SA must be drafted. It is important to involve the client from the outset, do not commence with a blank sheet, rather produce draft outline as a starting point for more detailed and in-depth discussion. Be careful not to go too far and appear to be presenting the client with a fait accompli.

It can be difficult to draw out requirements, as the business may not know what they want – especially if not asked before and they may need help in understanding and defining their needs. Be aware that the requirements initially expressed may not be those ultimately agreed – they are more likely to change where charging is in place. Several iterations of negotiations may be required before a balance is struck between what is sought and what is achievable and affordable.

Many organisations have found it valuable to produce a pro-forma that can be used as a starting point for all SAs. The pro-forma can often be developed alongside the pilot SA. The key components of an SA are:

- Introduction
- Service hours
- Availability
- Reliability
- Support
- Throughput
- Transaction response times
- Batch turnaround times
- Change
- ICT Service continuity and security
- Charging
- Service reporting and reviews
- Performance incentives/penalties

Draft the SA

The wording of SAs should be clear and concise, leaving no room for ambiguity. Normally it is necessary agreements to be couched in legal terminology; and plain language aids a common understanding. It is often helpful to have an independent person, who has not been involved in the drafting, to do the final read-through. This reveals potential ambiguities and difficulties that can then be addressed and clarified.

It is also worth remembering that SAs may have to cover services offered internationally. In such cases, the SA may have to be translated into several languages. Remember also that an SA drafted in a single language may also have to be reviewed for suitability in several different parts of the world.

Seek Agreement

Using the draft agreement as a basis, negotiations must be held with the client to finalise the contents of the SA and the initial service targets, and with the service providers to ensure that these are achievable.

One problem that might be encountered is identifying a suitable client with whom to negotiate. This is due to the fact that there are various client groups and often the negotiator is the signatory on the agreement, yet may not be a user of the service. It is important that the client representative is genuinely able to represent the views of the client community. Unfortunately, all too often these representatives are head-office based and seldom come into contact with genuine service clients. In a worst case scenario, service level managers may have to perform their own programme of discussion and meetings with the clients to ensure true requirements are identified.

If there is no previous experience of SM, then it is advisable to start with a pilot SA. A decision should be made on which services/clients to be used for the pilot. It is helpful if the selected client is enthusiastic and wishes to participate. The results of the initial client perception may give pointers to a suitable pilot.

One difficulty sometimes encountered is that staff at different levels within the client community may have different objectives and perceptions. For example, a senior manager may rarely use the service and may be more interested in issues such as value for money and output, whereas a junior member of staff may use the service throughout the day and may be more interested in issues such as responsiveness, usability and reliability. It is important that all of the appropriate and relevant client's requirements, at all levels, are identified and incorporated in SAs.

Some organisations have formed focus groups from different levels from within the client community to assist in successfully ensuring that the issues have been correctly addressed. This takes additional resources, but can be well worth the effort.

Appropriate representatives of the ICT provider also need to be consulted. They need to agree that targets are realistic, achievable and affordable. If they do not, further negotiations are needed until a compromise, acceptable to all parties, is agreed. The views of providers should be sought and any contractual implications should be taken into account during the negotiation stages.

Where no past monitored data is available, it is advisable to leave the agreements in draft format for an initial period, until monitoring can confirm that the initial targets are achievable. Targets may have to be re-negotiated in some cases. When targets have been confirmed, the SAs must be signed.

Once a pilot has been completed and any initial difficulties overcome, SAs for the services/clients need to be introduced gradually. If it is decided from the outset to opt for a multi-level structure, it is likely that the corporate level issues have to be covered for all clients at the time of the initial pilot.

One point to ensure is that at the end of the drafting and negotiating process, the SA is actually signed by the appropriate managers on the client and ICT provider sides to the agreement. This gives a firm commitment by both parties that every attempt will be made to meet the agreement by both sides. Generally speaking, the more senior the signatories are within their respective organisations, the stronger the message of commitment. Once an SA is agreed, wide publicity needs to be used to ensure that clients and ICT providers alike are aware of its existence, and of the key targets.

It is important that the Service Desk staff is committed to the SM process and become proactive ambassadors for the SAs, embracing the necessary service culture, as they are the first contact point for client incidents, complaints and queries. If the Service Desk staff are not fully aware that SAs are in place, and therefore do not act upon them, clients will very quickly lose faith in SAs.

Establish Monitoring Capabilities

Nothing should be included in an SA unless it can be effectively monitored and measured at a commonly agreed point. The importance of this cannot be overemphasised, as inclusion of items that cannot be effectively monitored always results in disputes and eventual loss of faith in the SM process. A lot of organisations have discovered this the 'hard way' and as a consequence, have absorbed heavy costs both in a financial sense as well as in terms of negative impacts on their business culture.

Existing monitoring capabilities should be reviewed and upgraded as necessary. Ideally this should be done ahead of or in parallel with, the drafting of SAs, so that monitoring can be in place to assist with the validation of proposed targets.

It is essential that monitoring matches the client's true perception of the service. Unfortunately this is often very difficult to achieve. For example, monitoring of individual components, such as the network or server, does not guarantee that the service will be available so far as the client is concerned - a desktop or application failure may mean that the service cannot be used by the client. Without monitoring all components in the end-to-end service (which may be very difficult and costly to achieve) a true picture cannot be gained. Similarly, clients must be aware that they should report incidents immediately to aid diagnostics, especially if performance related.

Where multiple services are delivered to a single workstation, it is probably more effective to record only downtime against the service the client was trying to access at the time (though this needs to be agreed with the client). Client perception is often that although a failure might affect more than one service all they are bothered about is the service they cannot access at the time of the reported incident - though this is not always true, so caution is needed.

A considerable number of organisations use their Service Desk, linked to a comprehensive CMDB, to monitor the client's perception of Availability. This may involve making specific changes to incident/problem logging screens and require stringent compliance with incident logging procedures. All of this needs discussion and agreement with the Availability Management function.

The Service Desk is also used to monitor Incident response times and resolution times, but once again the logging screen might need amendment to accommodate data capture, and call logging procedures may need tightening and must be strictly followed. If support is being provided by a third-party, this monitoring may also underpin provider management.

It is essential to ensure that any Incident/Problem handling targets included in SAs are the same as those included in Service Desk tools and used for escalation and monitoring purposes. Where organisations have failed to recognise this, and perhaps used defaults provided by the tool provider, they have ended up in a situation where they are monitoring something different from that which has been agreed in the SAs, and are therefore unable to say whether SA targets have been met, without considerable effort to massage the data.

Some amendments may be needed to support tools, to include the necessary fields so that relevant data can be captured. Another notoriously difficult area to monitor is transaction response times (the time between sending a screen and receiving a response). Often end-to-end response times are technically very difficult to monitor. In such cases it may be appropriate to deal with this as follows:

- Include a statement in the SA along the following lines 'The services covered by this SA are designed for high-speed response and no significant delays should be encountered. If a response time delay of more than x seconds is experienced for more than y minutes this should be reported immediately to the Service Desk'.
- Agree and include in the SA an acceptable target for the number of such Incidents that can be tolerated in the reporting period.
- Create an Incident category 'poor response' (or similar) and ensure that any such incidents are logged accurately and that they are related to the appropriate service.

- Produce regular reports of occasions where SA transaction response time targets have been breached, and instigate investigations via Problem Management to correct the situation.

This approach not only overcomes the technical difficulties of monitoring, but also ensures that incidences of poor response are reported at the time they are occurring. This is very important as poor response is often caused by a number of interacting events, which can only be detected if they are investigated immediately.

The preferred method however is to implement some form of automated client/server response time monitoring. These tools are becoming increasingly available and increasingly more cost effective to use. These tools provide the ability to measure or sample actual or very similar response times to those being experienced by a variety of clients.

If the SA includes targets for assessing and implementing Requests for Charge (RFCs), the monitoring of targets relating to Change Management should ideally be carried out using whatever Change Management tool is in use (preferably part of an integrated Service Management support tool) and change logging screens and escalation processes should support this.

A number of important 'soft' issues cannot be monitored by mechanistic or procedural means, such as Customers' overall feelings (these need not necessarily match the 'hard' monitoring). For example, even when there have been a number of reported service failures the clients may still feel positive about things, because they may feel satisfied that appropriate actions are being taken to improve things. Of course, the opposite may apply and clients may feel dissatisfied with some issues (for example, the manner of some staff on the Service Desk) when few or no SA targets have been broken.

It is therefore recommended that attempts are made to monitor Customer perception on these soft issues. Methods of doing this include:

- Telephone perception surveys (perhaps at random or using regular client liaison representatives)
- Periodic questionnaires

- Satisfaction survey handouts (left with clients following installations or service visits)
- User group meetings

Where possible, targets should be set for these and monitored as part of the SA (for example, an average score of 3.5 should be achieved by the service provider on results given, based on a scoring system of 1 to 5, where 1 is poor performance and 5 is excellent). Ensure that if Users provide feedback they receive some return and demonstrate to them that their comments have been incorporated in an action plan, perhaps a Service Improvement Programme.

Review Underpinning Contracts and Operational Level Agreements

Most ICT Service providers are dependent to some extent on their own providers (both internal and/or external). They cannot commit to meeting SA targets unless their own providers' performances underpin these targets. Contracts with external providers are mandatory, but many organisations have also identified the benefits of having simple agreements with internal support groups, usually referred to as Operating Level Agreements (OLAs).

OLAs need not be complicated, but should set out specific back-to-back targets for support groups that underpin the targets included in SAs. For example, if the SA includes overall time to respond and fix targets for incidents (varying on the priority levels), then the OLAs should include targets for the each of the elements in the support chain (for example, targets for the Service Desk to answer calls, targets for network support to start to investigate and to resolve network related errors assigned to them). In addition, overall support hours should be stipulated for all groups that underpin the required service availability times in the SA. If special procedures exist for contacted staff (for example, out of hours telephone support) these must also be documented.

It must be understood however that the incident resolution targets included in SAs should not normally match the same targets included in contracts or OLAs with providers. This is because the SA targets must include an element for all stages in the support cycle (for example, detection time, Service Desk logging time, escalation time, referral time between groups, Service Desk review and closure time - as well as the actual time fixing the failure). The SA target should cover all of this.

Before committing to SAs, it is therefore important that existing contractual arrangements are investigated and where necessary, upgraded. This is likely to incur additional costs, which must either be absorbed by ICT, or passed on to the client. In the latter case the client must agree to this, or the more relaxed targets in existing contracts should be agreed for inclusion in SAs.

OLAs should be monitored against these targets and feedback given to the Managers of the support groups. This highlights potential problem areas, which may need to be addressed internally or by a further review of the SA. Serious consideration should be given to introducing formal OLAs where they do not already exist.

Define Reporting and Review Procedures

The SA reporting mechanisms, intervals and report formats must be defined and agreed with the clients. The frequency and format of service review meetings must also be agreed with the clients. Regular intervals are recommended. Periodic reports should fit in with the reviewing cycle.

The SAs themselves must be reviewed periodically, annually in line with financial cycle for example, to ensure that they are still current and indeed still relevant - does the SA still fit the needs of the business and the capabilities of ICT? All SAs should be under strict Change Management control and any changes should be reflected in an update to the service catalogue, if needed.

Publicise the Existence of SAs

Steps must be taken to advertise the existence of the new SAs amongst the Service Desk and other support groups with details of when they become operational. It may be helpful to extract key targets from the SAs into tables that can be on display in support areas - so that staff is always aware of the targets to which they are working. If support tools allow it, these targets should be included as thresholds and automatically alerted against when a target is threatened or actually breached. SAs and the targets they contain must also be publicised amongst the client community, so that clients are aware of what they can expect from the services they use, and know at what point to start to express dissatisfaction.

3.7.3.3 Manage the Ongoing Process

The following ongoing activities must be undertaken to execute the process:

Monitoring and Reporting

Immediately the SA is agreed, monitoring must be instigated, and service achievement reports must be produced. Operational reports must be produced frequently (daily - perhaps even more frequently), and where possible, exception reports should be produced whenever an SA has been broken (or threatened if appropriate thresholds have been set to give an 'early warning').

Periodic reports must be produced and circulated to clients (or their representatives) and appropriate ICT managers a few days in advance of SA reviews, so that any queries or disagreements can be resolved ahead of the review meeting. The meeting is not then diverted by such issues. The periodic report should incorporate details of performance against all SA targets, together with details of any trends or specific actions being undertaken to improve service quality. These are most effective if colour coded (Red-Amber-Green, and sometimes referred to as RAG charts as a result).

Other interim reports may be required by ICT management for internal performance reviews and/or provider or contract management. This is likely to be an evolving process - a first effort is unlikely to be the final outcome. The resources required to produce and verify reports should not be underestimated. It can be extremely time consuming, and if reports do not reflect the client's own perception of service quality accurately, they can add insult to injury.

Service Management should identify the specific reporting needs and automate production of these reports, so far as possible. The extent, accuracy and ease with which automated reports can be produced should form part of the selection criteria for integrated support tools.

Maintenance of SAs, Contracts and OLAs

SAs, underpinning contracts and OLAs must be kept up to date. They should be brought under Change Management control and reviewed periodically, at least annually, to ensure that they are still current and comprehensive, and still aligned to business needs and strategy.

These reviews should ensure that the services covered and the targets for each are still relevant – and that nothing significant has changed that invalidates the agreement in any way (this should include Infrastructure Changes, business Changes, provider Changes etc). Where Changes are detected, the agreements must be updated under Change Management control to reflect the new situation.

New Services

Flexibility within a managed services environment comes from an identified process for the identification and management of new services and service requirements. The management of new services is complimented by the Change Management required to manage the ongoing process.

Service Level Requirements

While many organisations have to give initial priority to introducing SAs for existing services, it is also important to establish procedures for agreeing Service Level Requirements (SLRs) for new services being developed or procured. The SLRs should be an integral part of the service design criteria, of which the functional specification is a part. They should, from the very outset, form part of the testing/trialling criteria as the service progresses through the stages of design and development or procurement. A draft SA should be developed alongside the service itself; and should be signed and formalised before the service is introduced into live use.

Support planning

Another area that requires attention, if new services are to be introduced in a seamless way into the live environment, is the planning and formalisation of the support arrangements. Advice should be sought from Change Management, Configuration Management and Release Management to ensure the planning is comprehensive. Specific responsibilities need to be

defined and either added to existing contracts/OLAs, or new ones need to be agreed. The support arrangement and all escalation routes also need adding to the CMDB, so that Release Management, the Service Desk and other support staff are aware of them. Where appropriate, initial training and familiarisation for the Service Desk and other support groups must be instigated before live support is needed.

It should be noted that additional support resources (that is, more staff) may be needed to support new services. There is often an expectation that an already overworked support group can magically cope with the additional effort imposed by a new service!

3.7.3.4 Periodic Reviews

The following ongoing activities must be undertaken to execute the process:

Service Review Meetings

Periodic review meetings must be held on a regular basis with clients (or their representatives) to review the service achievement in the last period and to preview any issues for the coming period. It is normal to hold such meetings monthly, or as a minimum, quarterly. Actions must be placed on the client and provider as appropriate to 'improve weak areas where targets are not being met. All actions must be recorded, and progress should be reviewed at the next meeting to ensure that action items are being followed up and properly implemented. Particular attention should be focused on each breach of service levels to determine exactly what caused the loss of service and what can be done to prevent any recurrence. If it is decided that the service level was, or has become, unachievable, it may be necessary to review and re-agree different service targets. If the service break has been caused by a failure of a third-party or internal support group, it may also be necessary to review the underpinning agreement or OLA.

Service Improvement Programme (SIP)

The SM process often generates a good starting point for an SIP and the service review process may drive this. Where an underlying difficulty has been identified which is adversely impacting upon service quality, SM must, in conjunction with Problem Management and Availability

Management, instigate an SIP to identify and implement whatever actions are necessary to overcome the difficulties and restore service quality.

SIP initiatives may also focus on such issues as User training, system testing and documentation. In these cases the relevant people need to be involved and adequate feed-back given to make improvements for the future. At any time, a number of separate initiatives that form part of the SIP may be running in parallel to address difficulties with a number of services.

Some organisations have established an up-front annual budget held by SM from which SIP initiatives can be funded. This means that action can be undertaken quickly and that SM is demonstratively effective. This practice should be encouraged and expanded to enable SM to become increasingly proactive and predictive. If an organisation is outsourcing its Service Delivery to a third party, the issue of service improvement should be discussed at the outset and covered (and budgeted for) in the contract, otherwise there is no incentive during the lifetime of the contract for the provider to improve service targets if they are already meeting contractual obligations and additional expenditure is needed to make the improvements.

The following key performance indicators and metrics can be used to judge the efficiency and effectiveness of the SM processes and function:

- What number or percentages of services are covered by SAs?
- Are underpinning contracts and OLAs in place for all SAs and for what percentage?
- Are SAs being monitored and are regular reports being produced?
- Are review meetings being held on time and correctly minuted?
- Is there documentary evidence that issues raised at reviews are being followed up and resolved?
- Are SAs, OLAs and underpinning contracts current and what percentages are in need of review and update?
- What number or percentage of service targets are being met and what is the number and severity of service breaches?
- Are service breaches being followed up effectively?
- Are service level achievements improving?
- Are Customer perception statistics improving?

- Are ICT costs decreasing for services with stable (acceptable but not improving) service level achievements?

3.7.4 Conclusion

The strength of ITIL (2004a) SM business processes lies in the fact that it is a comprehensive and holistic approach. SM is viewed as a component of ICT service delivery that acknowledges that service delivery forms part of a bigger enterprise picture. Further, it is cyclical in its nature and places the emphasis on the client and their requirements.

The SM process involves assessing the impact of change upon service quality and SAs, both when changes are proposed and after they have been implemented. Some of the most important targets set in the SAs will relate to service availability and thus require incident resolution within agreed periods. These processes are successful as they identify all the key components involved in and related to SM.

SM is seen as the hinge for service support and service delivery. It cannot therefore function in isolation as it relies on the existence and efficient working of other processes.

This approach to SM is heavily dependant on SAs. The articulation, development and implementation of these agreements form an integral part of the ITIL approach. They further recognise the importance of involving the key role players, including the client, in this process. While similar to Lewis' (1999) six steps where fine-tuning the enterprise to deliver better services is suggested, the focus in the ITIL approach is on improving the services as opposed to business process reengineering (BPR).

The ITIL approach to SM is methodical and prescriptive. It translates into a checklist of what needs to occur.

3.8 The ICT Service Management Forum's SM Business Processes

3.8.1 The Author

The ICT Service Management Forum (*itSMF*) is an internationally recognised and independent organisation dedicated to ICT Service Management. It is a not-for-profit organisation, wholly owned, and principally operated, by its membership.

The *itSMF* provides an accessible network of industry experts, information sources and events to help an organisation address ICT service management issues and to assist in achieving the delivery of high quality, consistent ICT services both internally and externally through the adoption of best practice.

3.8.2 Nature of the Processes

The *itSMF* (2004) is holistic in their methodology and approach towards SM. SM is regarded as the primary management of ICT services that ensure that agreed services are delivered when and where they are supposed to be delivered. The approach is founded on the concept of best practice. (Lawes, 2004) It is acknowledged that best practice is the best identified approach to a situation based upon observation from effective organisations in similar business circumstances.

Best practice is not about re-inventing the wheel, but learning from others and implementing what has been shown to work. Best practice techniques can be applied in all walks of life. The *itSMF* focuses on those relating to the management of ICT Services - though in reality, the principles apply anywhere (Lawes, 2004).

3.8.3 Details of the Processes

The *itSMF* (2004) identifies the following business processes that form part of SM:

- Reviewing existing services
- Negotiating with the clients
- Reviewing the underpinning contacts of 3rd party service providers
- Producing and monitoring the SA
- Implementing service improvement policy and processes
- Establishing priorities

- Planning for service growth
- Facilitating the costing of services and the recovering of these costs

3.8.4 Conclusion

The *itSMF* approach towards SM is based largely on the ITIL. The adoption of a best practice approach confirms the pivotal role played by the experience gained by other practitioners and shared with the membership.

The approach is client focussed, harnessing the applicability of a well-negotiated SA in the implementation and micro-management of SM. Further, it makes provision for the implementation of service improvements and the planning for service growth.

While the *itSMF* provides a framework for SM, they do not prescribe how it should be implemented, preferring to provide membership support and access to information via their website.

3.9 Features of the Frameworks

3.9.1 Common Threads

The authors mentioned in this chapter each describe an SM implementation process. The common threads of these processes suggest a framework involving the following common stages:

- A set of initial preparatory activities
- Activities associated with project planning
- Mechanisms for developing an understanding of the client's business requirements
- A process for designing a managed service solution
- Steps to deploy and monitor the solution
- Procedures for the reviewing and improving of the solution

3.9.1.1 The Initial Preparatory Activities

One of the most important steps in creating an environment where services can be managed is ensuring the capacity to be able to provide and manage services. The ITIL (2004) recognise that in order to establish the SM function, certain initial preparatory activities need to take place. These initial planning activities form part of what ITIL (2004) call establishing initial function. The focus of these initial activities is to ready an organisation for an SM project. The tasks that are identified as relevant in this preparation include the appointment of staff, the definition of scope and objectives, as well as planning a service catalogue. The ITIL (2004) are unfortunately alone in this regard as other approaches to SM make no mention of these activities.

3.9.1.2 The Project Planning

Once the criteria for service provision have been identified and established, an individual service management project can be initiated. This is begun, according to ITIL (2004), by doing the necessary planning.

The ITIL (2004) recognise planning as an important component of an SM initiative and include the planning of monitoring capabilities as part of their establishing of SM function.

3.9.1.3 The Understanding of the Client's Business Requirements

The importance of the identification, understanding and documentation of the client's requirements is of fundamental importance to the managing of service levels. This analysis step explores the nature of the client's requirements, with the express purpose of mapping them to the services identified in the initial preparatory activities (Lewis 1999; Lewis and Ray 1999; Sturm 2003; Brittain and Matlus 2002; Microsoft 2003 and ITIL 2004).

3.9.1.4 The Development of a Managed Service Solution

Once the business processes are mapped to the supporting service requirements and the contractual obligations and agreements are identified and accommodated, can the development of a managed services solution be developed. The focal point of this stage is the negotiating and creating of SAs (Lewis 1999; Lewis and Ray 1999; Sturm 2003; Brittain and Matlus 2002; Microsoft 2003 and ITIL 2004).

3.9.1.5 The Deploying and Monitoring of the Solution

Once the solution has been designed, it needs to be deployed and monitored. If the development of the SA has been comprehensive and accurate, it will assist deployment Lewis (1999) Lewis and Ray (1999), Sturm (2003), Brittain and Matlus (2002), Microsoft (2003), and ITIL (2004).

3.9.1.6 The Reviewing and Improving of the Solution

Managing of services includes the reviewing and improving of those services. This process makes provision for improvements in technology and the provider's ability to provide services as well as the service requirements of the client Lewis and Ray (1999), Sturm (2003), Brittain and Matlus (2002), Microsoft (2003), and ITIL (2004).

3.9.2 A Systems Development Lifecycle-Based Framework

The seven approaches towards SM presented in this chapter have much in common and overlap in many areas. Furthermore, evidence exists of planning, analysis, design, implementation and maintenance activities in the seven frameworks. Table.1 summarises how the frameworks of (Lewis 1999; Lewis and Ray 1999; Sturm 2001; Brittain and Matlus 2002; Microsoft 2003; Sturm 2003; ITIL 2004 and *itSMF* 2004) exemplify these key steps. In many respects, these frameworks are similar to the Systems Development Lifecycle.

Kay (2002) defines the Systems Development Life Cycle (SDLC) as the overall process of developing information systems through a multi-step process from investigation of initial requirements through analysis, design, implementation and maintenance. There are many different models and methodologies, but each generally consists of a series of defined steps or stages. The common phases of the SDLC are as follows:

- Planning
- Analysis
- Design
- Implementation
- Maintenance

Analysis of the frameworks shows promising support for the use of the SDLC as a basis for further analysis of the frameworks. Two modifications are, however, required. Firstly, ITIL (2003) includes a preparatory step in which an organisation readies itself before it attempts to manage services. Secondly, the maintenance activities common in a systems development environment are inappropriate in this framework and are replaced to recognise the constant reviewing that occurs in SM. The maintaining of services are foundational to the sustaining of the relationship between client and provider, and for this reason, the maintenance activities are present in implementation. Services are therefore reviewed rather than maintained

Therefore the analysis of the seven frameworks presented in this chapter will be done using a modified SDLC. The steps of this modified SDLC are:

- Preparation
- Planning
- Analysis
- Design
- Implementation
- Review

Chapter 3 – Service Management Implementation Frameworks

Table 1: SMI Implementation Frameworks

	Lewis (1999)	Lewis and Ray (1999)	Brittain and Matius (2002)	Sturm (2003)	Microsoft (2003)	ITIL (2003)	ITSM Foundation (2004)
Preparation						Initial Planning Activities	
Planning						Plan Monitoring Capabilities	
Analysis	Requirements and analysis	Understand client's business processes Understand services that support business processes	Plan	Define parameters Take measurements	Create a pilot area Create a service catalogue	Establish Initial Perception of the Services Implement or Review Underpinning Contracts and Operational Level Agreements	Review existing services Negotiate with the clients Review the underpinning contacts of 3rd party service providers
Design	Design, unit testing, and integration testing	Set service parameters Set monitoring tools	Productize	Assess service capabilities	Set service level objectives Create service level agreements Review underpinning contracts	Produce a service catalogue Expectations Management Plan the SA Structure Establish Service Level Requirements and Draft SA Wording of SAs Seek Agreement Establish Monitoring Capabilities Review Underpinning Contracts and Operational Level Agreements	Produce and monitor the SA
Implementation	Deployment	Set service levels Monitor	Deliver	Set objectives Monitor	Use real-time monitoring	Define Reporting and Review Procedures Publicise the Existence of SAs Monitoring and Reporting Maintenance of SAs, Contracts and Operating Level Agreements	
Review		Review business process requirements	Review	Refine and improve	Perform service level reviews	New Services Service Review Meetings Service Improvement Program	Implement a policy of service improvement and processes Establish priorities Plan for service growth Involve the accounting process to cost services and recover these costs

3.10 Analysis of Frameworks

3.10.1 Analysis of Lewis' Phases

The phases are sequential and promote communication between client and provider. Unfortunately, no provision is made for preparatory activities. A further concern with the phases is that the SA is produced retrospectively. This approach towards the timing of SA development does not provide a mechanism for developing the scope of the future business relationship.

3.10.1.1 Preparation

A weakness of these phases is that they make no explicit mention of any preparatory activities. While reference is made to preparing for the first meeting between client and provider, this is done in preparation for an individual service management project as opposed to developing a sustainable SM strategy.

The phases presented by Lewis (1999) appear to be based on the assumption that the necessary preparatory activities either do not occur, or have already been completed. In a situation where they do not exist, this approach to SM may be effective, yet implementation is likely to be more difficult as the necessary foundations have not been set.

3.10.1.2 Planning

No recognition of the initial planning activities is evident. The phases launch into interactions between service provider and client. This is an obvious weakness of the phases as both parties are unlikely to be adequately prepared or have planned appropriately for the SM project. Effective planning facilitates a productive working environment.

3.10.1.3 Analysis

One of the strengths of the phases is the emphasis on analysis. These phases are founded on the development of a common understanding between the client and provider. This understanding is developed during Phase 1 where the business processes and services are identified and documented.

Omitted from these phases are the identification of SM team members and the assigning of roles and work flows. Effective planning provides a solid foundation for the implementation of an SM project. By identifying the SM team members and assigning responsibilities the stakeholders have a firm base from which to operate.

The identification of the business processes and services are understood and documented. In identifying these, the phases make provision for the analysis of the relationships that exist between them.

This is a positive approach as it grounds the process in the real world, which ultimately benefits both the client and provider as it addresses the relevant problem(s) and cuts down the time taken to implement the SM program.

This approach is further justified as it promotes open communication between the client, provider and users – a cornerstone of the SM process.

3.10.1.4 Design

A feature of the design phase is the graphical representation of the network topology and the mapping of the services to this topology. Non-production prototypes of the desired solution are developed.

The design steps include the initial implementation steps. Steps 6 and 7 represent the birth of the final SM program. While prototypes are developed, they are generally not of a throw-away nature and evolve into the final SM program.

The overlapping of the design and implementation phases promotes improved communication and stimulates the development of the business relationship between client and provider, as well as between client and their users.

3.10.1.5 Implementation

Steps 8 and 9 of the phases see the deployment of the SM project. Baseline information is generated.

An interesting aspect of this approach is the delay in the drafting and implementing of an SA until Step 9. Other approaches enter into the articulation, development and deployment of SAs earlier in the process, while Lewis essentially uses the SA process to collate the information drawn from the previous steps and refine it if necessary.

This delay of the SA process has merits as it allows for the provider-client relationship to develop in the absence of a legally binding contract. There would be a strong argument that relationships founded by this approach would be stronger.

The outputs from Step 8 (discussion, evaluation and documentation) confirm the commitment of these phases to communication between all parties. This thread is ever present in each of the steps and underpins Lewis' approach towards SM.

3.10.1.6 Review

A further weakness of this approach is the limited attention paid to the review of the SM strategy. While it recognises the financial and transactional nature of the agreement, it neglects to provide for the refining of the agreement and allowing for service improvements and/or change.

A failure of this phased approach appears to be the assumption that the SA, once written, is cast in stone. In developing the SA late, there is an argument that it will fully represent the needs of the client and provider. It does not, however, make provision for improvements in service quality or the refining of business processes.

This approach has the following strengths and weaknesses:

Strengths:

- Communication is promoted between client, provider and users
- Simple language and phrases are used
- The phases are sequential, with consecutive steps building on previous ones
- Overlap is provided for between phases, promoting iteration within steps

Weaknesses:

- No preparatory phase is evident
- No provision is made for the crafting of a formal, initial agreement between client and provider, to enter into a business relationship.
- The SA is developed late in the process.
- Service improvements and/or change are poorly provided for.
- The phases assume that any improvements are derived from the refining of business processes and not better services.

3.10.2 Analysis of Lewis and Ray's Steps

The model proposed by Lewis and Ray (1999) reflects that proposed by Lewis (1999). Similarly, this model promotes stakeholder communication, but does not make provision for the preparatory or planning activities. The Lewis and Ray (1999) model also prefers to launch into the analysis activities. A further common concern is the delaying of the developing of the SA, preferring to do this retrospectively.

3.10.2.1 Preparation

These steps include no mention of the preparatory activities associated with developing an SM strategy. The steps in this approach launch directly into an SM project on the assumption that the preparatory activities have been successfully completed.

3.10.2.2 Planning

Lewis and Ray (1999) make no provision for the planning activities that launch an individual SM project. This concern was noted in the model provided by Lewis (1999) and is relevant here too.

3.10.2.3 Analysis

The analysis phase is completed during Steps 1, 2 and 3. In the first two steps, cognisance is taken of the importance of the interaction between the client and provider.

The approach further identifies the collaboration between the parties to set, monitor and revise service levels. The identification of service parameters and the assessment of baseline service levels form part of the SA articulation.

The collaboration between Lewis and Ray (1999) reflects, and builds onto, the stepped approach proposed by Lewis (1999). A feature of both models is the overlap in the planning and analysis phases, and in the analysis and design phases. This is a strong point of the steps as it encourages an iterative approach, allowing for repetition in the SM implementation process.

3.10.2.4 Design

The design activities described by Lewis and Ray (1999) pivot around the setting of service parameters, monitoring tools and service levels. While these 3 steps represent both design and implementation activities, there is concern over the order in which these activities take place. In this approach, the service monitoring tools are put in place before service levels are determined. Only once a baseline report has been produced, do they suggest determining levels of acceptable performance.

3.10.2.5 Implementation

The implementation of the SM program, as depicted in the Lewis and Ray approach, occurs retrospectively in Step 5 when an SA is articulated and signed by authorised parties.

3.10.2.6 Review

The final steps identify the need to monitor, report performance and review the SA. These steps are further evidence of the importance of developing a relationship between the two parties.

This stepped approach has the following strengths and weaknesses:

Strengths:

- Communication is promoted between client, provider and users
- Research into the client's business, by the provider, is emphasised
- Simple language and phrases are used

- The steps are sequential, with consecutive steps building on previous ones
- The steps are also cyclical, allowing for a return to step 1 from step 7
- Overlap is provided for between phases, promoting iteration within steps

Weaknesses:

- No preparatory processes are evident
- Scheduling of meetings is prescriptive
- No provision is made for the crafting of a formal, initial agreement between client and provider to enter into a business relationship
- The SA is developed late in the process
- Limited provision is made for service improvements and/or change
- Improvements are assumed to be derived from the refining of business processes and not better services
- Reporting is done monthly as opposed to in real-time

3.10.3 Analysis of Brittain and Matlus' Road Map

Brittain and Matlus (2002) provide a cyclical process of SM implementation. The road map provides a more comprehensive approach than those proposed by Lewis (1999) and Lewis and Ray (1999).

3.10.3.1 Preparation

While this road map is well constructed, it makes no provision for preparatory activities. The approach provided by Brittain and Matlus (2002) begins with the analysis activities.

3.10.2.2 Planning

While a planning phase is identified, the activities that are attributed to planning are more akin to those of analysis. There are therefore no planning activities recognised in this road map.

3.10.2.3 Analysis

The analysis phase is well defined by Brittain and Matlus (2002) and has a novel approach in working backwards from a preferred end in mind. The end goal becomes the focus and the path

is mapped back to the current position. The importance of mapping the relevant resources to the required services is recognised. A characteristic of this approach is the early start to the SA process. The analysis and design phases begin and end with the SA process.

3.10.2.4 Design

The design phase recognised by Brittain and Matlus (2002) is coupled to the analysis phase.

3.10.2.5 Implementation

Service delivery is identified as the key to this phase. The difference in this approach is that rather than the SA process being reverse engineered, the service levels are measured and then compared to the established SA. This process leads into the maintenance step.

3.10.2.6 Review

The review of the gathered data is compared with the targets stipulated in the SA. The early deployment of the SA is recognised in this phase as emphasis is placed on its revision to accommodate the gathered data.

This road map has the following strengths and weaknesses:

Strengths:

- Reverse engineering assists experienced implementers
- The SA process is begun early
- Room for improvement, using the knowledge gained using the process, is acknowledged
- Review and revise are encouraged

Weaknesses:

- No preparatory activities or processes are evident
- The processes are too prescriptive
- Service parameters and SAs are established before any testing is done
- Communication between parties is not emphasised

3.10.3 Analysis of Sturm's Model

Sturm (2003) provides a pragmatic approach towards SM. The key steps provided in this model are to be seen as a guide and are not prescriptive. Unfortunately, the preparatory and planning activities are absent from this model. A characteristic of this model is that the implementation activities occur in parallel to the analysis and design.

3.10.3.1 Preparation

No provision is made for preparatory activities. The model launches directly into the analysis activities.

3.10.3.2 Planning

No provision is made for planning activities, launching directly into the analysis activities.

3.10.3.3 Analysis

The approach to analysis makes provision for the analysis and implementation to be carried out in Steps 1, 2 and 3. The focus of these three phases is to identify the client's requirements and to map them to appropriate service parameters.

The analysis in Sturm's (2003) model occurs in the understanding of the client's requirements (Step1), the taking of measurements (Step 2) and the assessment of service capabilities (Step3). These steps are closely linked and overlap as one produces a set of data for the other to assess.

3.10.3.4 Design

The design phase is covered by Step 4, where objectives are set, and is tied to the SA development process. In this reverse engineering approach, the SA process is only begun once the system is in place and operational.

3.10.3.5 Implementation

The recognition of the need to monitor service levels (Step 5) is significant as in respect to the establishment of service level objectives. This confirms that the implementation phase of an SM revolves around the implementation and management of an SA.

3.10.3.6 Review

Recognition of the importance of continuous improvements in service levels is present. The maintenance phase is therefore characterised by the need to refine and improve service levels (Step 6). This approach is encouraging as maintenance of the status quo is inappropriate with room for improvement ever-present.

This model has the following strengths and weaknesses:

Strengths:

- Communication between client, provider and users is promoted
- Room for improvement is acknowledged
- Affordability and cost justification issues relating to SM are recognised

Weaknesses:

- No preparatory activities are present
- The model is too simplistic for SM implementers who lack experience
- The SA process is done late, hampering inexperienced implementers

3.10.4 Analysis of Microsoft's Implementation cycle

A characteristic of the approach to SM provided by Microsoft (2003) is the use of a pilot study. This pilot runs in parallel to the analysis and design phases and leads to either an implementation across the organisation, or a termination of the project. Additionally, Microsoft (2003) identifies the importance of creating a service catalogue.

3.10.4.1 Preparation

Microsoft's approach makes no provision for preparatory activities. The Microsoft approach in this implementation cycle is to launch immediately into the implementation of a pilot study.

3.10.4.2 Planning

The Microsoft (2003) approach towards SM implementation is noticeably devoid of paper-based planning and analysis. The introductory phases of the process hinge on a pilot study and the development of a service catalogue. No attempt is made to understand the business processes, or interface with the client or user. While this approach succeeds on the assumption that the provider will come to understand the client's requirements, it does not make allowances for the communication between provider and client.

3.10.4.3 Analysis

Analysis in occurs during the hands-on implementation of the pilot programme. Later in the implementation cycle, Microsoft implies the need to identify business processes and services parameters with the development of a service catalogue.

3.10.4.4 Design

The design aspects of the Microsoft (2003) SM implementation cycle centre on the setting of service level objectives and creating operating level agreements. A certain level of interaction is implied between provider, client and users. These objectives and agreements tend to be developed retrospectively, if the pilot study has been successful.

3.10.4.5 Implementation

A feature of the Microsoft (2003) SM implementation cycle is the hands-on approach that sees implementation occurring from the outset. The pilot study requires an implementation of SM before the definition and setting of enterprise service parameters.

3.10.4.6 Review

The implementation cycle recognises the importance of monitoring and reviewing service levels. A key strength of this approach is the use of real-time monitoring. This provides for accurate and reliable information on service levels and promotes interaction between all parties.

This implementation cycle has the following strengths and weaknesses:

Strengths:

- A pilot study is introduced in the organisation
- A service catalogue is developed
- Service parameters are piloted and tested before the SA process
- The SA process is recognised as a pivotal phase
- Provision is made for improvements and dialogue during SA reviews is provided for
- Service levels are monitored in real-time

Weaknesses:

- No preparatory activities are evident
- No scope exists for initial planning
- Guidance on implementing the pilot study is absent
- The process is relatively prescriptive
- Communication between parties is not emphasised

3.10.5 Analysis of the ITIL Process

The ITIL has rightfully become the SM benchmark. It forms the basis of the British BS15000 standard. The model is a comprehensive approach towards SM that draws from 20 years of ICT experience and best practice. The ITIL (2004b) approach is holistic and as a result covers all the identified steps in SM implementation.

3.10.5.1 Preparation

The ITIL approach makes specific mention of initial planning activities and suggests a number of appropriate preliminary activities. These are detailed under the heading of initial planning

activities. This solid foundation paves the way for a successful SM implementation as well as any future SM initiatives.

3.10.5.2 Planning

The planning, analysis and design steps are closely interrelated and map across the initial planning activities. A strong point of the ITIL approach towards SM implementation is that the planning activities make provision for the introduction of SM into an environment where it has not previously existed. The focus in these initial steps is communication and collaboration between provider, client and users.

3.10.5.3 Analysis

Included in the initial planning activities are the identification and analysis of monitoring capabilities. This recognises the importance of making sure of that what needs to be measured can in fact, be measured.

Client and user perceptions bear important consideration in a service environment. The ITIL process recognises this and correctly suggests gauging the initial perception of the services as part of the planning and analysis steps in SM implementation. The process further acknowledges the importance of senior managers and the client and the role they play in relation to the managed service.

3.10.5.4 Design

The ITIL design and implementation steps overlap and are mapped across the implementing of SAs. The 5 key design components of ITIL process are (1) the production of the service catalogue, (2) planning, drafting and wording the SA, (3) establishing monitoring capabilities, (4) reviewing underpinning contracts and operational level agreements and (5) defining the review and reporting procedures.

The ITIL approach is certainly comprehensive and places emphasis on planning. The design step in the cycle is therefore characterised by producing, planning, reviewing and defining aspects relating to SAs. A further feature of this approach is the emphasis placed on the introductory steps, reinforcing the communication between provider, client and users.

3.10.5.5 Implementation

The value of the ITIL approach to SM is based on its comprehensive and holistic approach. Further, it considers services from an enterprise wide perspective. This is evident in the identified implementation steps, namely, (1) managing expectations, (2) seeking agreement and (3) publicising the existence of SAs.

The attention to detail in the ITIL approach towards SM is encouraging for an inexperienced service manager. The true value of this is reflected in the fact that the ITIL approach forms the foundation for the BS 15000 service management standard. While the monitoring and reporting of services is acknowledged, this is extended to include the maintenance of existing SAs, contracts and SLOs. This is a useful approach as it allows for the dynamic development of these documents to reflect the growing relationship between the client and the provider.

The management of the ongoing process is common amongst the models investigated. The ITIL process does, however, make specific provision for the introduction of new services. Where some models neglect to make provision for new services, others actively discourage them.

3.10.5.6 Review

The review step in SM in the ITIL process is bridged by the processes identified in the managing of the ongoing services and the periodic review of services. The regular service review meetings promote communication between client and provider as well as provide a mechanism for the timely dealing issues as they arise.

The service improvement program bridges the implementation and maintenance step. During the implementation step, the baseline data is established for service levels and used to develop the SIP.

This process has the following strengths and weaknesses:

Strengths:

- The ITIL approach is holistic and comprehensive

- The need for preparatory activities is recognised
- Emphasis is placed on planning and provision is made for a first implementation
- The detailed SA process is pivotal to the process
- Communication and interaction between all parties underpins the process
- The process is iterative

Weaknesses:

- Attention to detail can be prescriptive
- Reliance on other supporting processes can limit or extend implementation

3.10.6 Analysis of the *it*SMF Processes

The *it*SMF (2004) provides a best practice approach towards SM implementation. The approach offered here is based on the approach identified by ITIL (2004b).

3.10.6.1 Preparation

While the processes identified by the *it*SMF (2004) are strongly aligned to current best practice, it neglects to accommodate any preparatory activities.

3.10.6.2 Planning

The lack of planning activities in this model is a concern. The method of SM implementation proposed by the *it*SMF (2004) launches with the analysis activities common to other models.

3.10.6.3 Analysis

The analysis activities pivot around the reviewing of the client's existing services and the existing contracts and service provision. Further, the importance of negotiating with the client is recognised. This reinforces the importance of the communication between all parties.

3.10.6.4 Design

The design phase is coupled to the implementation phase in the approach adopted by the *itSMF* (2004). These stages are characterised by the production and monitoring of an SA.

3.10.6.5 Implementation

The implementation step is linked to the design activity and encapsulated in the production and monitoring of an SA.

3.10.6.6 Review

Provision for the review of services and the focus on improvements in service levels is a strong point of the *itSMF* (2004) approach to SM. The review step is based on the implementation of a policy of service improvements and the establishing of a mechanism for service growth. Once priorities are established, improvements in service levels can occur.

An additional positive of the *itSMF* (2004) approach is the recognition of the financial implication of an SM implementation. This recognition extends to the planning to involve the accounting processes to recoup the investment in SM.

This approach has the following strengths and weaknesses:

Strengths:

- The *itSMF* approach is based on the ITIL approach
- The approach is not as prescriptive as, yet draws on, the ITIL
- The approach is open-ended to allow for interpretation
- The detailed SA process is pivotal
- Communication and interaction between all parties underpins the process
- Provision is made for service growth
- A justifiable cost benefit analysis is performed

Weaknesses:

- Open-ended approach does not suite an inexperienced service manager

- Assumes an understanding of the ITIL approach
- Lack of preparatory activities

3.11 Summary

The frameworks analysed above provide insight into various approaches to implementing service management in an ICT environment. While these frameworks have distinctive characteristics, they also have common strengths and weaknesses.

Common Strengths

- Acknowledgement of the importance of communication
- Flexibility for bilateral movement between stages
- Importance of eliciting client requirements

Common Weaknesses

- Lack of attention paid to preparatory activities
- Some processes are too prescriptive
- Limited scope provided for change management

3.11.1 Preparation

The preparation step is pivotal in readying an organisation for a managed services environment. These preparatory activities form the platform upon which any number of service management projects can be launched. Only ITIL (2004b) recognise this and make provision for it in their approach to SM implementation.

Without appropriate recognition of the organisation's capacity to provide and manage services, any attempts to do so may be hampered.

3.11.2 Planning

Once service provision and management capacity have been established, individual service management projects can be attempted. In order to ensure the smooth transition to a managed

services environment, the activities need to be planned. The ITIL (2004b) is the only model where a dedicated planning step is acknowledged. However, all the other models examined in this research project include some planning activities in the analysis steps of their approaches to SM implementation.

3.11.3 Analysis

The analysis activities identified by all the models are comprehensive and accurate. The essence of requirements elicitation, reviewing business processes and services is captured by all Microsoft (2003). Microsoft (2003) considers using a pilot study and developing a service catalogue as their analysis activities.

3.11.4 Design

Design activities are well represented across all the analysed models. The ITIL (2004b) offer the most comprehensive set of design activities, while the other models identified various aspects of the SA development process. The design phase of an SM implementation is the production of an SA.

3.11.5 Implementation

Implementation is either performed, to some extent, in parallel with the analysis and design steps or performed once the design is complete. While all the models recognise that there needs to be a deployment of services in the required environment, Sturm (2003) and Microsoft (2003) do not regard deployment as a separate step. A common thread through the implementation of a managed services environment is the need to monitor and report the services.

3.11.6 Review

The key aspects of the review step are the reviewing of service levels, planning for change and the reengineering of business processes and/or services. This is well reflected across all the models, barring that provided by Sturm (1999).

3.12 Conclusion

The various approaches towards the implementation of SM identified and analysed in this chapter have areas of commonality and areas of contrast. These approaches represent the current views on SM and its implementation. Each approach separates SM into varying steps. Sturm (2001) adopts the most pragmatic approach and as a result is the least prescriptive. The three steps identified by Sturm (2001) are, however, reflected through all the other authors' models. The common threads that permeate through all the frameworks fit into three distinct groupings. These are:

- Coming to terms with and understanding the client's requirements
- Ensuring that these requirements are satisfied by using SAs
- Reviewing the services in order to improve them

Additional common threads are the emphasis placed on communication between the client and the provider, as well as the involvement of the client in all processes.

The various steps identified in each of the frameworks are similar to those of the SDLC. With two modifications to the SDLC, namely the addition of a preparatory phase and maintenance being replaced by review, this modified SDLC can be used as a basis for further analysis of the frameworks.

Chapter 4: Exploratory Pilot Study

This chapter presents the details of an online exploratory pilot study mounted to explore the Service Management factors identified in the previous chapters. A series of interviews were also conducted with industry practitioners.

4.1 Introduction

Service Management is a key and current topic in ICT. The nature and importance of SM was identified and presented in chapter 2. Seven current approaches to SM implementation were presented and analysed in chapter 3. In order to explore further the information presented in chapters 2 and 3, an exploratory pilot study was conducted. The study involved both an online survey and a series of interviews. This chapter details the nature of the respondents, the design of the online survey and the results of that survey. This is followed by the documentation of the interview process, including the respondent's demographics and their responses. The chapter is concluded by a summary of the exploratory pilot study.

4.2 Respondents

The author invited members and affiliates of the South African branch of the Information Technology Service Management Forum (*itSMF*) to participate in the exploratory pilot study, as well as extending the invitation to other people within their respective organisations. The *itSMF* was chosen as a platform for SM respondents as it is ideally placed to provide access to individuals and organisations that are currently active in managing services within the ICT sector. The following information on the nature and composition of the *itSMF* was obtained from their webpage:

“The *itSMF* is the only truly independent and internationally-recognised forum for IT Service Management professionals worldwide. This not-for-profit organisation is a prominent player in the on-going development and promotion of IT Service Management "best practice", standards and qualifications and has been since 1991.

As businesses depend more and more on technology to promote and deliver their products to market, so the benefits of adopting "best practice" IT Service Management and of becoming part of the IT Service Management Forum become more apparent.

The *itSMF* provides an accessible network of industry experts, information sources and events to help you and your staff address IT service management

issues and help you achieve the delivery of high quality, consistent IT service internally and externally through the adoption of "best practice".

The *itSMF* now boasts over 2500 member companies, blue chip and public sector alike, and international *itSMF* Chapters.”

Invitations were further made to organisations who had expressed an interest in the research. These organisations posted these invitations on their respective intranets, inviting interested persons to participate. The respondents therefore self-selected themselves.

4.3 Exploratory Pilot Study Questions

The questions for the exploratory pilot study were developed from those employed by Blum (2002). Questions were drawn directly from this survey, others were adapted and additional ones that reflected the literature discussed in chapters 2 and 3.

The exploratory pilot study contains 23 questions and these questions are divided up into the following 9 categories:

4.3.1 Demographics

The first five (1 – 5) questions of the exploratory pilot study addressed the respondent’s demographic details. These questions were designed to elicit information regarding the respondent’s location, industry sector, job title, SM experience and the size of their organisation.

4.3.2 Respondent Service Management Experience and Standard

Questions 6, 7 and 8 explore the respondent’s breadth and depth of SM experience and the presence of a SM policy.

4.3.3 Service Management Success

Questions 9, 10 and 11 explore the success of SM in terms of respondent’s satisfaction with their organisation’s capability, the scope for improvements and the frequency of SM failures.

4.3.4 Factors That Contribute to Unsuccessful Service Management

Question 12 addresses the extent to which the identified factors contribute to unsuccessful SM.

These factors are:

- Poorly developed Service Management strategy
- Inadequate preparation
- Lack of planning
- Poor understanding of client requirements
- Poorly developed Service Agreements
- Lack of supporting processes
- Poor customer relationship management
- Poor communication
- Problems with reporting

4.3.5 Barriers to Implementing or Improving Service Management

Question 13 explores the barriers to implementing and improving SM. Possible barriers include:

- Difficulty with Service Agreements
- Lack of experienced staff
- Lack of Service Management understanding
- Difficulty with products and tools
- Cost and time justification
- Executive support
- Customer relationship management

4.3.6 Important Components of Service Management

Question 14 requires the respondent to identify what they understand to be the most important part of a good SM program. Components of an SM program include:

- Good customer relationship management
- Flexibility in the organisation and proactive change management
- Proactive change management
- Detailed understanding of client requirements
- Continued delivery on services

- Good communication

Questions 15, 16, 17 and 18 identify and explore the nature and importance of SM preparatory activities. The activities are the appointment of a Service Manager, the development of a Catalogue of Services, designation of SM project teams and the understanding and documenting of client requirements.

4.3.7 Service Management Skills and Staff

Questions 19, 20, 21, 22 and 23 explore the importance and presence of Project Management, Communication, Customer Relationship and Time Management skills of people involved in SM.

4.3.8 Effective Communication and SM Success

The final question, number 24, isolates the presence of effective communication as a key success factor in SM.

4.3.9 Questionnaire Delivery

An online questionnaire was developed in and loaded using an online survey system. The online system used to develop, deliver and manage the survey was Perception Assessment Manager.

4.4 Results of the Exploratory Pilot Study

A total of 37 respondents completed the survey. Given the small sample size, the results of the analysis should be viewed with caution. Further, some of the respondents did not answer all the questions and that is reflected in the questions where the total responses are less than 37.

4.4.1 Demographics

Question 1

Indicate the region in which you are currently employed.

Table 2: Geographic Location of Respondents

	Eastern Cape	Gauteng	KwaZulu Natal	Outside of South Africa	Western Cape	Total
Count	3	18	3	2	11	37
%	8.1	48.6	8.1	5.4	29.7	100

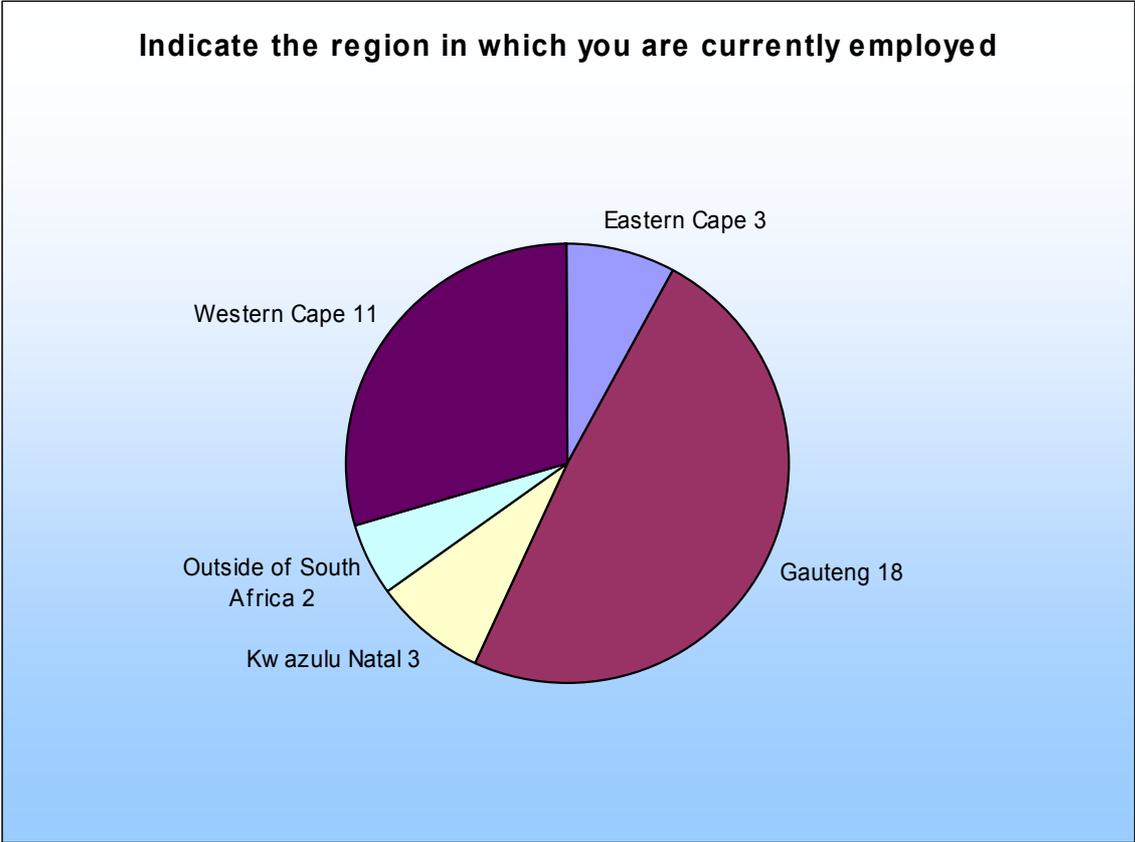


Figure 6: Geographic Location of Respondents

Figure 6 displays the geographic location of the respondents. The majority of respondents (48.65%) are employed in Gauteng, while 29.73% work in the Western Cape, 8.11% in KwaZulu Natal and the Eastern Cape, and the rest work outside of South Africa.

Question 2

Indicate the industry sector in which you are currently employed

Table 3: Industry or Employment of Respondents

	Manufacturing or Pharmaceuticals	ICT Service Provider	Financial Services, Insurance or Legal	Retail or Wholesale	Telecommunications Provider	Computer Manufacturer	Other	Total
Count	2	17	7	1	4	1	5	37
%	5.4	45.9	18.9	2.7	10.8	2.7	13.5	100

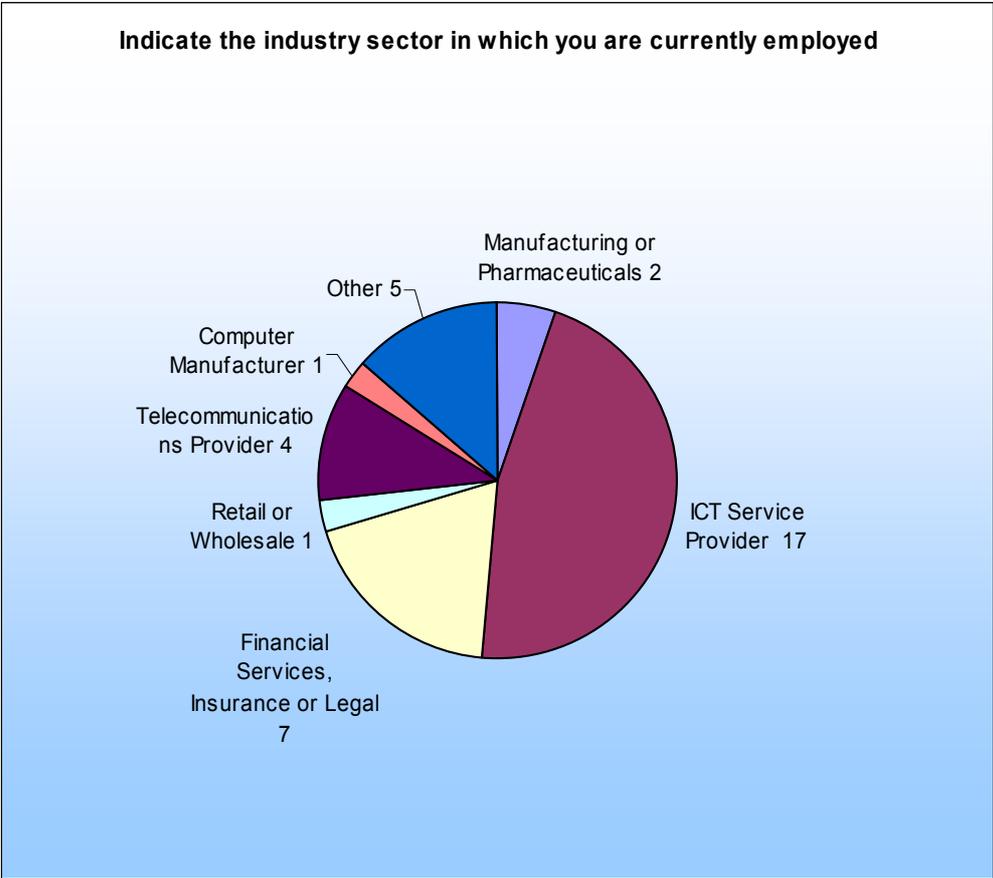


Figure 7: Industry or Employment of Respondents

Figure 7 shows that the majority of respondents (45.95%) are employed in within ICT Service Providers. The second largest industry grouping, represented by 18.92% of the respondents, is the Financial Services, Insurance or Legal professions. 10.81 % work in Telecommunications, 5.41 % work in Manufacturing or Pharmaceuticals and 2.7% work in both Retail or Wholesale and Computer Manufacturing. 13.51% listed their employment as other.

Question 3

Indicate which of these most closely represents your job title

Table 4: Job Title of Respondents

	ICT Consultant	ICT Executive	ICT Manager	ICT Director	Other Technical Staff	Other	Network Administrator	Total
Count	7	1	13	2	4	8	2	37
%	18.9	2.7	35.1	5.4	10.8	21.6	5.4	100

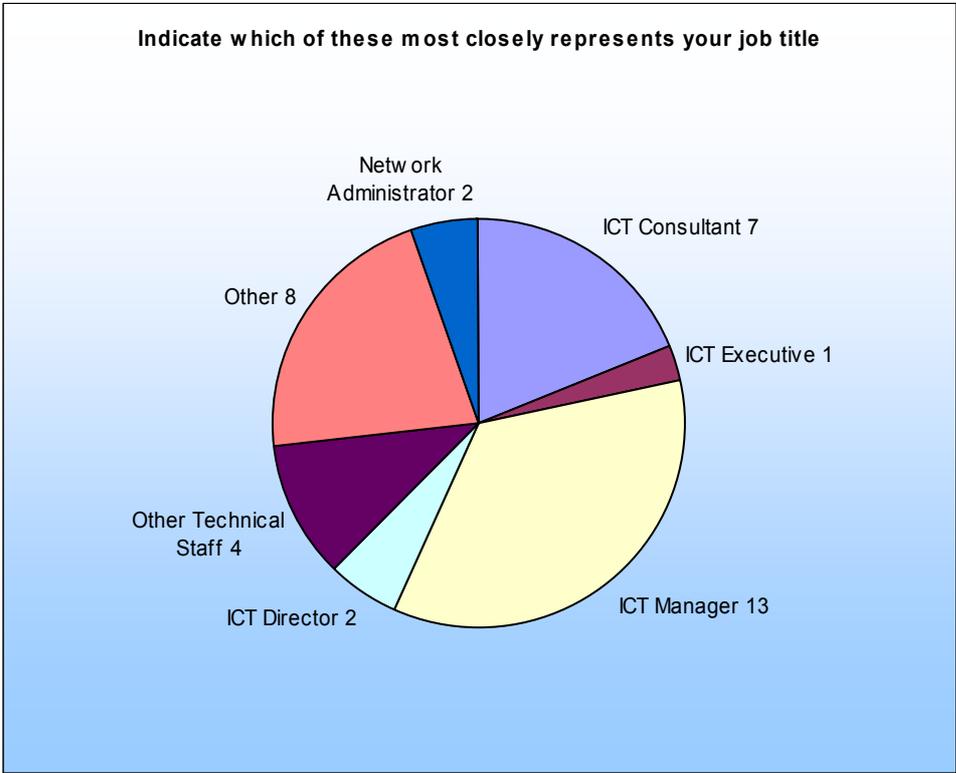


Figure 8: Job Title of Respondents

35.1% of the respondents work as ICT managers, as depicted in Figure 7 18.9 % of the respondents work as ICT consultants, 10.8% as Technical Staff and 5.4% represents Network Administrators and ICT Directors. 2.7% of respondents are ICT Executives and 21.6% selected other. It is therefore acknowledged that the results of this survey predominately reflect the opinion of managers of ICT in South Africa.

Question 4

Indicate the number of years you have been involved in Service Management

Table 5: Years of Involvement in SM

	Less than 1 year	Between 1 and 4 years	Between 5 and 9 years	More than 10 years	Total
Count	3	15	11	8	37
%	8.1	40.5	29.7	21.6	100

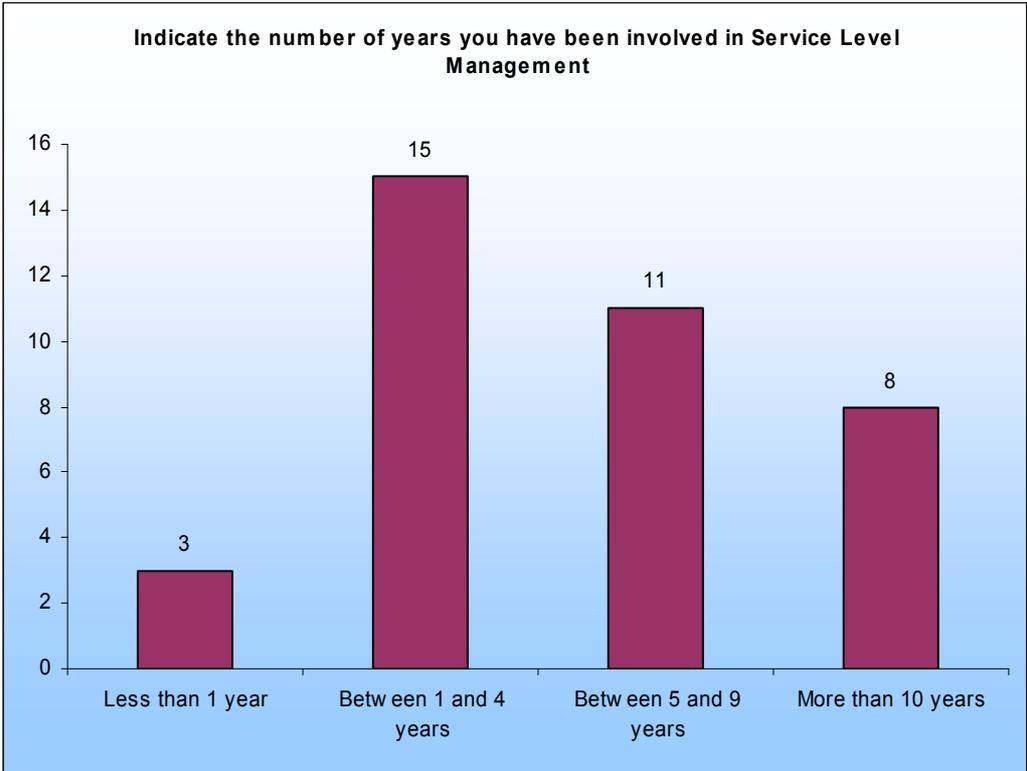


Figure 9: Years of Involvement in SM

The majority of respondents (40.5%) have been involved in SM for between 1 and 4 years. This is followed by 29.7% and 21.6% for between 5 and 9 years and more than 10 years respectively. Only 8.1% registered SM involvement of less than 1 year.

Question 5

Indicate the number of people employed by your organisation

Table 6: Size of Respondents Organisation

	Less than 100	Between 100 and 499	Between 500 and 999	Between 1000 and 1999	More than 2000	Total
Count	6	5	5	1	20	37
%	16.2	13.5	13.5	2.7	54.1	100

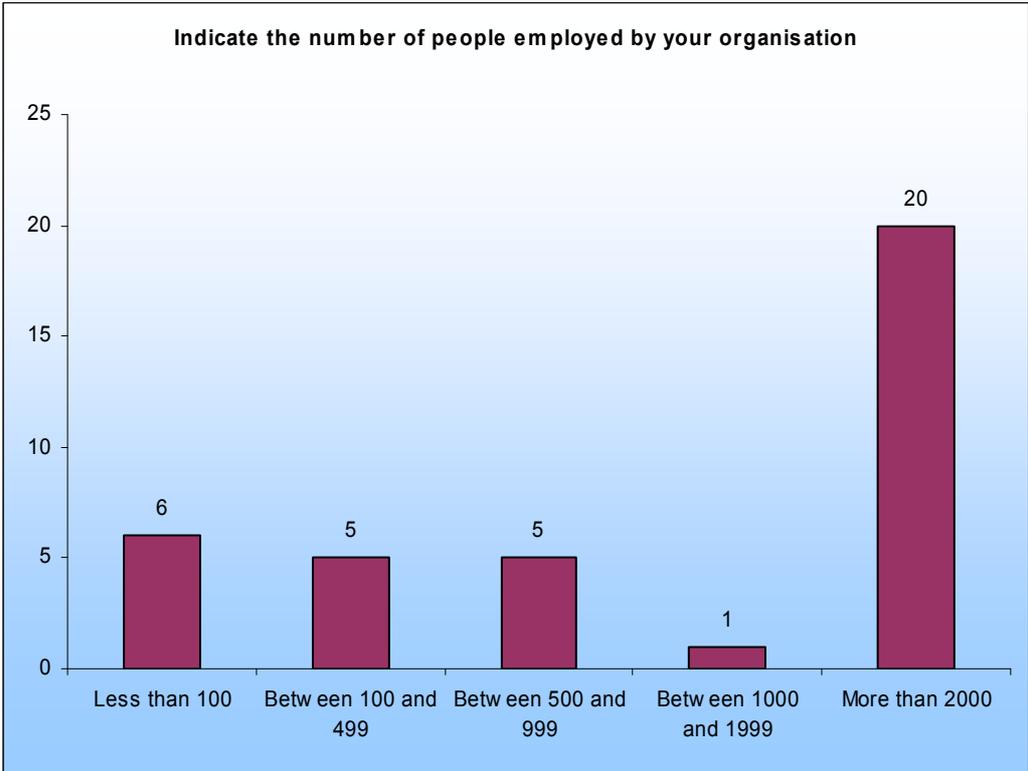


Figure 10: Size of Respondents Organisation

54.1% of respondents are employed in an organisation with more than 2000 employees, while only 2.7% work in an environment with between 1000 and 1999 employees. 16.2% of respondents are employed in smaller organisations of less than 100 people and 13.5% of respondents work in organisations of between 100 and 499 people and between 500 and 999 people.

4.4.2 Respondent Service Management Experience

Question 6

Indicate the extent of your understanding of the processes, procedures, goals and objectives of Service Management

Table 7: Extent of SM Understanding

	None	Limited	Sufficient	Moderate	Extensive	Total
Count	0	2	5	13	17	37
%	0.0	5.4	13.5	35.1	45.9	100

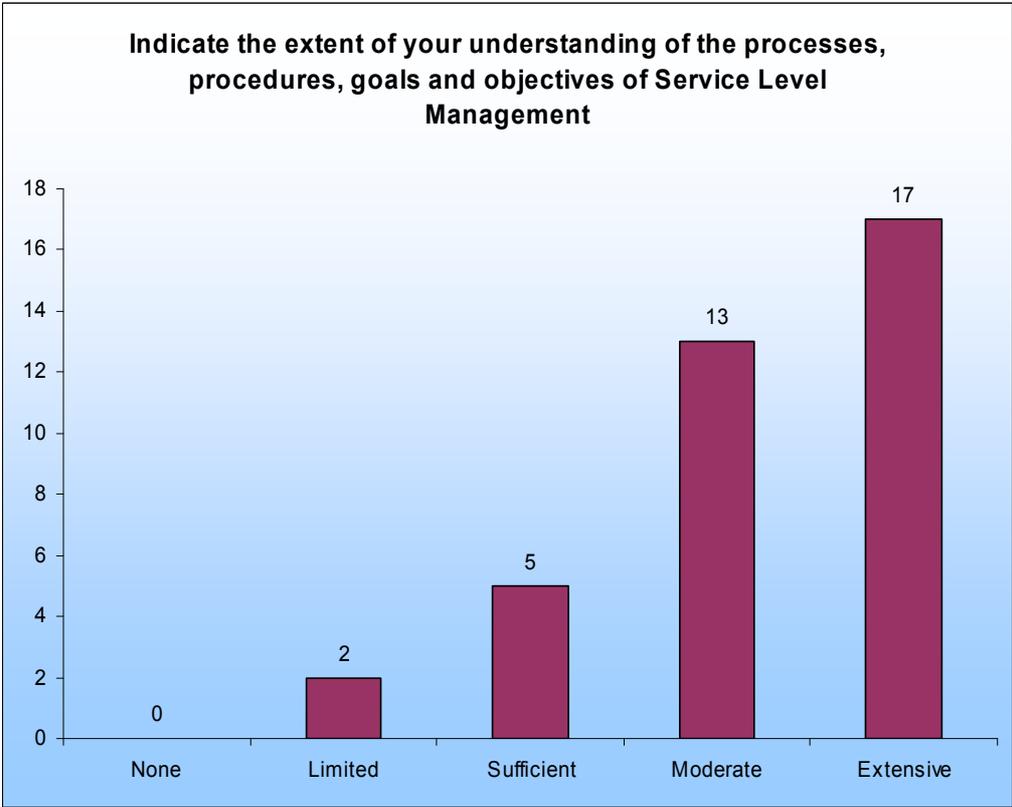


Figure 11: Extent of SM Understanding

45.9% of respondents rate their understanding of SM as extensive, while a further 35.1% regard their SM understanding as moderate. 13.5% and 5.4% register their SM understanding as sufficient and limited respectively.

Question 7

Indicate the length of time that your organisation has had a Service Management strategy in place

Table 8: Time SM Strategy Has Been in Place

	No Strategy in Place	Less than 1 year	1 to 4 years	5 to 10 years	More than 10 years	Total
Count	3	7	12	13	2	37
%	8.1	18.9	32.4	35.1	5.4	100



Figure 12: Time SM Strategy Has Been in Place

While only 5.4% of respondents have had an SM strategy in place for more than 10 years, 35.1% and 32.4% have had a strategy in place for between 5 and 10 years and between 1 and 4 years respectively. 18.9% have only had a strategy in place for less than a year and 8.1% acknowledge having no strategy in place at all.

Question 8

Indicate the standard, if any, on which your organisation's Service Management policy is based

Table 9: Standard upon Which SM is Based

	Developed In House	Six Sigma	ITIL	Not Sure	Other	Total
Count	6	2	24	4	1	37
%	16.2	5.4	64.9	10.8	2.7	100

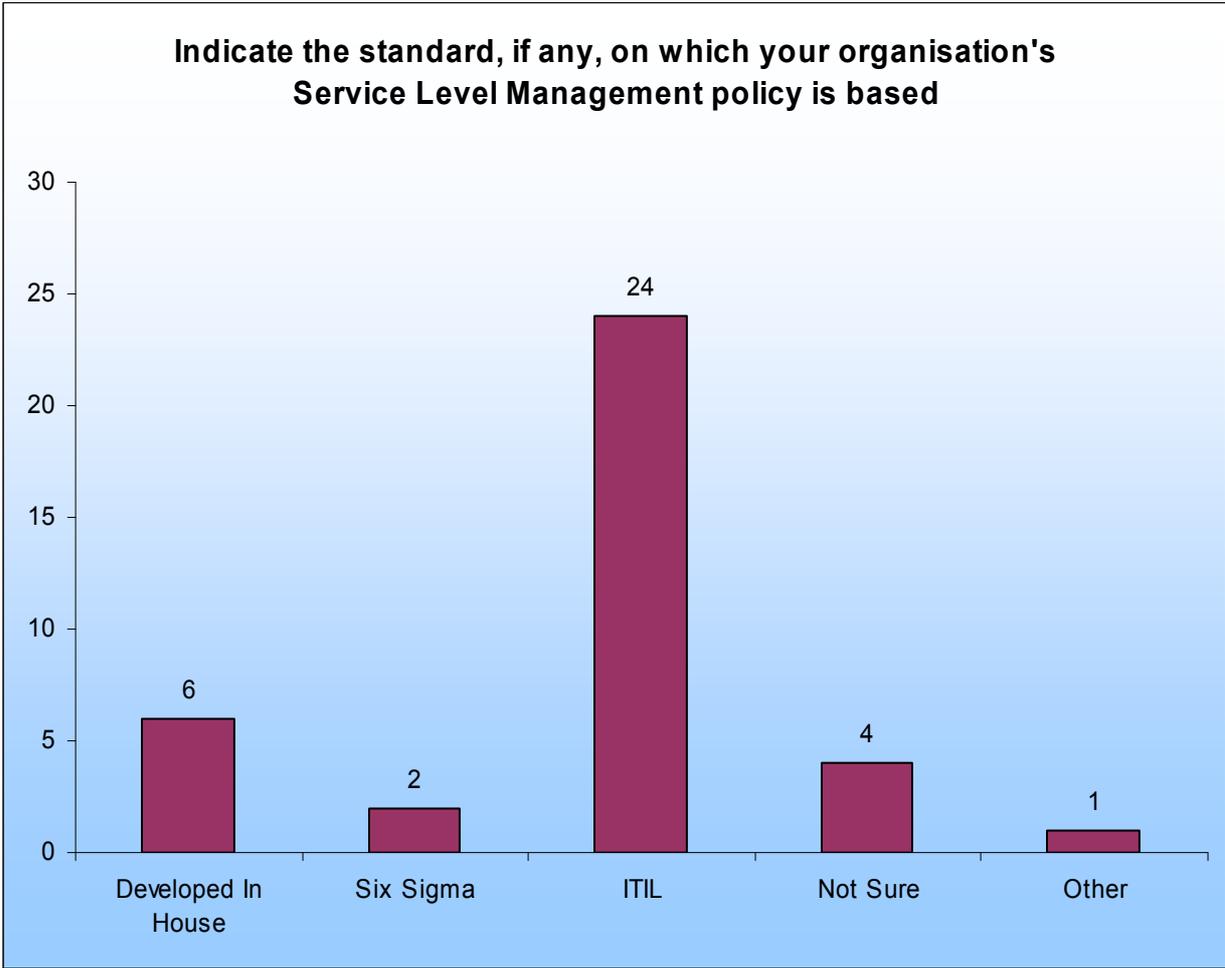


Figure 13; Standard upon Which SM is Based

The majority of respondents (64.9%) recognised the ITIL as the basis for their SM strategy. 16.2% of SM strategies were developed in house and 10.8% were not sure. 5.4% of respondents based their SM on Six Sigma and 2.7% were not sure what their strategy was based on.

4.4.3 Service Management Success

Question 9

Indicate how satisfied you are with your organisation's Service Management capabilities

Table 10: Satisfaction with SM Capabilities

	Very Dissatisfied	Somewhat Dissatisfied	Somewhat Satisfied	Mostly Satisfied	Very Satisfied	Total
Count	3	7	6	18	3	37
%	8.1	18.9	16.2	48.6	8.1	100



Figure 14: Satisfaction with SM Capabilities

8.1% of respondents were very satisfied with their organisation’s SM capabilities. A further 48.6% were mostly satisfied and 16.2% were somewhat satisfied with their organisation’s SM capabilities. Interestingly, 18.9% and 8.1% were somewhat dissatisfied and very dissatisfied with their organisation’s SM capabilities respectively.

Question 10

Indicate how important you regard the need to improve your organisation's Service Management capabilities

Table 11: Need to Improve SM Capability

	Not Important At All	Not So Important	Somewhat Important	Rather Important	Very Important	Total
Count	0	0	5	9	23	37
%	0.0	0.0	13.5	24.3	62.2	100

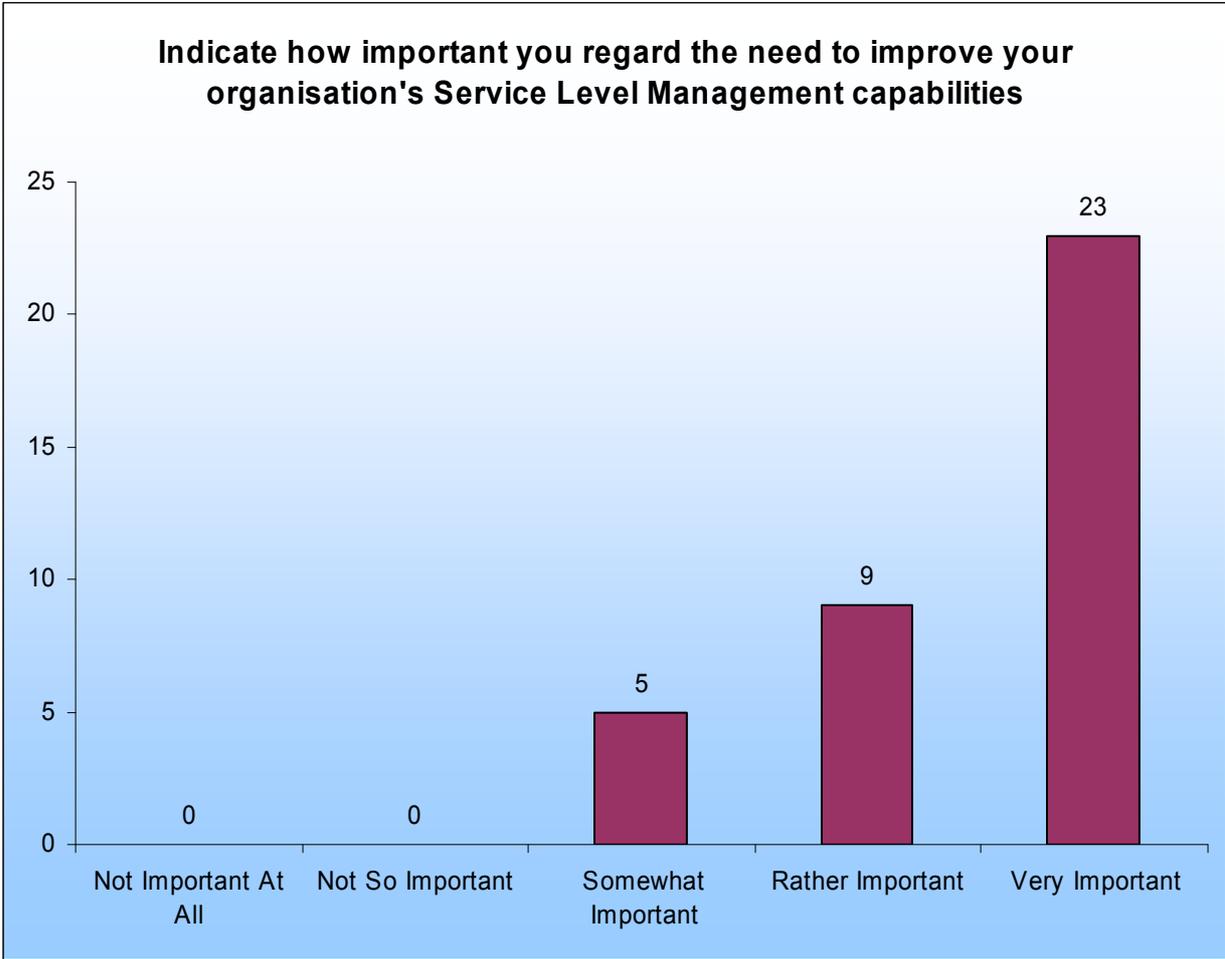


Figure 15: Need to Improve SM Capability

All the respondents regarded it as important to improve the organisation’s SM capabilities. 13.5% regarded it as somewhat important, while 24.3 recorded it as rather important. 62.2% regarded improving SM capabilities as very important.

Question 11

Indicate how often Service Management initiatives are unsuccessful in your organisation

Table 12: Frequency of Unsuccessful SM Initiatives

	Always	Very Often	Sometimes	Rarely	Never	Total
Count	1	8	16	10	0	35
%	2.9	22.9	45.7	28.6	0.0	100

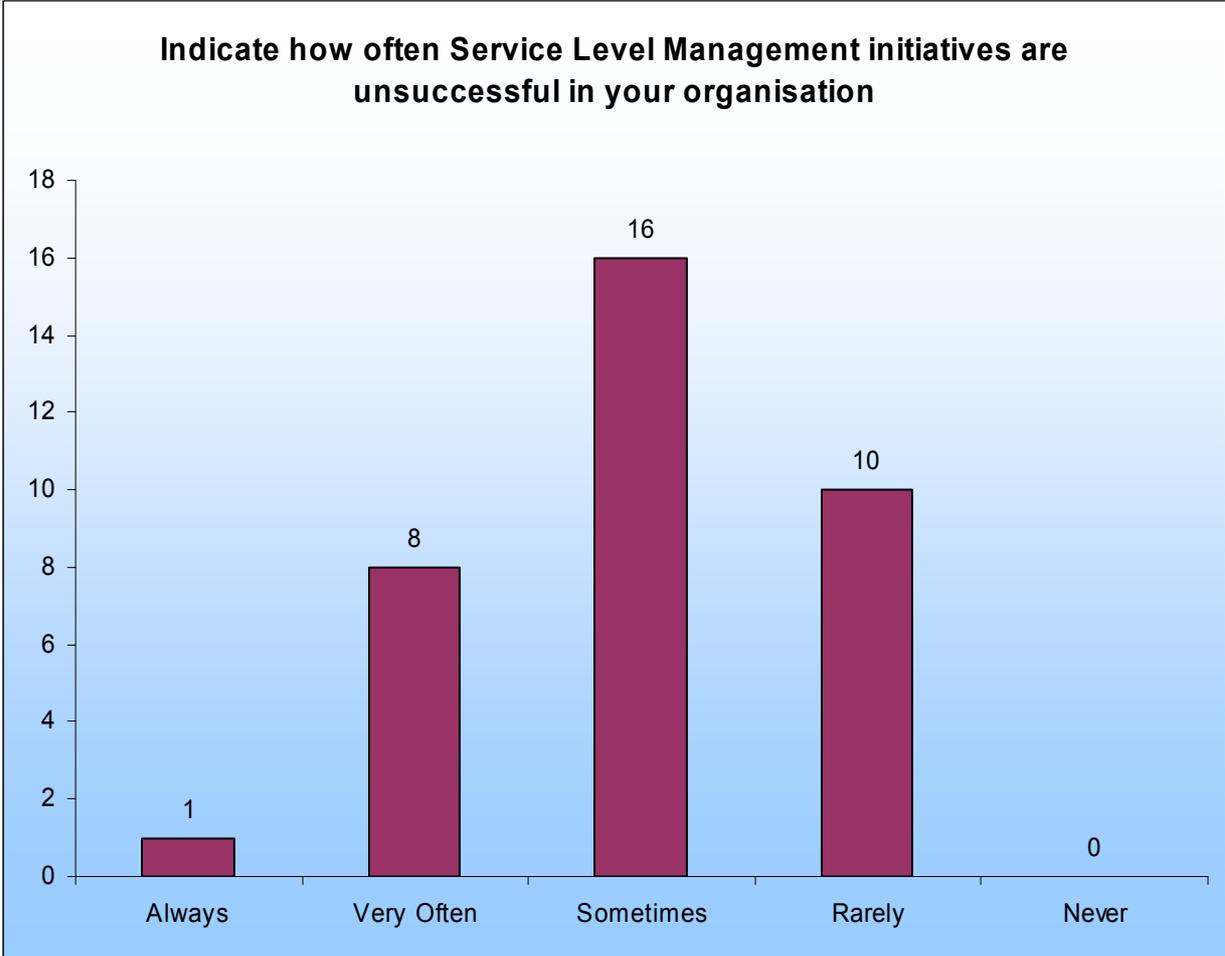


Figure 16: Frequency of Unsuccessful SM Initiatives

Where 28.6% of respondents noted that SM initiatives within their organisation rarely fail, 45.7% recorded these failures sometimes. 22.9% noted SM initiatives failing very often and 2.9% recorded the frequency of failures as always.

4.4.4 Factors That Contribute to Unsuccessful Service Management

Question 12a

Indicate the extent to which a poorly developed SM strategy contributes to unsuccessful Service Management initiatives

Table 13: Contribution of a Poorly Developed SM Strategy to Unsuccessful SM

	None	Limited	Sufficient	Moderate	Extensive	Total
Count	1	3	9	9	13	35
%	2.9	8.6	25.7	25.7	34.1	100

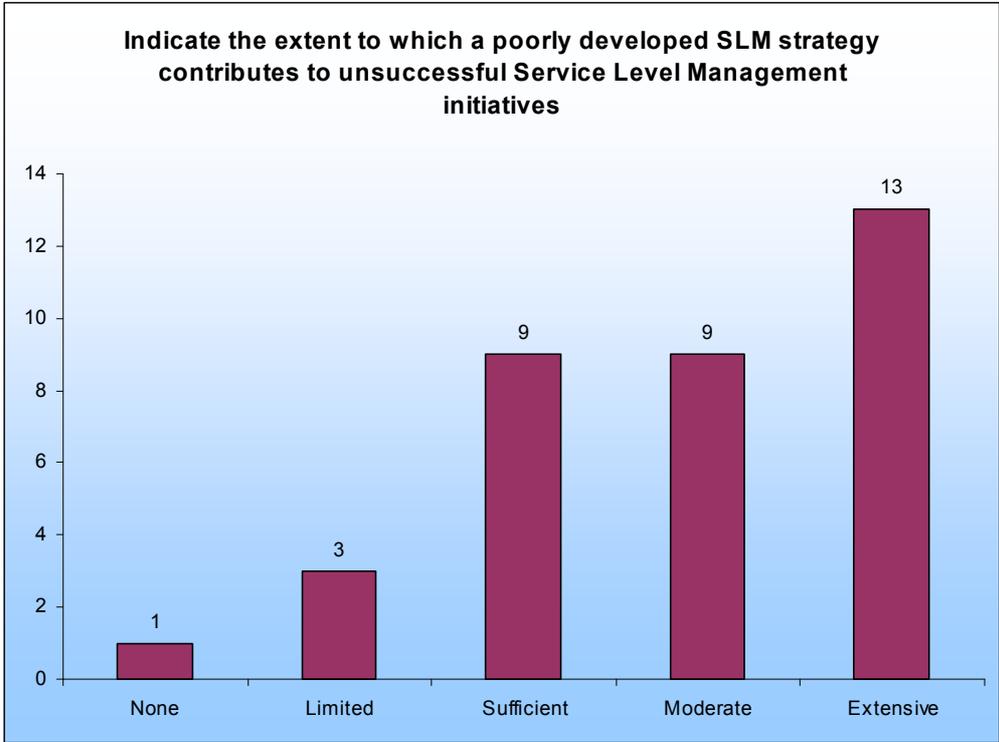


Figure 17: Contribution of a Poorly Developed SM Strategy to Unsuccessful SM

34.1% of respondents believe that a poorly developed SM strategy will contribute extensively to an unsuccessful SM initiative. 25.7% rated the contribution of a poorly developed SM strategy as moderate and sufficient. 8.6% suggested that the contribution was limited and only 2.9% suggested there was no contribution.

Question 12b

Indicate the extent to which inadequate preparation contributes to unsuccessful Service Management initiatives

Table 14: Contribution of Inadequate Preparation to Unsuccessful SM

	None	Limited	Sufficient	Moderate	Extensive	Total
Count	1	6	9	10	10	35
%	2.8	16.7	25.0	24.8	24.8	100

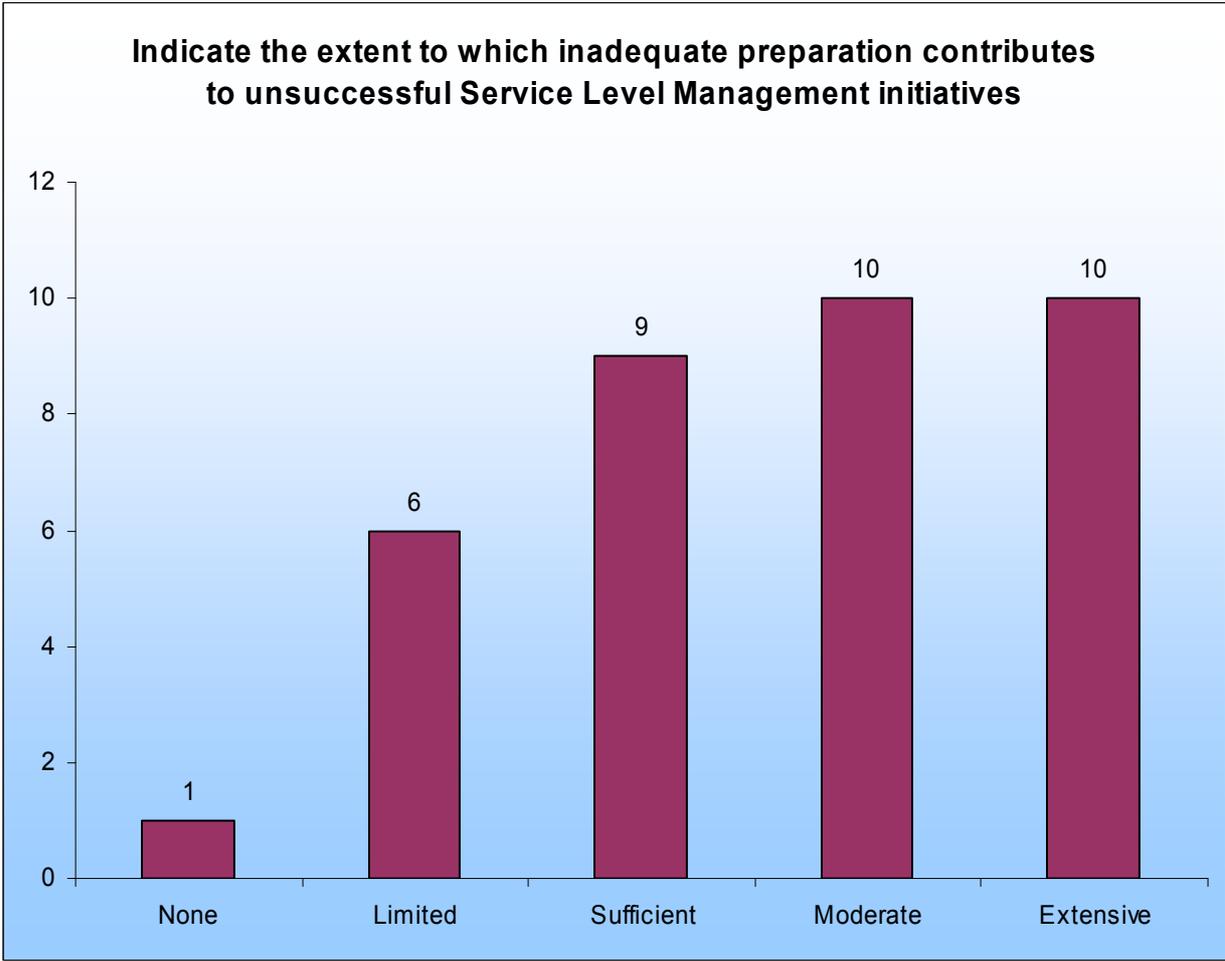


Figure 18: Contribution of Inadequate Preparation to Unsuccessful SM

24.8% of respondents acknowledge that inadequate preparation makes an extensive contribution towards unsuccessful SM initiatives. A further 24.8% suggest that this contribution is moderate, while 25% rate it as making a sufficient contribution. Only 16.7% of respondents suggest that the impact is limited and a further 2.8% recognise no impact of poor preparation on the success of an SM initiative.

Question 12c

Indicate the extent to which lack of planning contributes to unsuccessful Service Management initiatives

Table 15: Contribution of a Lack of Planning to Unsuccessful SM

	None	Limited	Sufficient	Moderate	Extensive	Total
Count	0	7	6	14	9	36
%	0.0	19.4	16.7	38.9	25.0	100

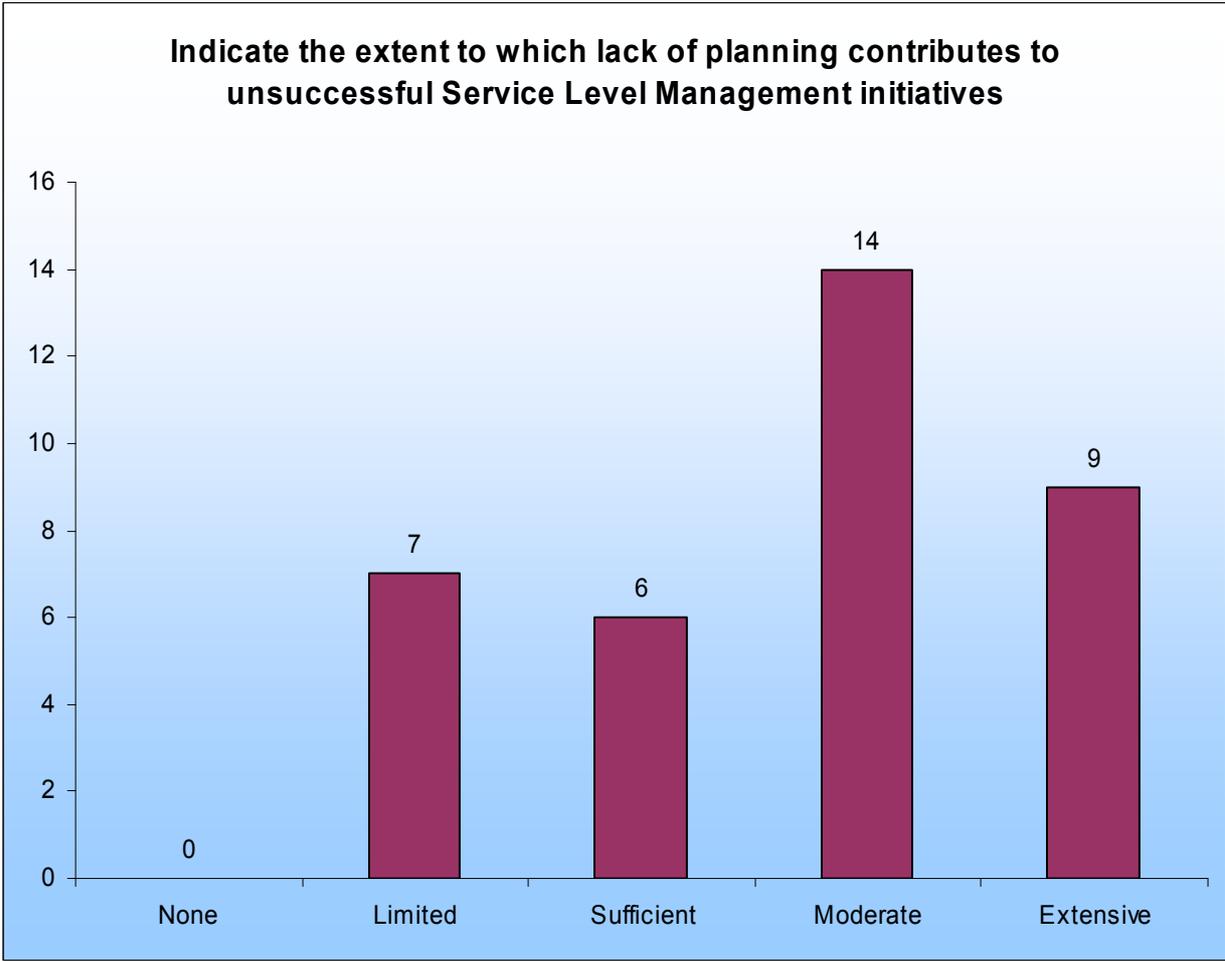


Figure 19: Contribution of a Lack of Planning to Unsuccessful SM

A quarter of respondents (25%) regard the lack of planning as contributing extensively to towards unsuccessful SM. A further 38.9% rate the contribution as moderate and 16.7% as sufficient. Only 19.4% suggest that the lack of planning has limited impact on the success of an SM initiative.

Question 12d

Indicate the extent to which poor understanding of client's requirements contributes to unsuccessful Service Management initiatives

Table 16: Contribution of Understanding of Client’s Requirements to Unsuccessful SM

	None	Limited	Sufficient	Moderate	Extensive	Total
Count	0	3	5	12	15	35
%	0.0	8.6	14.3	34.3	42.9	100

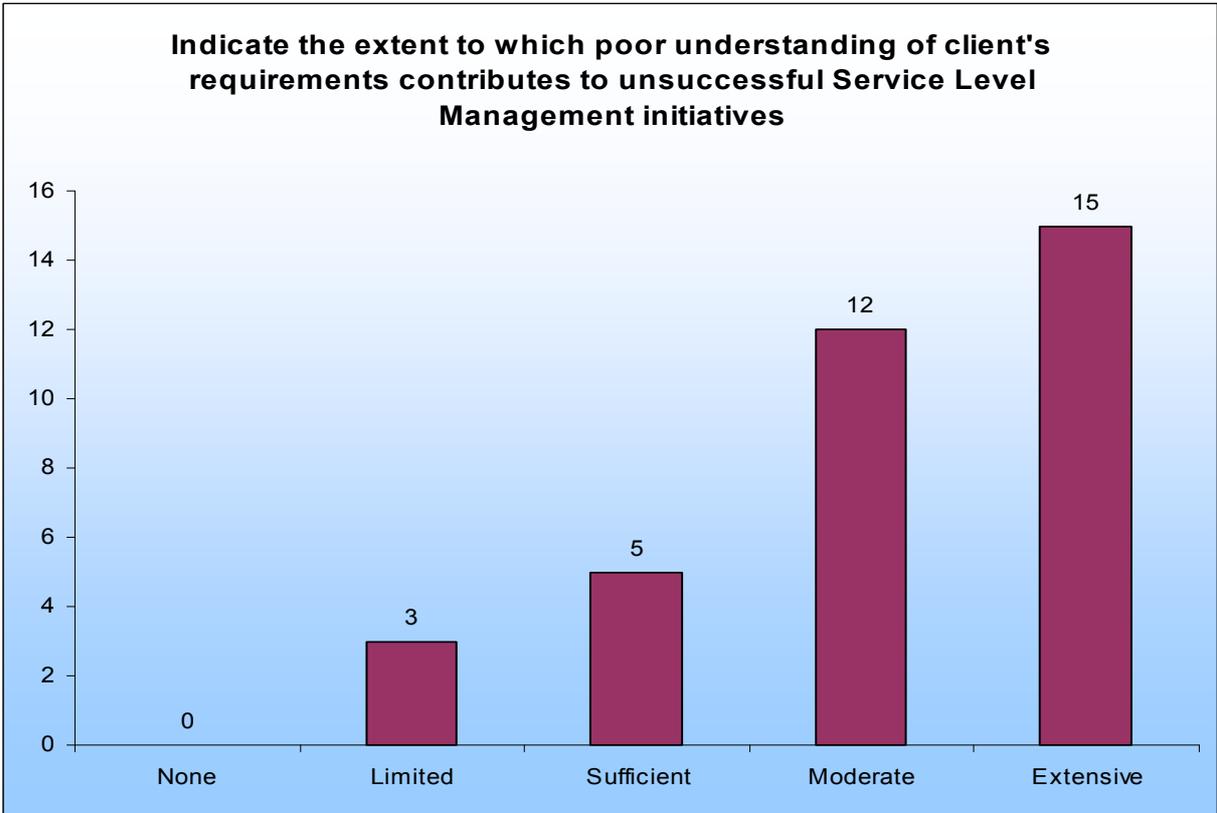


Figure 20: Contribution of Understanding of Client’s Requirements to Unsuccessful SM

Over 40% of respondents acknowledged that the poor understanding of client requirements contributed extensively to unsuccessful SM initiatives. A further 34.3% registered this contribution as moderate and 14.3% rated it as sufficient. Only 8.6% of respondents rated the impact of poor understanding of client requirements as limited.

Question 12e

Indicate the extent to which poorly developed service agreements contributes to unsuccessful Service Management initiatives

Table 17: Contribution of Poorly Developed SAs to Unsuccessful SM

	None	Limited	Sufficient	Moderate	Extensive	Total
Count	0	3	7	12	13	35
%	0.0	8.6	20.0	34.3	34.1	100

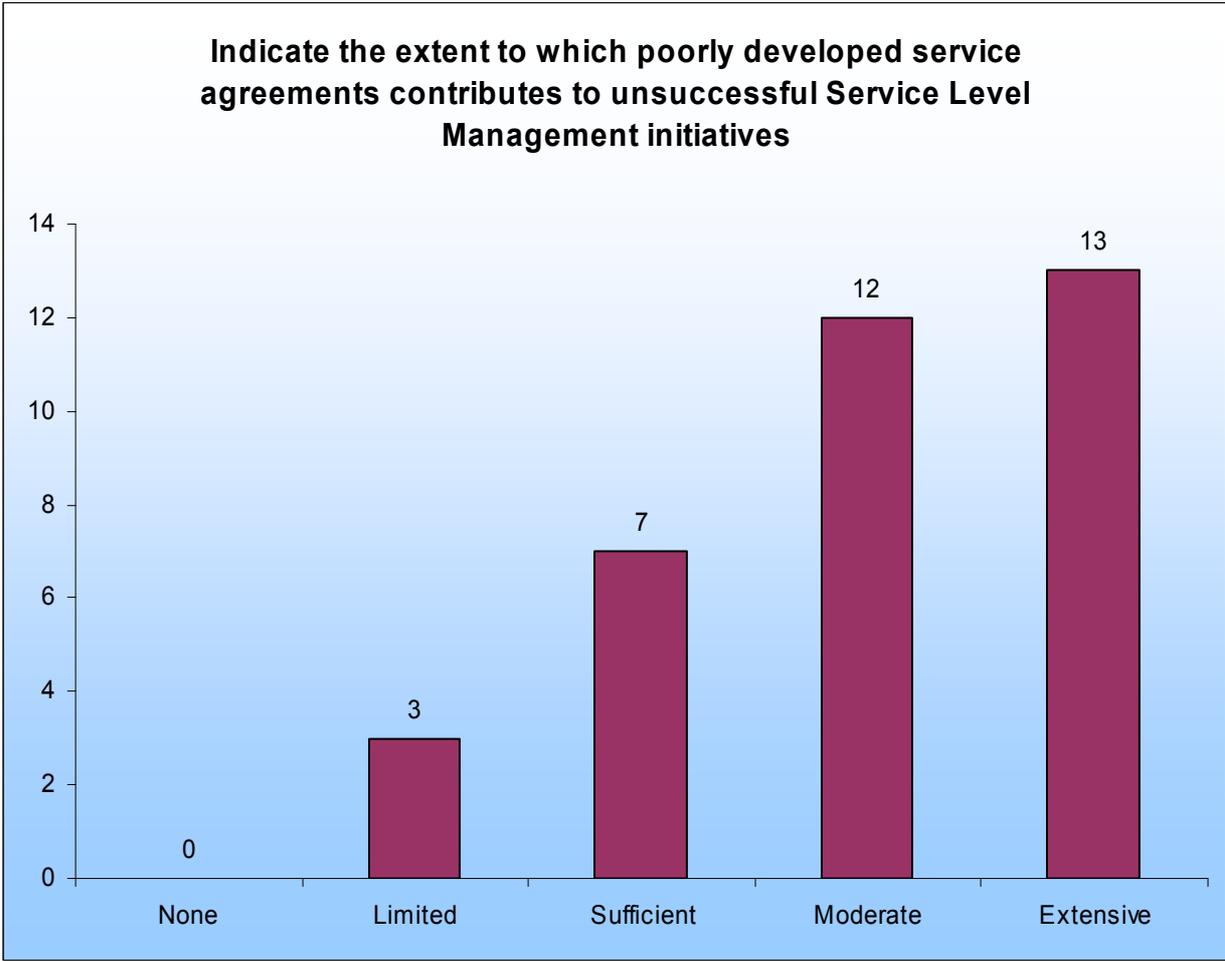


Figure 21: Contribution of Poorly Developed SAs to Unsuccessful SM

Respondents rated the contribution of poorly developed service agreements on the success of an SM initiative as extensive (34.1%), moderate (34.3%) and sufficient (20.0%). Only 8.6% of respondents rated the contribution of poorly developed SAs as limited.

Question 12f

Indicate the extent to which a lack of supporting processes contributes to unsuccessful Service Management initiatives

Table 18: Contribution of Lack of Supporting Processes to Unsuccessful SM

	None	Limited	Sufficient	Moderate	Extensive	Total
Count	0	4	10	6	15	35
%	0.0	11.4	28.6	14.1	42.9	100

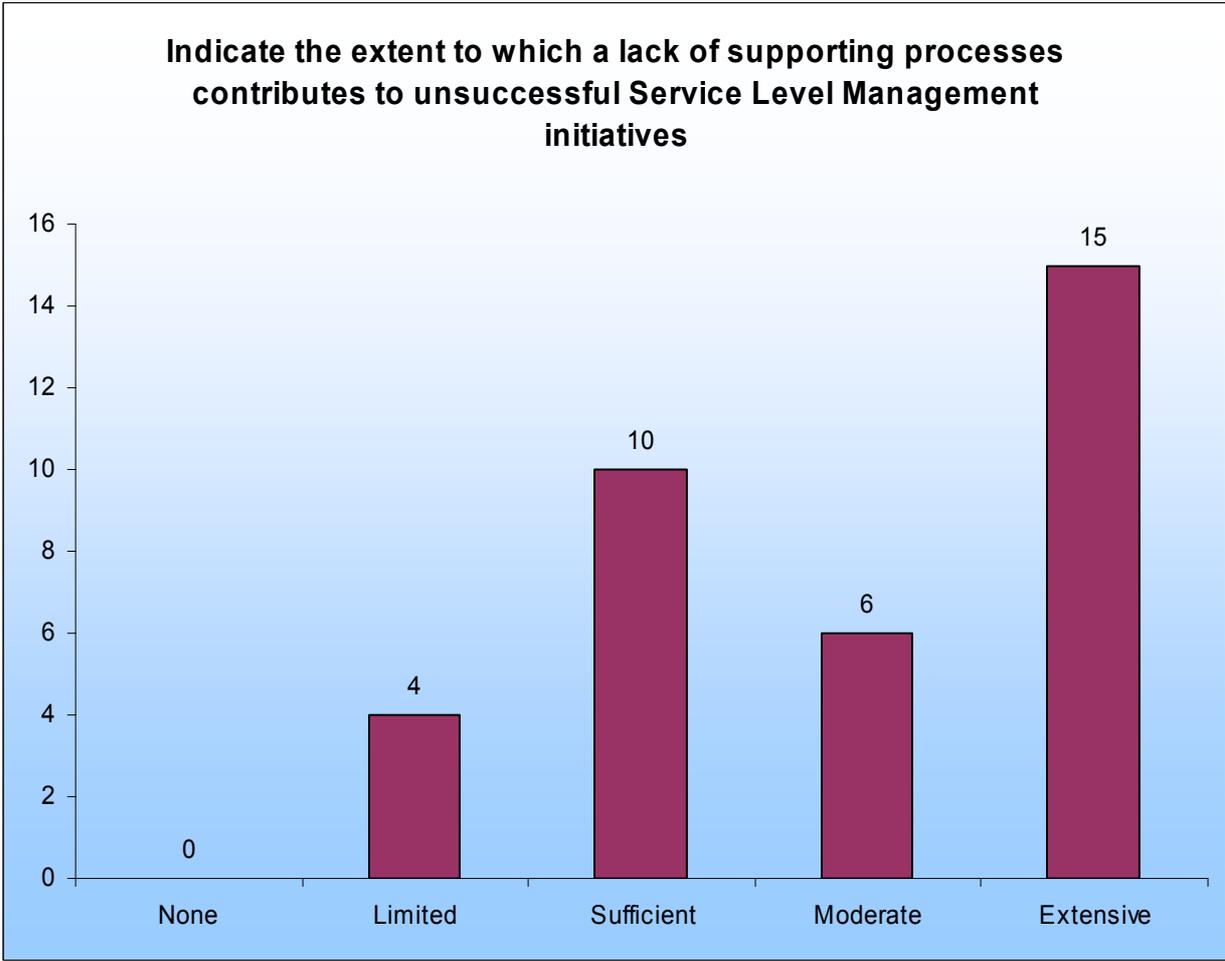


Figure 22: Contribution of Lack of Supporting Processes to Unsuccessful SM

Where 42.9% of respondents rated the lack of supporting processes as contributing extensively to unsuccessful SM initiatives, 14.1% declared it as moderate. 28.6% regarded the impact as sufficient and 11.4% rated it as limited.

Question 12g

Indicate the extent to which poor customer relationship management contributes to unsuccessful Service Management initiatives

Table 19: Contribution of Poor Customer Relationship Management to Unsuccessful SM

	None	Limited	Sufficient	Moderate	Extensive	Total
Count	0	2	9	18	7	36
%	0.0	5.6	25.0	50.0	19.4	100

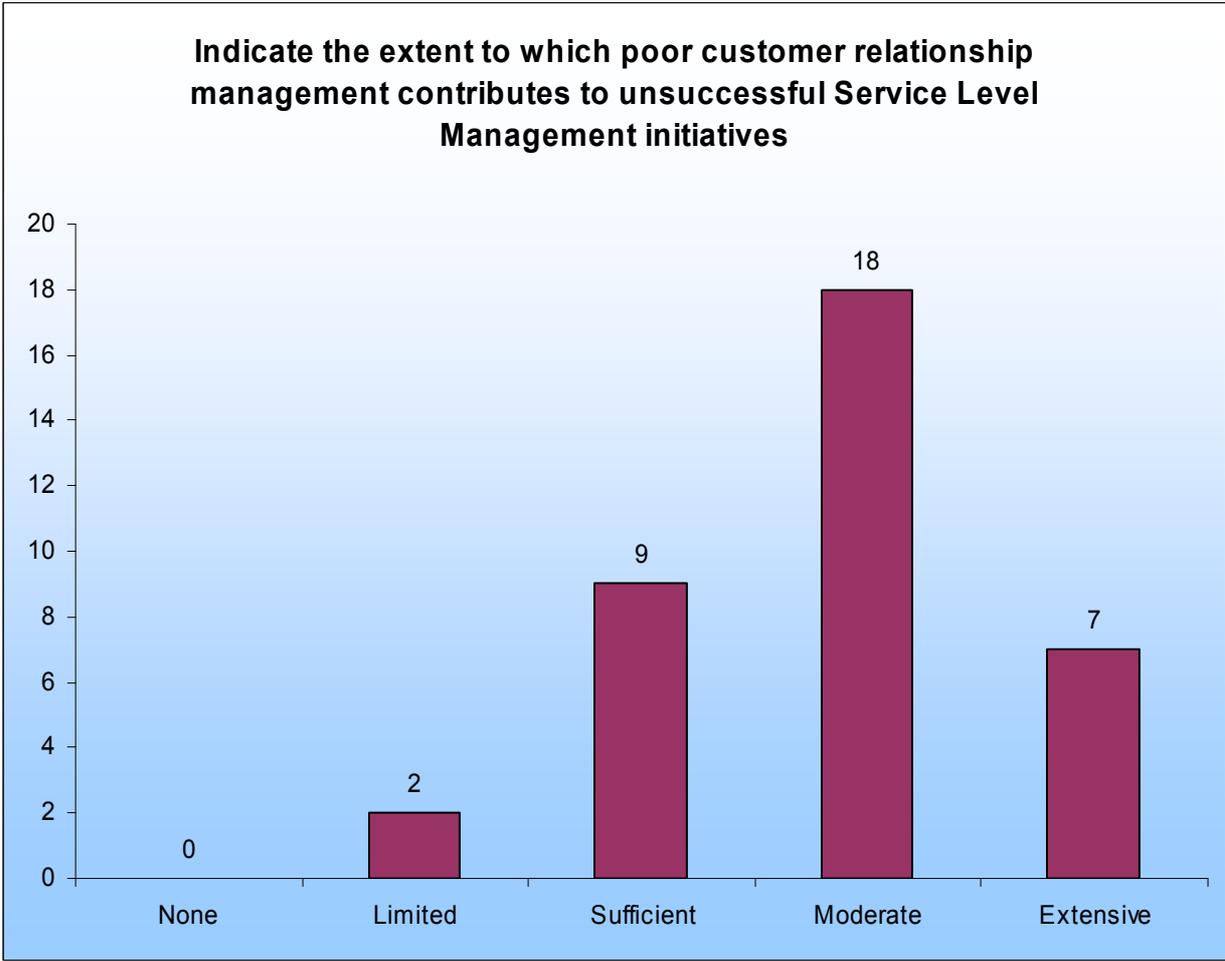


Figure 23: Contribution of Poor Customer Relationship Management to Unsuccessful SM

Where only 19.4% regarded the extent to which poor customer relationship management contributed to unsuccessful SM initiatives, 50% rated it as moderate. A further 25% declared the extent as sufficient while 5.6% rated it as limited.

Question 12h

Indicate the extent to which poor communications contributes to unsuccessful Service Management initiatives

Table 20: Contribution of Poor Communication to Unsuccessful SM

	None	Limited	Sufficient	Moderate	Extensive	Total
Count	0	2	6	14	14	36
%	0.0	5.6	16.7	38.9	38.9	100

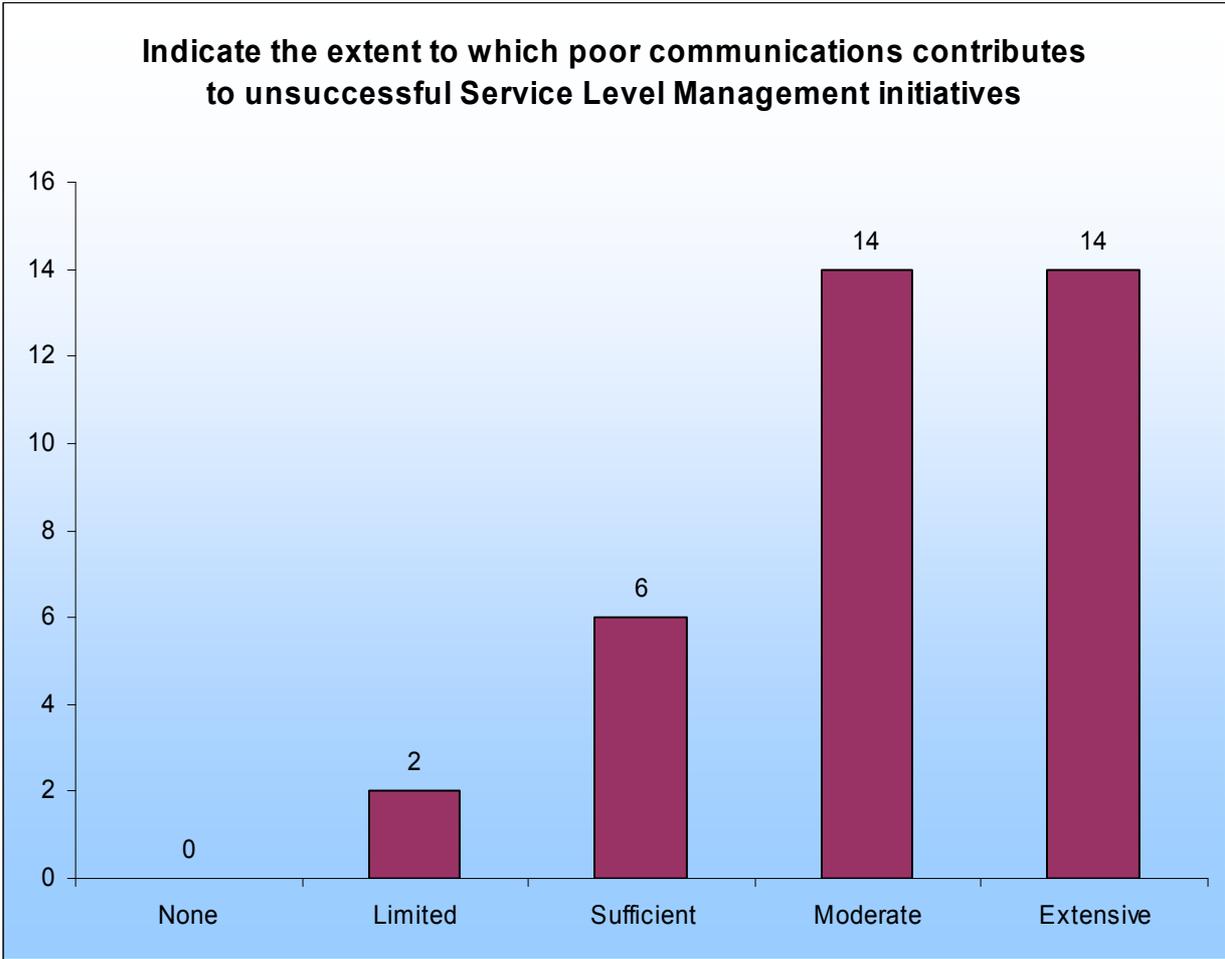


Figure 24: Contribution of Poor Communication to Unsuccessful SM

The contribution of poor communication on unsuccessful SM initiatives was rated as extensive (38.9%) and moderate (38.9%). 16.7% of respondents rated this impact as sufficient and only 5.6% as limited.

Question 12i

Indicate the extent to which the problems with reporting contributes to unsuccessful Service Management initiatives

Table 21: Contribution of Problems with Reporting to Unsuccessful SM

	None	Limited	Sufficient	Moderate	Extensive	Total
Count	0	5	9	10	11	35
%	0.0	14.3	25.7	28.6	31.4	100

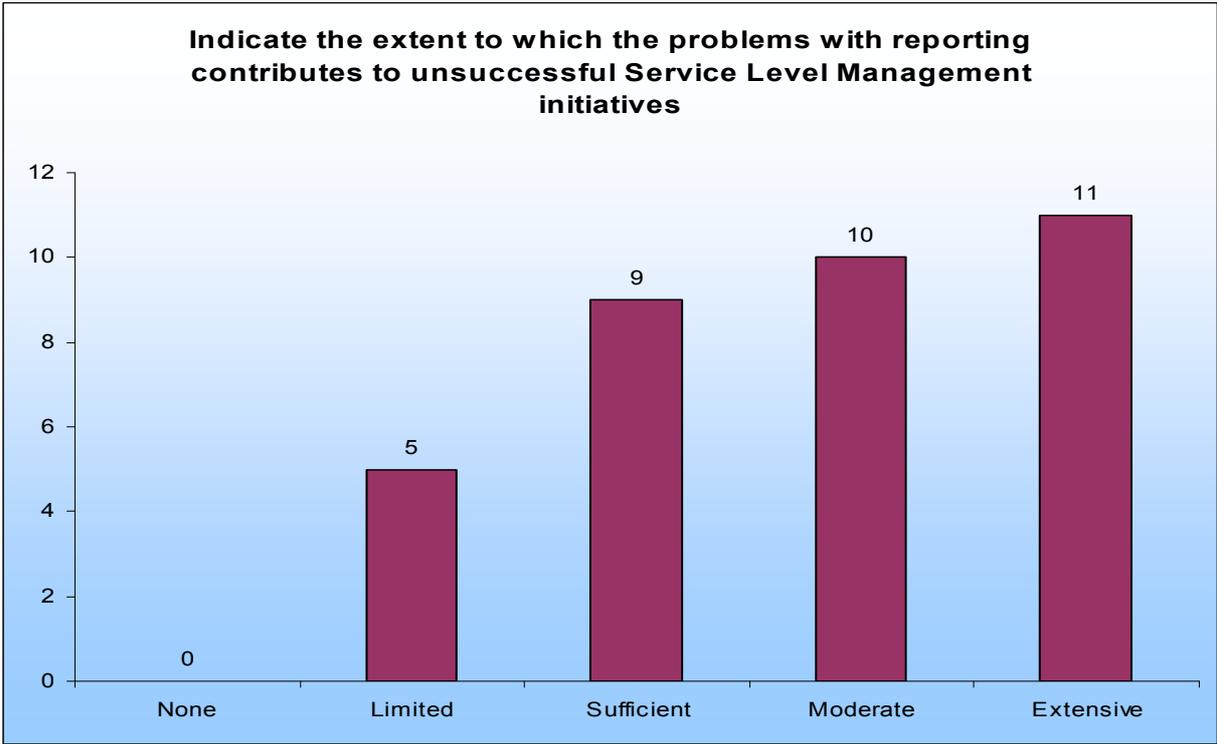


Figure 25: Contribution of Problems with Reporting to Unsuccessful SM

31.4% of respondents rated the extent to which problems with reporting contributed to unsuccessful SM initiatives as extensive. 28.6% and 25.7% regarded the impact of problems with reporting as moderate and sufficient respectively. 14.3% suggested that poor reporting has limited impact.

4.4.5 Barriers to Implementing or Improving Service Management

Question 13

Indicate the most significant barrier to implementing or improving Service Management

Table 22: Significant Barriers to SM

	Difficulty with Service Agreements	Lack of experienced staff	Lack of Service Management understanding	Difficulty with products and tools	Cost and time justification	Executive support	Customer relationship management	Total
Count	1	7	12	6	4	5	1	36
%	2.7	18.9	32.4	16.2	10.8	13.5	2.7	100

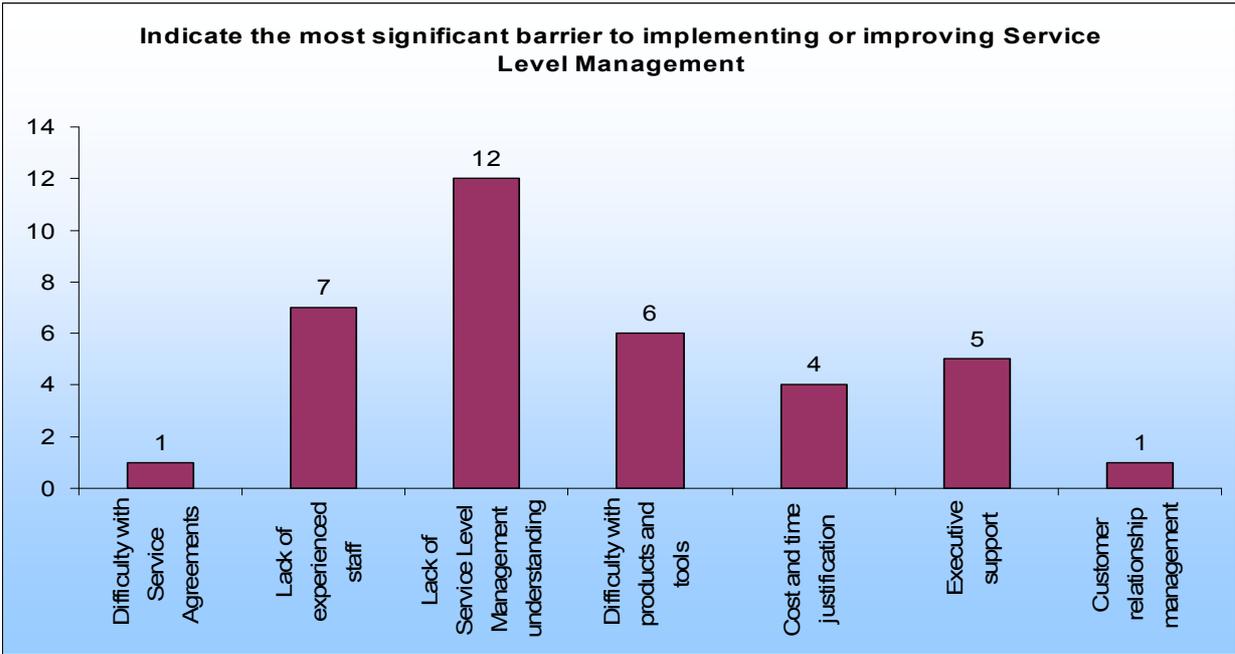


Figure 26: Significant Barriers to SM

One third (33.3%) of respondents rated the lack of SM understanding as the most significant barrier to implementing or improving SM capabilities. 19.4% selected the lack of experienced staff, while 16.7% recognised the difficulty with tools as barriers. 13.9% reported the lack of executive support and 11.1% rated cost and time justification as obstacles to SM. Only 2.8% recorded difficulty with SAs and customer relationship management as the most significant barrier to SM implementation and improvements.

4.4.6 Important Components of Service Management

Question 14

Indicate what you understand to be the most important part of a good Service Management program

Table 23: Important Part of SM

	Good customer relationship management	Flexibility in the organisation	Proactive change management	Detailed understanding of client's requirements	Continued delivery of services	Good communication	Total
Count	5	1	3	19	1	8	37
%	13.5	2.7	8.1	51.4	2.7	21.6	100



Figure 27: Important Part of SM

More than half the respondents (51.4%) depicted in Figure 25 regarded the detailed understanding of the client’s requirements as the most important part of a good SM program. 21.6 % and 13.5% rated good communication and good customer relationship management respectively. 8.1% selected proactive change management, while flexibility within the organisation and continued delivery of services received 2.7% of responses each.

Question 15

Indicate, as a service provider, how important you regard the appointment of a Service Level Manager for the success of a Service Management strategy

Table 24: Importance of the Appointment of Service Level Manager

	Not Important At All	Not So Important	Somewhat Important	Rather Important	Very Important	Total
Count	0	0	3	10	23	36
%	0.0	0.0	8.3	24.8	63.9	100

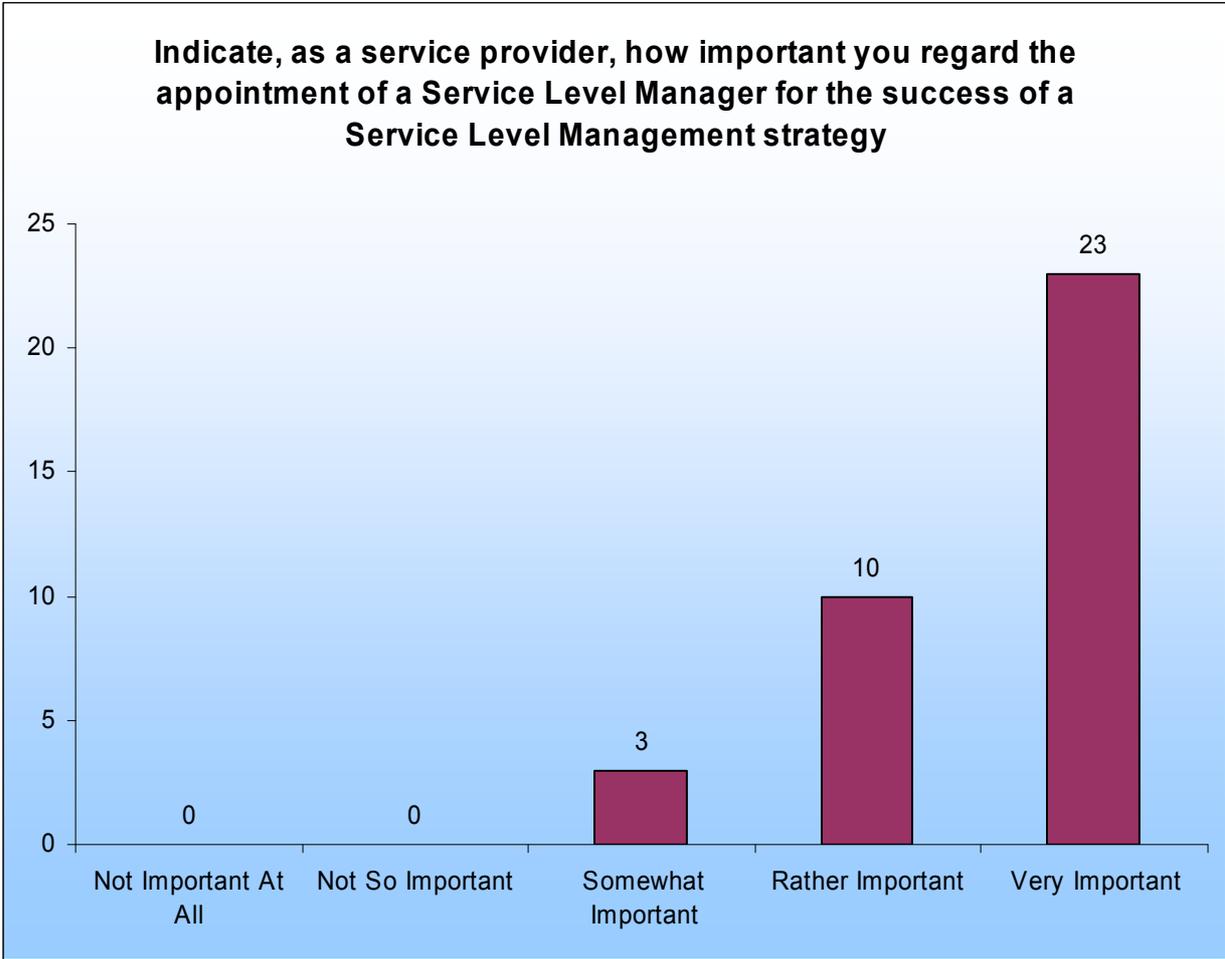


Figure 28: Importance of the Appointment of Service Level Manager

Almost two thirds (63.9%) of respondents regarded the appointment of a service level manager as very important for the success of an SM strategy. A further 24.9% regarded this appointment as rather important and 8.3%

Question 16

Indicate, as a service provider, how important you regard the development of a catalogue of services for the success of a Service Management strategy

Table 25: Importance of the Development of a Service Catalogue

	Not Important At All	Not So Important	Somewhat Important	Rather Important	Very Important	Total
Count	0	0	4	10	23	37
%	0.0	0.0	10.8	24.0	62.2	100

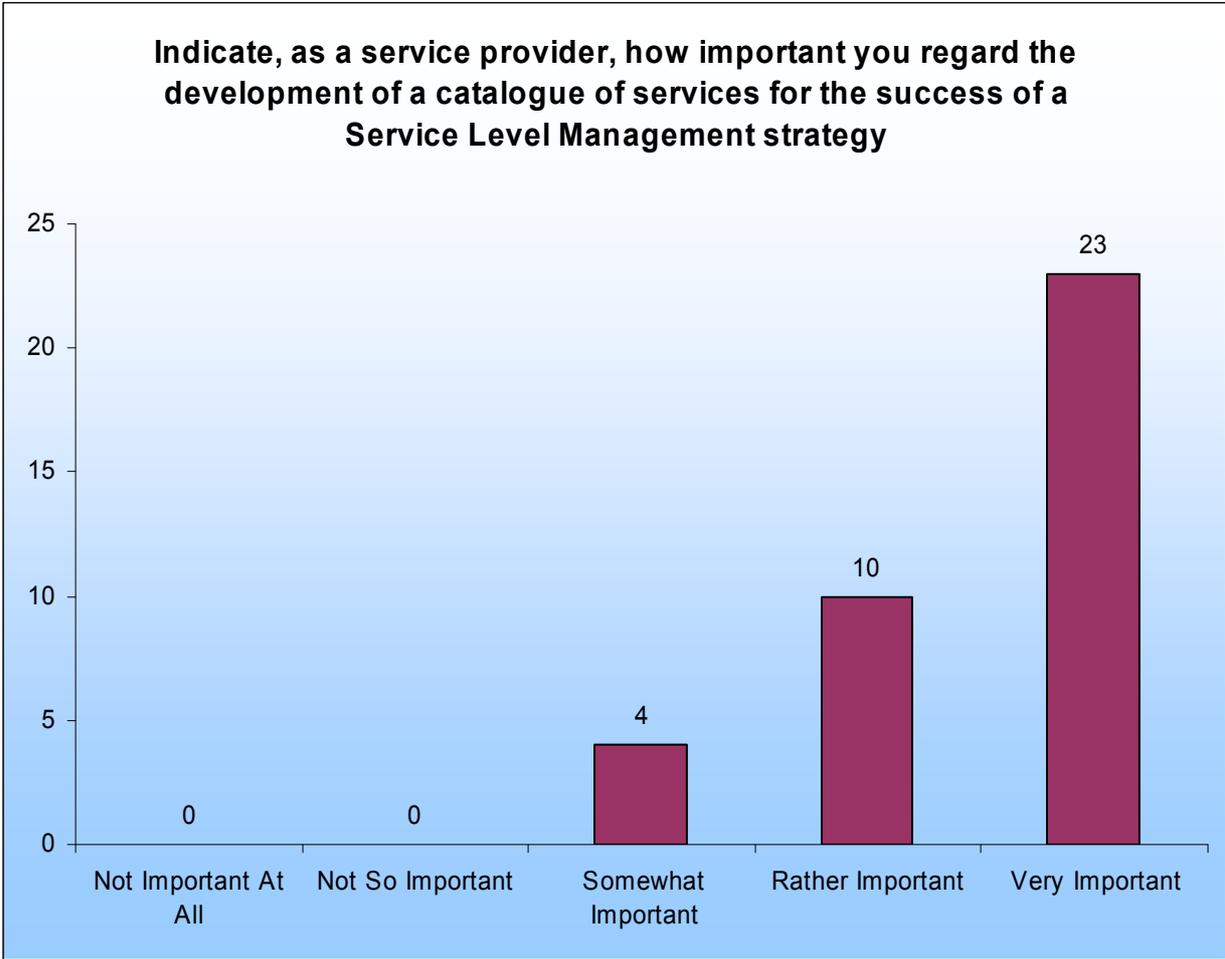


Figure 29: Importance of the Development of a Service Catalogue

The development of a service catalogue is regarded by 62.2% of respondents as very important in the successes of an SM strategy. 27% regard it as rather important, while 10.8% as somewhat important. No respondents regarded it as un-important.

Question 17

Indicate how important, for individual Service Management projects, it is to identify a Service Management team

Table 26: Importance of Identifying SM Team

	Not Important At All	Not So Important	Somewhat Important	Rather Important	Very Important	Total
Count	0	0	8	15	14	37
%	0.0	0.0	21.6	40.5	34.8	100

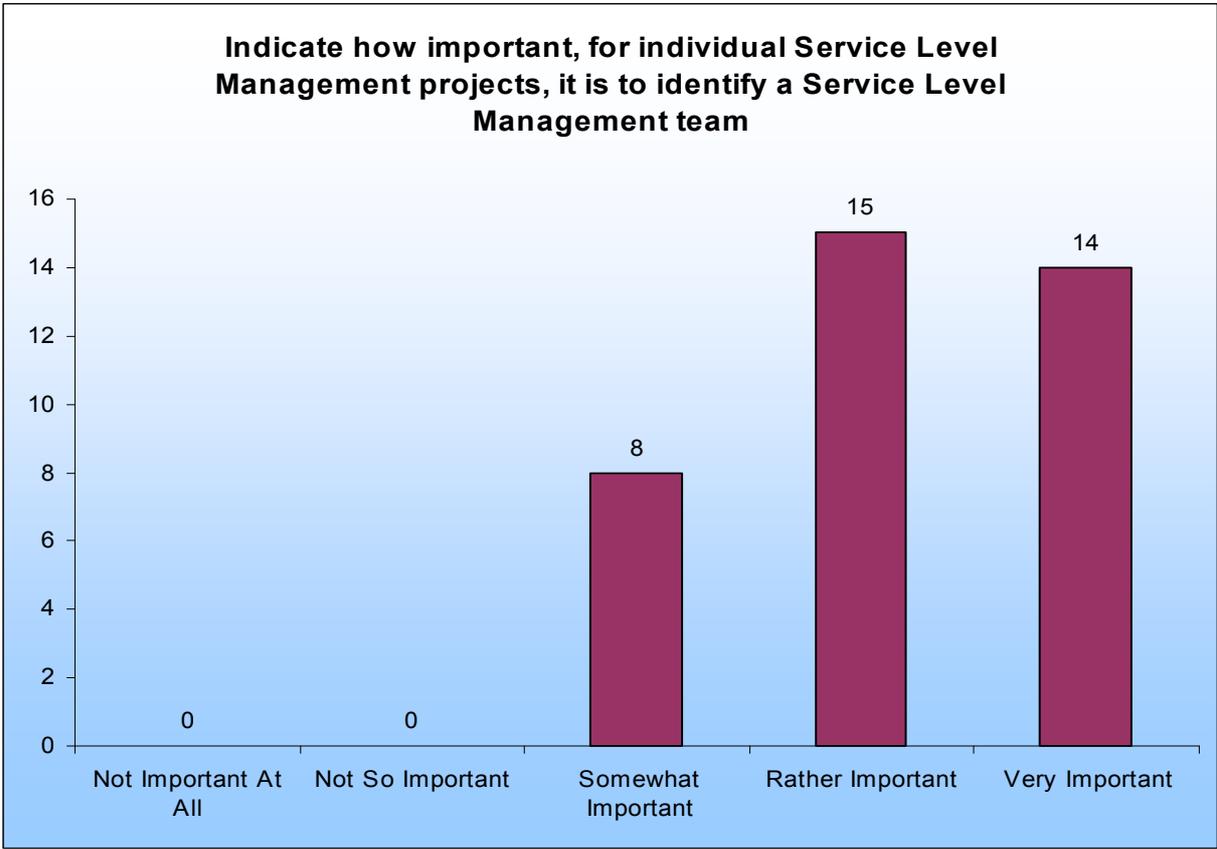


Figure 30: Importance of Identifying SM Team

The identification of an SM team is regarded by 34.8% of the respondents as very important to the success of an SM project. A further 40.5% rate it as rather important, with the remainder of respondents (21.6%) recording it as somewhat important.

Question 18

Indicate how important it is to understand and document a client's requirements before initiating a Service Management project

Table 27: Importance of Documenting Client’s Requirements

	Not Important At All	Not So Important	Somewhat Important	Rather Important	Very Important	Total
Count	0	0	0	9	28	37
%	0.0	0.0	0.0	24.3	75.7	100

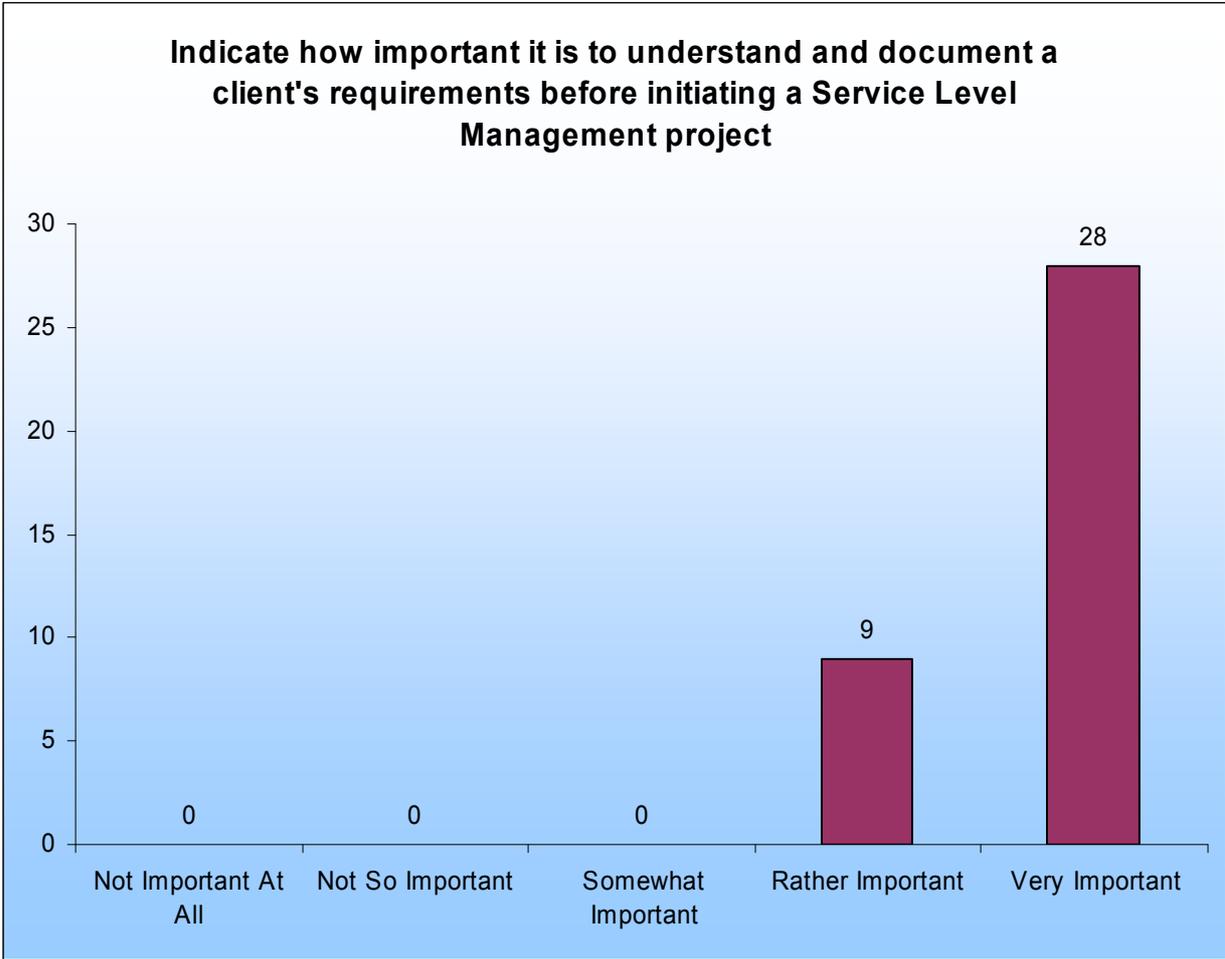


Figure 31: Importance of Documenting Client’s Requirements

More than three quarters of respondents (75.7%) regarded the documenting of client requirements as very important. The other respondents rated this as rather important.

4.4.7 Service Management Skills and Staff

Question 19a

Indicate how important it is for Service Management staff to have Project Management skills

Table 28: Importance of Project Management Skills

	Not Important At All	Not So Important	Somewhat Important	Rather Important	Very Important	Total
Count	0	1	16	13	6	36
%	0.0	2.7	43.2	35.1	16.2	100

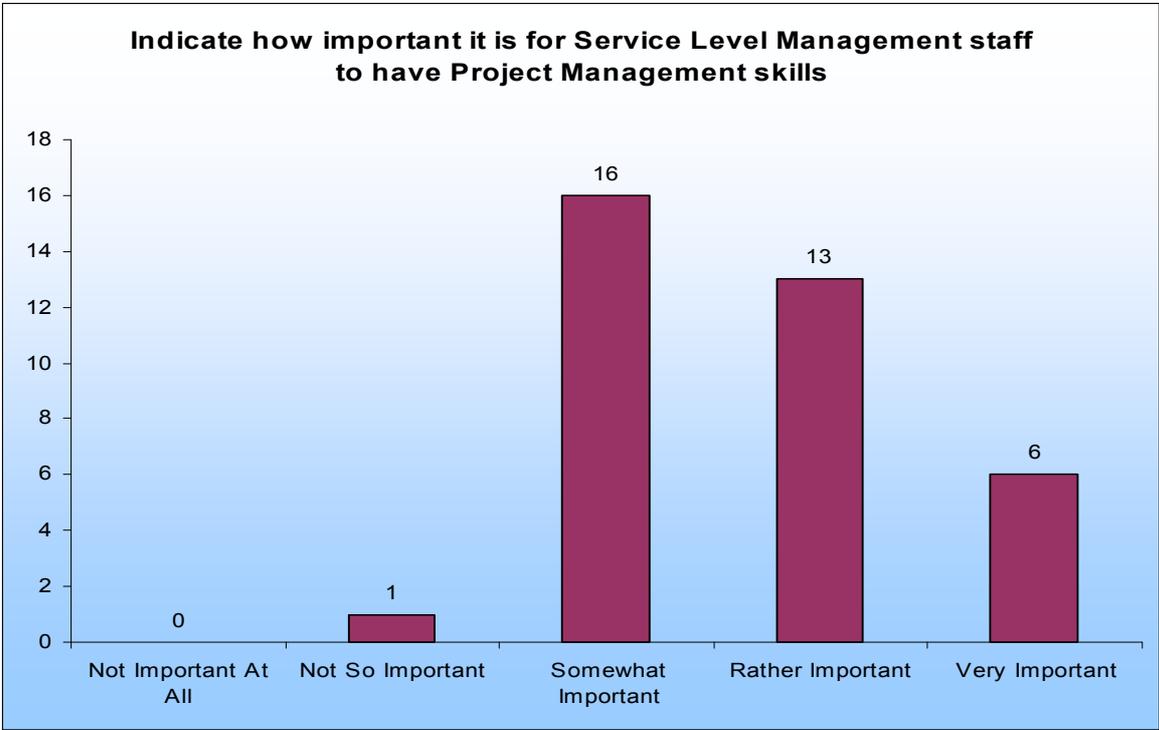


Figure 32: Importance of Project Management Skills

Only 16.7% of respondents regard project management skills as very important within a service management environment, 44.4% regard them as somewhat important. 36.1% rate these skills as rather important and 2.8% record them as not so important.

Question 19b

Indicate how important it is for Service Management staff to have Communication skills

Table 29: Importance of Communication Skills

	Not Important At All	Not So Important	Somewhat Important	Rather Important	Very Important	Total
Count	0	0	3	7	27	37
%	0.0	0.0	8.1	18.9	73.0	100

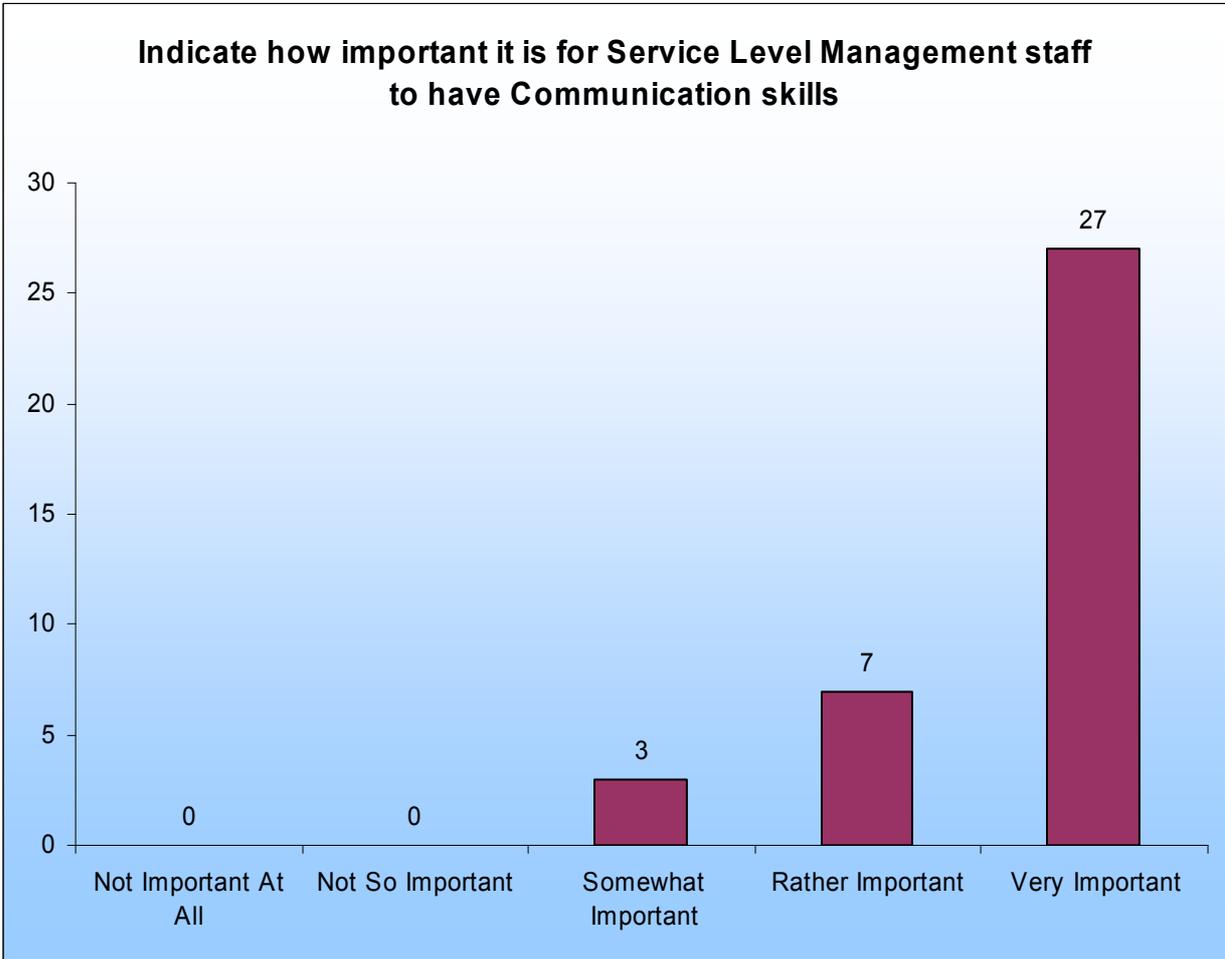


Figure 33: Importance of Communication Skills

Almost three quarters of respondents (73%) rate communication skills as very important in service management staff. 18.9% and 8.1% regard these skills as rather and somewhat important respectively.

Question 19c

Indicate how important it is for Service Management staff to have Customer Relationship Management skills

Table 30: Importance of Customer Relationship Management Skills

	Not Important At All	Not So Important	Somewhat Important	Rather Important	Very Important	Total
Count	0	1	3	10	23	37
%	0.0	2.7	8.1	24.0	62.2	100

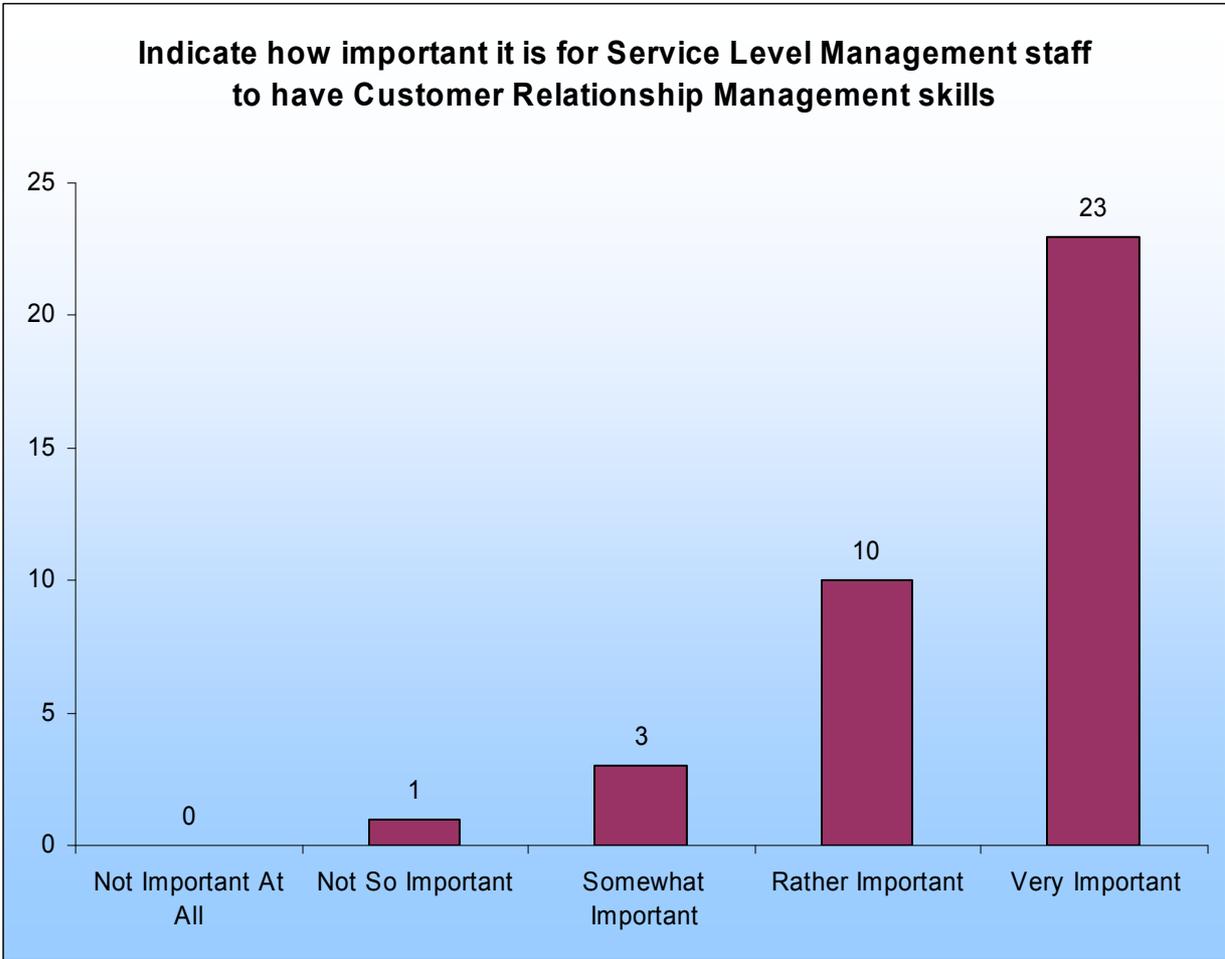


Figure 34: Importance of Customer Relationship Management Skills

Customer relationship skills are rated by 62.2% of respondents as very important for service management staff. While 27% and 8.1% regard these skills as rather and somewhat important respectively, 2.7% suggest that they are not so important.

Question 19d

Indicate how important it is for Service Management staff to have Time Management skills

Table 31: Importance of Time Management Skills

	Not Important At All	Not So Important	Somewhat Important	Rather Important	Very Important	Total
Count	0	2	8	13	13	36
%	0.0	5.4	21.6	35.1	35.1	100

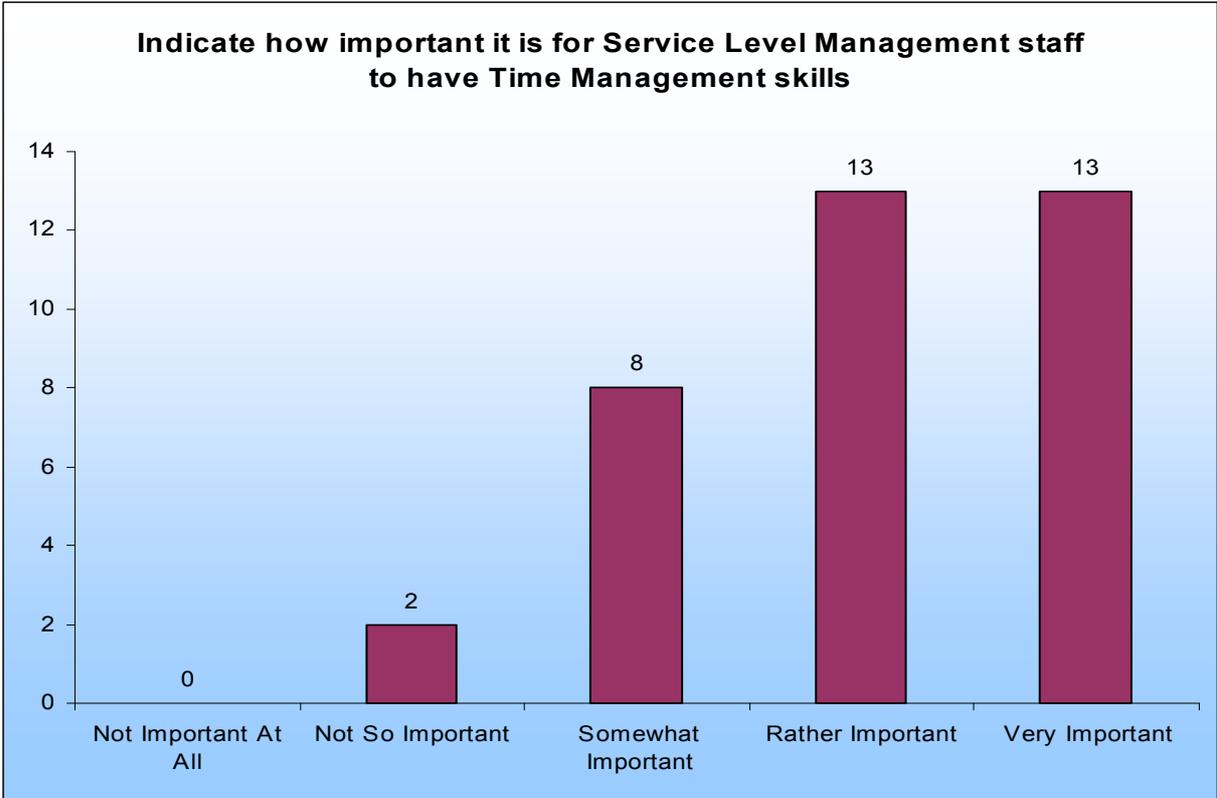


Figure 35 : Importance of Time Management Skills

36.1% of respondents, as reflected in Figure 34, rate the importance of time management skills as rather and very important in service management staff. Where 22.2% regard these skills as somewhat important, 5.6% regard them as not so important.

Question 20

Indicate the extent of the project management skills of the staff involved in Service Management in your organisation

Table 32: Extent of Project Management Skills

	None	Limited	Sufficient	Moderate	Extensive	Total
Count	0	8	13	13	3	37
%	0.0	21.6	35.1	35.1	8.1	100

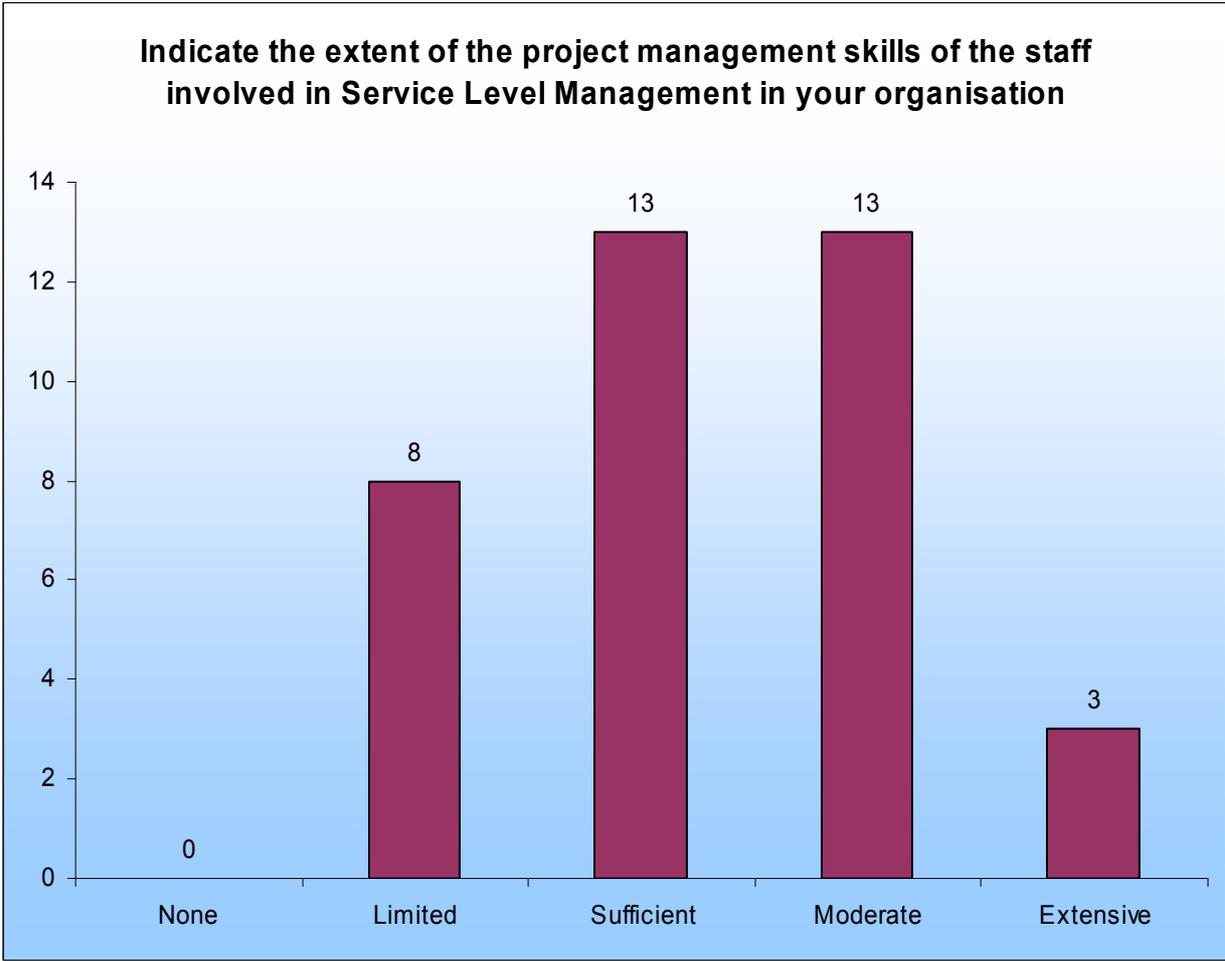


Figure 36: Extent of Project Management Skills

8.1% of the respondents rated the project management skills of their service delivery staff as extensive. 35.1% rated these skills as sufficient and moderate, while 21.6% declared that their staff have limited project management skills.

Question 21

Indicate the extent of the communication skills of the staff involved in Service Management in your organisation

Table 33: Extent of Communication Skills

	None	Limited	Sufficient	Moderate	Extensive	Total
Count	0	6	6	18	7	37
%	0.0	16.2	16.2	48.6	18.9	100

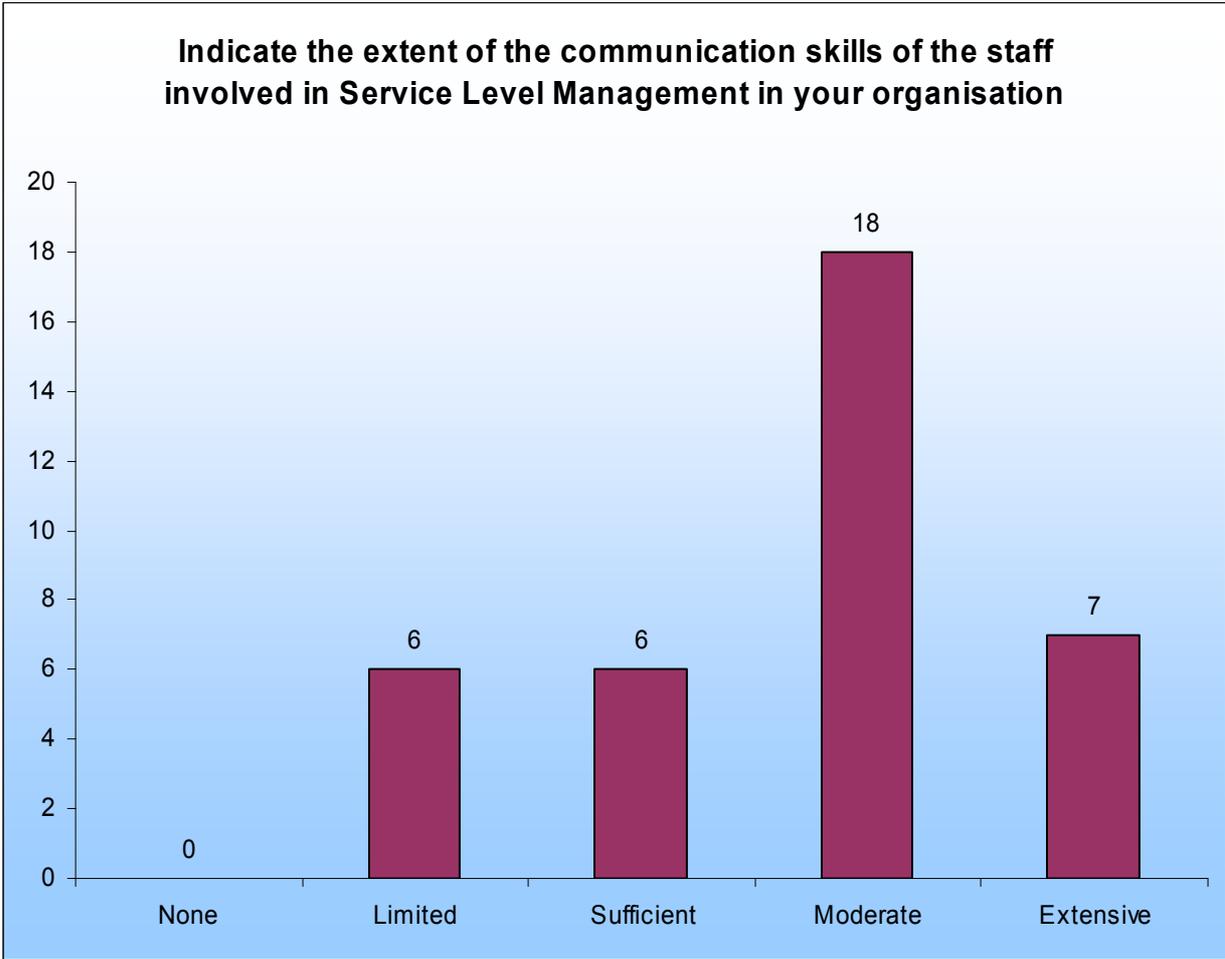


Figure 37: Extent of Communication Skills

18.9% of respondents selected extensive as a reflection of the communication skills of their service management staff. 48.6% rated their staff as moderate and 16.2% as sufficient. A further 16.2% rated their staff as limited with respect to communication skills.

Question 22

Indicate the extent of the customer relationship skills of the staff involved in Service Management in your organisation

Table 34: Extent of Customer Relationship Management Skills

	None	Limited	Sufficient	Moderate	Extensive	Total
Count	0	8	9	12	8	37
%	0.0	21.6	24.3	32.4	21.6	100

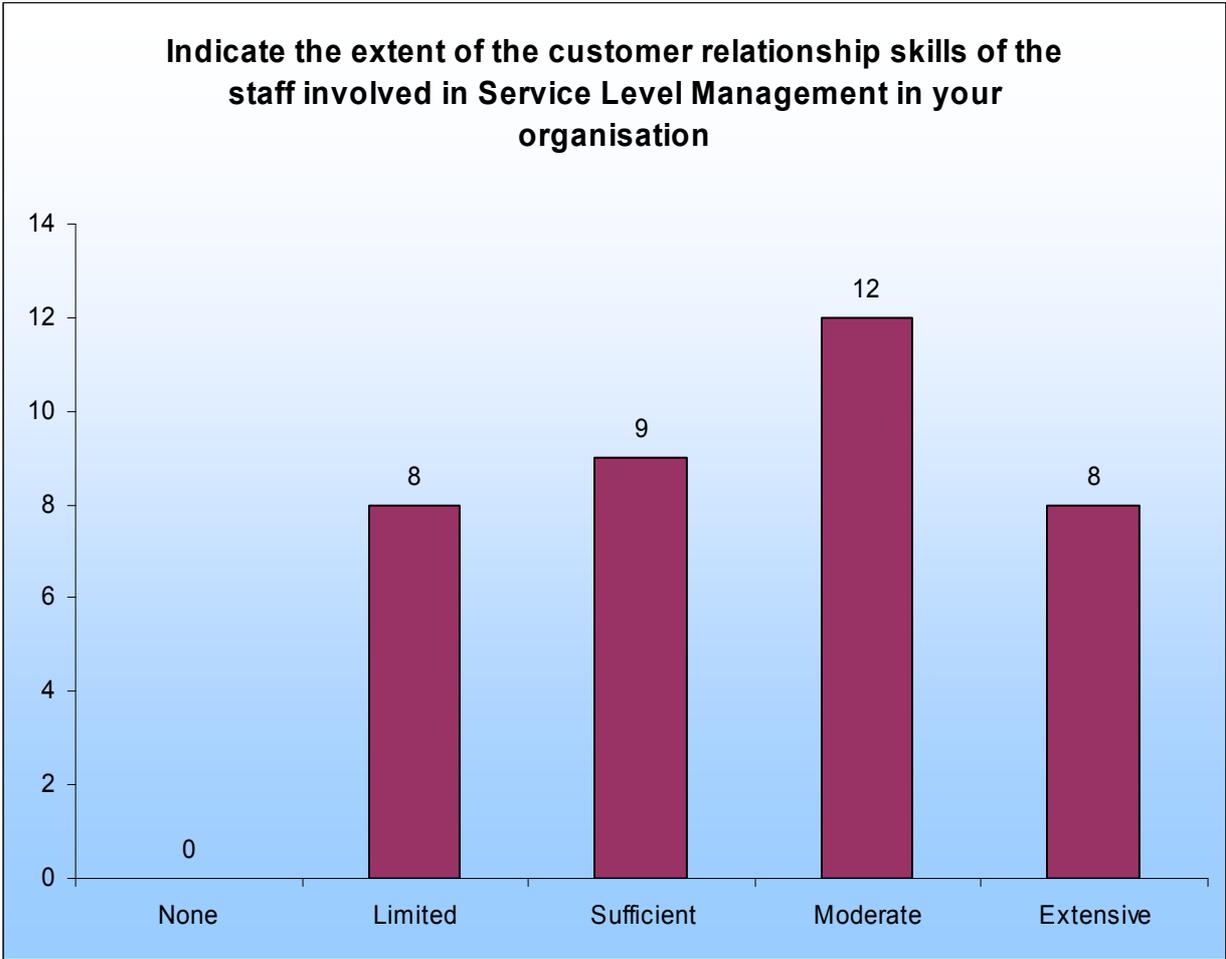


Figure 38: Extent of Customer Relationship Management Skills

21.6% of respondents to the survey rated their organisation’s service management staff as having extensive customer relationship skills. 32.4% declared their staff as having moderate skills and 24.3% as having sufficient skills. 21.6% rated their staff as having limited skills.

Question 23

Indicate the extent of the time management skills of the staff involved in Service Management in your organisation

Table 35: Extent of Service Management Skills

	None	Limited	Sufficient	Moderate	Extensive	Total
Count	0	10	9	10	8	37
%	0.0	24.0	24.3	24.0	21.6	100

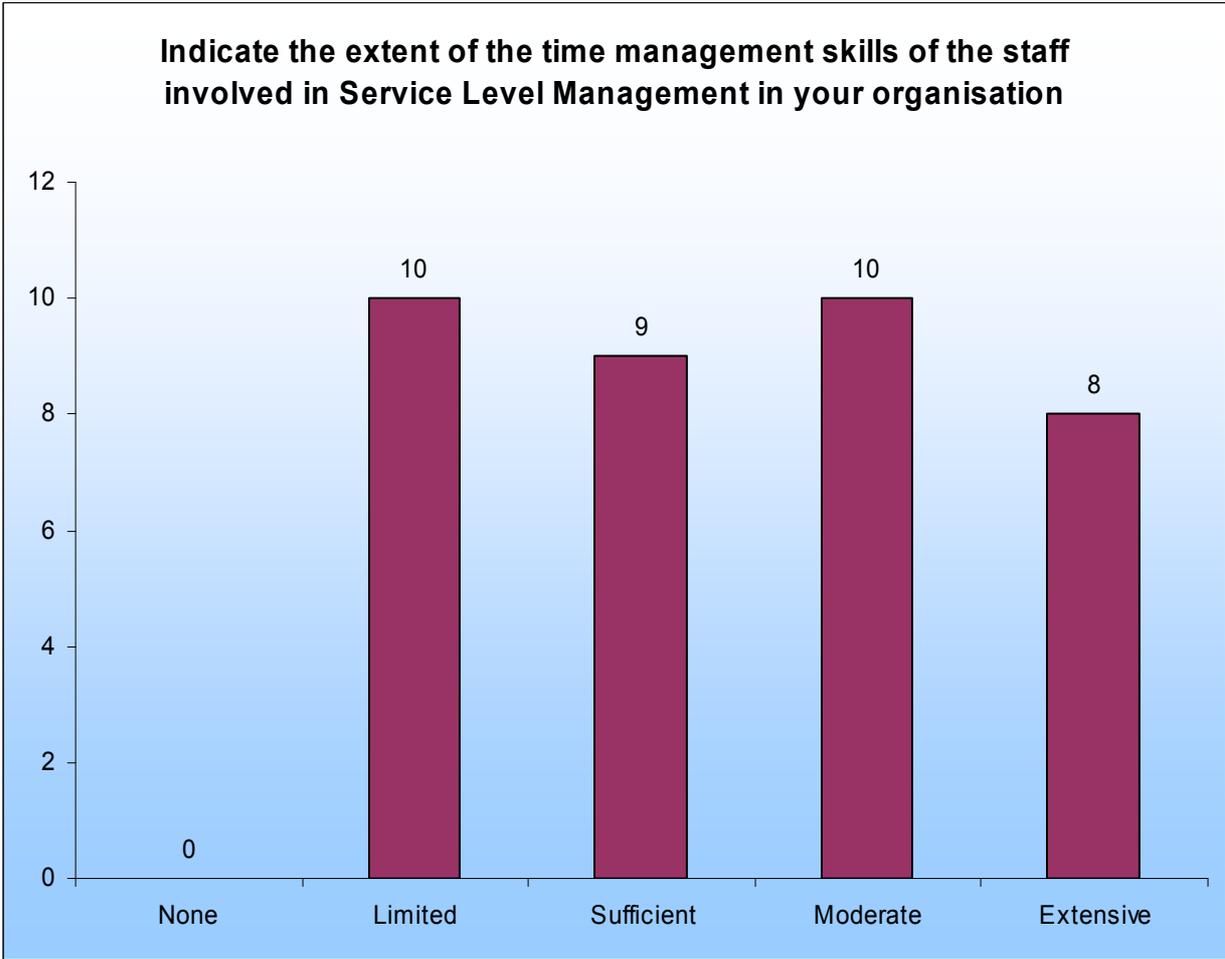


Figure 39: Extent of Service Management Skills

21.6% of respondents rated their service management staff’s skills as extensive. 27% polled at moderate and 24.3% at sufficient. 27% of the respondents rated the service management skills of their staff as limited.

4.4.8 Effective Communication and SM Success

Question 24

Indicate how often the presence of effective communication between Service Management stakeholders has contributed to the success of a Service Management initiative

Table 36: Effective Communication and SM Success

	Never	Rarely	Sometimes	Very Often	Always	Total
Count	0	3	6	16	11	36
%	0.0	8.1	16.2	43.2	29.7	100

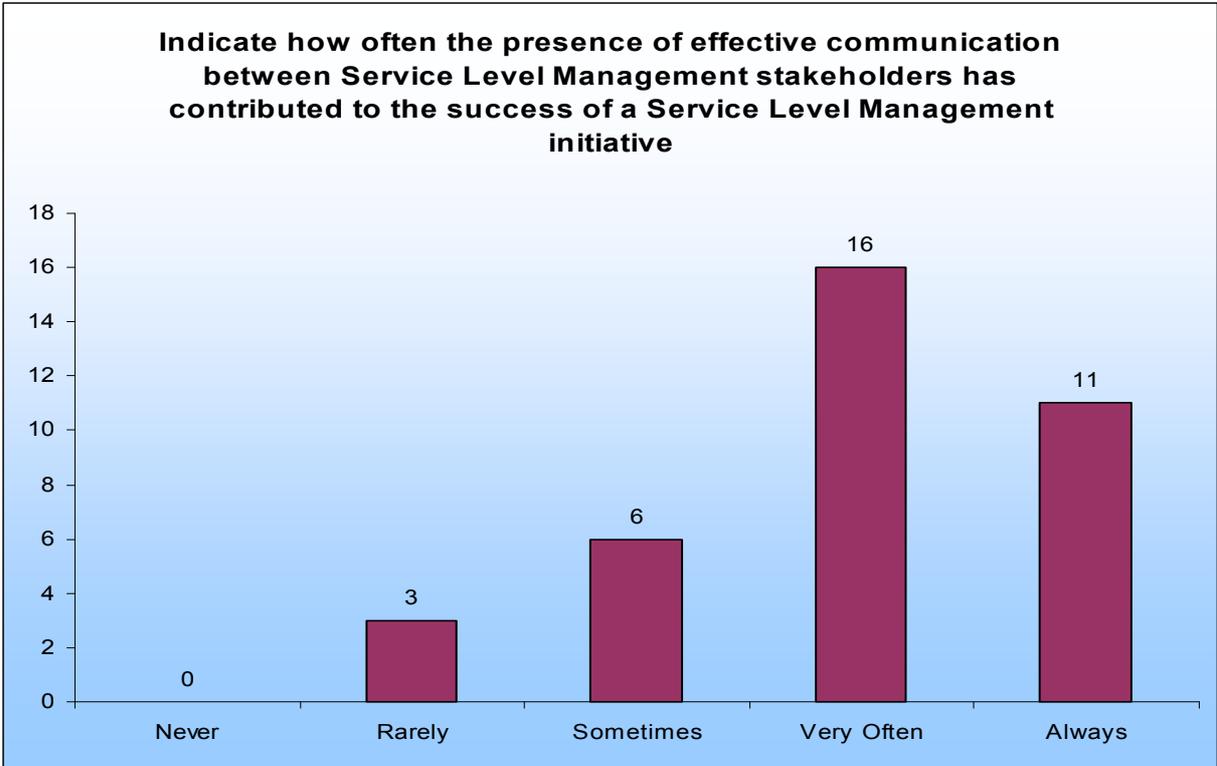


Figure 40: Effective Communication and SM Success

30.6% of respondents declared that effective communication always leads to SM success. Where 44.4% regard effective communication as very often contributing to SM success, 16.7% regard it as sometimes. 8.3% responded that effective communication rarely contributed to SM success.

4.5 Analysis of the Results of the Exploratory Initial Study

The bulk of the respondents were employed as ICT service managers from either the Western Cape or Gauteng. This is due to two key factors:

1. The *itSMF* membership was polled to respond to the exploratory pilot study. The *itSMF* have offices in Gauteng and the Western Cape and those two regions are the largest economic hubs of South Africa. As anticipated, the bulk of the respondents were employed by ICT service providers. The remainder of the respondents are separated into a variety of sectors, representing how ICT has moved from being a business differentiator to become an accepted business tool. It is of no surprise that the majority of respondents operated at the management and executive levels, as expected, the exploratory pilot study explored service management and was geared, through the *itSMF*, at individuals in ICT management positions
2. These two demographic regions represent the two largest economic centres in South Africa

45% of respondents were employed within the ICT service provider sector of the industry. This result is pleasing as the focus of the research is on ICT service provision and management. 19% recorded their sector as Financial Services, Insurance or Legal. Given the financial and contractual nature of the management of services, the clustering of respondents in this area is also significant in terms of the nature of SM.

The demographic results with respect to job titles, years of involvement in SM and organisational size reflect an ICT arena where services management has been embraced by a variety of organisations for more than a year. More than half the respondents worked for large organisations of 2000 or more employees (54%).

4.5.1 Respondent Service Management Experience and Standard

Interestingly, the vast majority of respondents regard their knowledge of SM as moderate (35%) or extensive (46%). Only 8% declared that they have no SM strategy in place, while 73% have had an SM strategy in place for more than 1 year. The most frequent standard upon which organisational SM is based is ITIL (65%).

4.5.2 Service Management Success

The majority of respondents were satisfied (16% somewhat, 47% mostly and 8% very satisfied) with their SM capabilities. All responded that their SM capabilities required improvement. This

may account for the fact that only 29% of respondents indicated that SM initiatives within their organisation were rarely unsuccessful.

4.5.3 Factors That Contribute to Unsuccessful Service Management

78% of the respondents identified poor communication as contributing extensively or moderately to unsuccessful SM. 77% recognised a poor understanding of client requirements, 69% selected poor customer relationship management and 68% noted poorly developed SAs as the key factors that contributed to unsuccessful SM. A lack of planning was recognised by 64% of respondents, a poorly developed SM strategy by 60%, problems with reporting by 60%, the lack of supporting processes by 57% and inadequate preparation by 51%, was also identified as contributing extensively or moderately to unsuccessful SM. These results correlate with the identification by more than half the respondents, that the detailed understanding of client requirements is the most important part of a successful SM program. This is confirmed by the acceptance that effective communication is the major contributor to successful SM.

4.5.4 Barriers to Implementing or Improving Service Management

While the respondents regarded their knowledge of SM as moderate and extensive, 33% conceded that the lack of SM understanding is the most significant obstacle to implementing or improving SM. Lack of experienced staff (19%), difficulty with products and tools (17%) and executive support (14%) were also identified as barriers.

4.5.5 Important Components of Service Management

More than half the respondents (51%) identified the detailed understanding of the client's requirements as the most important part of a good SM program. 22% registered good communication and 14% declared good customer relationship management as most important.

The respondents confirmed the importance of appointing a service manager, the development of a service catalogue, identifying an SM project team and the understanding and documenting of client requirements as important components of an SM strategy.

4.5.6 Service Management Skills and Staff

Communication and customer relationship management skills were identified as the most important for SM staff to have after time and project management skills. The respondents acknowledged that these skills were present in their organisation's staff.

4.5.7 Effective Communication and SM Success

Almost two thirds of respondents confirmed the importance of effective communication between SM stakeholders. 44% declared that this communication very often contributed to successful SM, while a further 31% suggested that this communication always contributes to the success of SM.

4.6 Interviews

In order to compliment the exploratory pilot study and confirm the reviewed literature, a series of interviews were conducted. The interviews were structured to incorporate the relevant questions from the exploratory pilot study. Personal attention was paid to the interviewee's individual experiences of SM.

A number of organisations who had expressed an interest in the research volunteered relevant staff members and their associates for interviews. Service Management is a niche area and in order to save time, the researcher relied on the network of individuals available. The interviewees were self selected and all of those who responded to the request for an interview were interviewed. No further respondents, beyond those who volunteered, were sought.

14 interviews were conducted over a period of 4 weeks. The majority of these took place in Johannesburg. The interviewees were spread across a spectrum of management levels and job descriptions.

4.6.1 Interviewee Demographics

Location

The following table and graph represent the location from which the interviewees originate.

Table 37: Interview Location

	Johannesburg	Grahamstown	Port Elizabeth	Total
Count	10	1	3	14
%	71.43	4.14	21.43	100

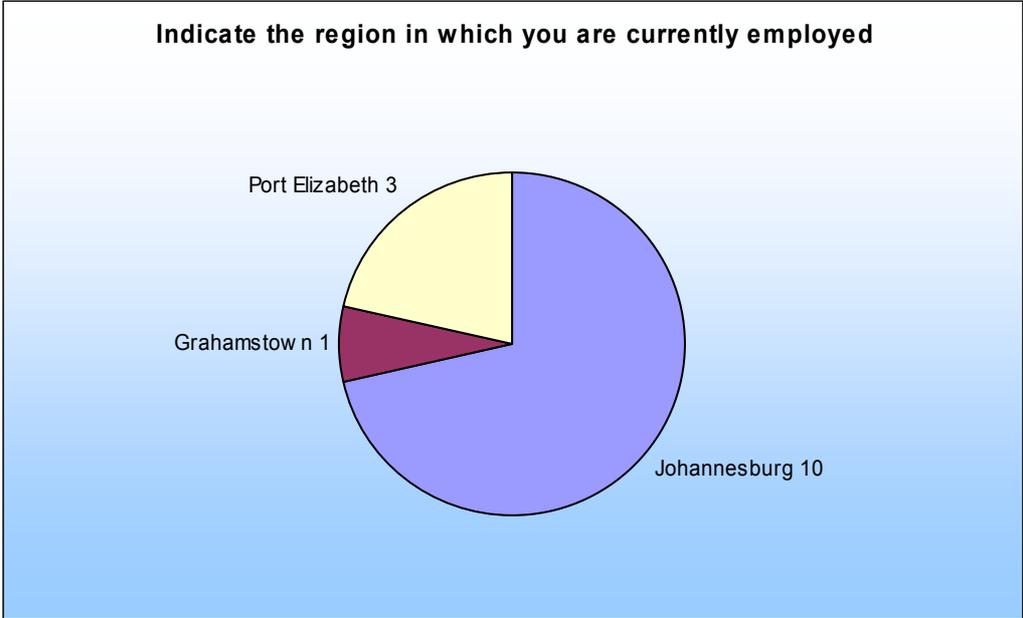


Figure 41: Interview Location

The majority of interviews (10) were conducted in Johannesburg, Gauteng. Port Elizabeth and Grahamstown provided the balance of the candidates (3 and 1 respectively).

Industry Sector

The following table and graph displays the industry sector of the interviewees:

Table 38: Industry Sector

	Courier Company	External ICT Service Provider	Internal ICT Provider	Total
Count	4	6	4	14
%	28.57	42.86	28.57	100

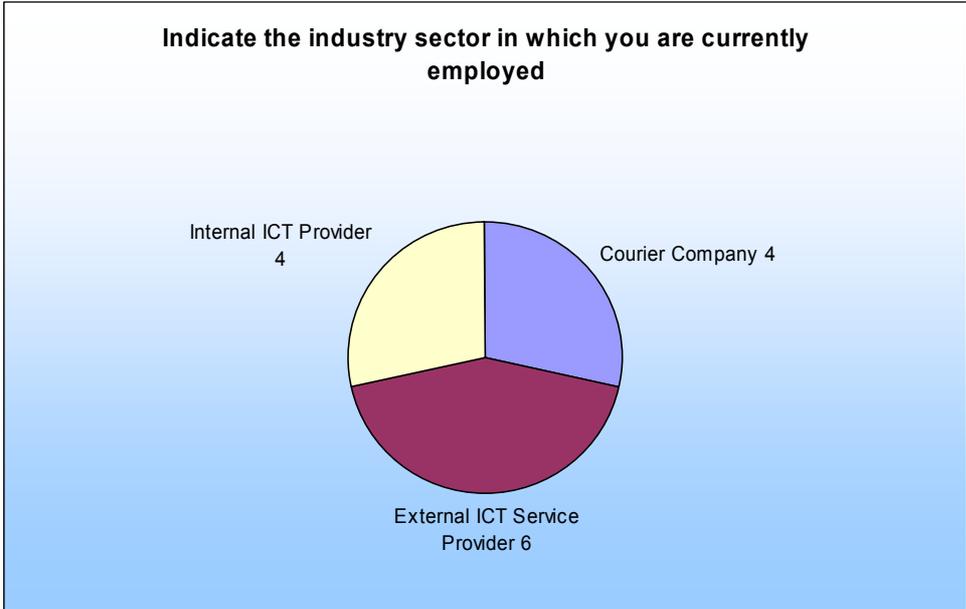


Figure 42: Industry Sector

10 interviewees were employed by ICT service providers, of which 6 provided services to external clients and 4 to internal clients. The remainder of the interviewees (4) are employed by courier companies.

Job Title

The following table and pie chart

Table 39: Job Title

	ICT Consultant	ICT Executive	ICT Manager	ICT Director	Other	Total
Count	1	5	1	2	5	14
%	4.14	35.71	4.14	14.3	35.71	100

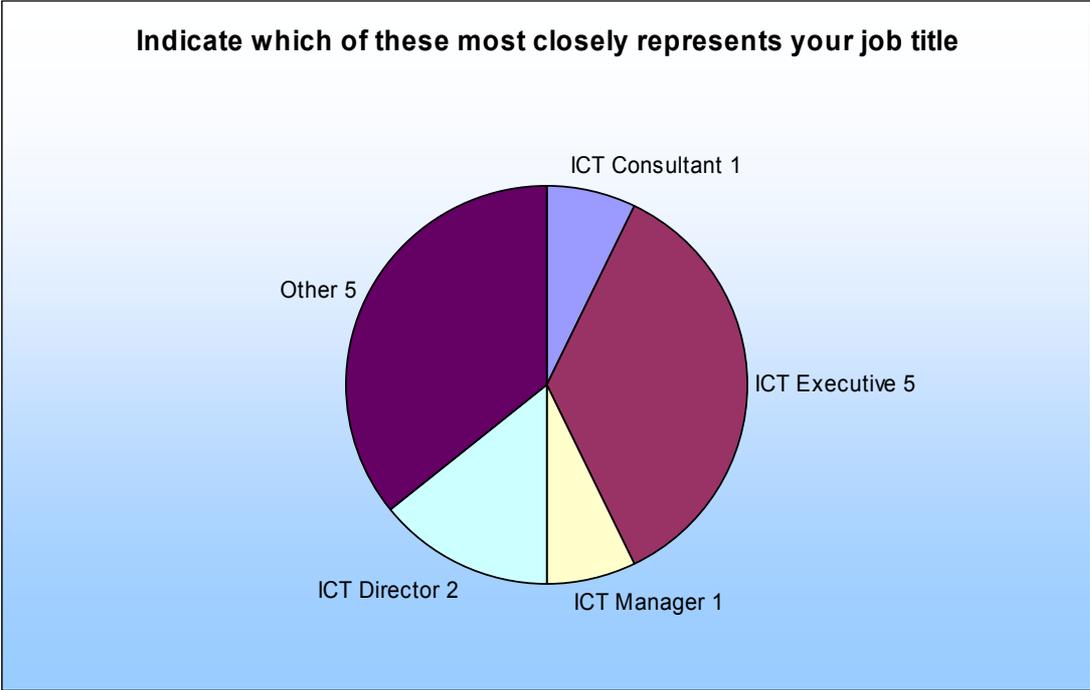


Figure 43: Job Title

8 of the interviewees were employed at senior levels within the ICT sector. 5 interviewees were listed as other and 1 interviewee listed as an ICT Consultant.

4.6.2 Interviews

The interviews provided insight into the management of service levels as seen by individuals currently involved in the ICT industry. Interviewees were visited at their respective organisations and were engaged in an open-ended discussion on managing services. This provided the scope for the interviewees to discuss their personal experiences and opinions regarding service management.

The following are the reports on the respective interviews:

Interviewee 1

The first interviewee was a legal practitioner employed by a multinational ICT service provider. He conceded that his involvement in SM was limited to the legal aspects of SAs, but believed that the organisation had a fully implemented SM strategy. He had been heavily involved in the development of many SAs. He believed therefore that an SA is an integral part of an SM strategy.

Interestingly, interviewee 1 confirmed that, in their organisation, the Service Catalogue is used as a reference tool, and that the sales team are free to negotiate outside of it.

Interviewee 2

The second interviewee is employed as the Chief Information Officer for a domestic courier company. He believes that the absence of or poor preparation within a SM environment will lead to failure. This preparation can be either in the development of a Service Catalogue, as in the identification of good business processes, or in the acquisition of knowledge about SM and SAs.

The interviewee's company has partially adopted the Six Sigma approach to SM, yet they regarded this as a semi-functional SM program. A few of their SM initiatives have failed. This was due to the fact that the development team did not know what the company could offer. In other words, there was no evidence of an up-to-date and documented Service Catalogue that is available to all members of staff. He did concede that there was indeed room for improvement in his organisation's SM.

Interviewee 3

The third interviewee is employed as the Manager of Infrastructure at a domestic courier company. They declared that any service management can only be effectively accomplished when the process has been prepared and planned. He believed that preparation was the key to SM and the successful development of an SA.

Interviewee 4

The fourth interviewee was the Chief Technology Officer of a multinational service provider. His organisation had recently embraced the ITIL and was implementing it across the entire organisation. This organisation has and continues to experience large financial strain due to SA penalty clauses. This firm has subsequently developed a Service Catalogue. However, the sales force is not selling off the Service Catalogue, but "promising anything to make a sale." It is thought that this is the case because the sales teams are rewarded on a commission basis and are not involved in the initial service delivery. He stated that for SM to be successful, the key is to develop a strong business relationship between the stakeholders.

Interviewee 5

The fifth interviewee is employed as the Chief Executive Officer of a domestic courier company that specialises in the banking sector. This organisation has developed a Service Catalogue for every single function in their organisation. The interviewee was insistent that an organisation must first manage their Service Catalogue, and only then enter into a managed services scenario. He emphasised the need for an organisation to learn to refuse business that falls outside of their Service Catalogue. However, he did admit that a Service Catalogue does serve as a base from which new services or customisation of existing services can begin.

Interviewee 6

The sixth interviewee is employed as the Marketing Director at a domestic courier company that specialises in the banking sector. He believed that a Service Catalogue must be dynamic and suggests that it is critical to know what is happening in your business and what you can or cannot do in real-time. The organisation must be flexible in its service delivery, open to the creation of new services using the Service Catalogue as a base.

Interviewee 7

The seventh interviewee is employed as Divisional Director of Information Systems at a domestic courier company specialising in drug transportation. Adequate assessment of internal service levels and their management are regarded as critical. This organisation had developed an internal SM strategy based on the priority of the service in respect to the organisation's core operations. Once they organisation had a thorough understanding of managing the services, could they approach potential customers.

He stated the importance of developing a functional and efficient help system, and that it should be priority driven. In terms of the measurements, he said that all incidents are measured against a number of variables, to determine the incidents priority.

Interviewee 8

The eighth interviewee is employed as Chief Information Officer at an international courier company focused on the African continent. The interviewee stated that the key to successful SM is to offer a good service and ensure the client is content. To ensure that a good service was offered, the organisation identified and allocated specific skills for specific roles and offered incentives for staff to improve standards of service. To ensure the client was content, the interviewee interfaced with clients frequently and used surveys to gauge client perceptions. He did state that it is important to manage client perceptions throughout the SM lifecycle. He also performs tests on his SAs, to ensure that if an incident does occur, the service guaranteed does occur.

Interviewee 9

The ninth interviewee is employed as Divisional Managing Director of a small, client focused courier company. This organisation had also developed a Service Catalogue and the interviewee was very particular about the need for an organisation to decline business that was not contained in its Service Catalogue. He stated that an organisation needs to map its clients to its Service Catalogue and only ever revise the Service Catalogue if it is financially viable. He also said that an organisation must do the basics well before offering anything stretches their knowledge and abilities.

Interviewee 10

The tenth interviewee is employed as the General Manager of a small, client focused Courier Company. He believed that an organisation needs to know their business and that of their clients before a successful long-term relationship can exist. He also stated that SAs are a simplified snapshot of the applicable Service Catalogue entries at the time of signing the SA. The Service Catalogue will continue to evolve, and these evolutions need to be included in the added to the SA as amendments periodically.

Interviewee 11

The eleventh interviewee is employed as the Director of the IT Division at a tertiary institution. He suggested that SAs form the cornerstone of SM. He had been involved in developing an SA

for a province wide library network. He believed that in the development of an SA, the process of development is far more important than the final product.

Interviewee 12

The twelfth interviewee is employed as an Account Manager at a multinational service provider. His organisation had a fully implemented SM strategy. He stated that his firm had a Service Catalogue but that it was constantly changing. The given reason for this was the rapid advancement of technology. This organisation had a philosophy of using a standard SA. However, they stressed that for any client, they are more than willing to customise their SA. To this end, the interviewee stressed that a service provider should always embrace change in its service provision. It was emphasised that a single point of contact for the client in the service provider organisation, and that person being specified in the SA, is of vital importance in developing and maintaining a successful business relationship.

Interviewee 13

The thirteenth interviewee is employed as the divisional director of the Port Elizabeth branch of a multinational service provider. The interviewee regarded SM as a process of identifying and then exceeding the client's expectations. The focus is on the client and ensuring the development of a sustainable business relationship. The development and management of an SA is integral to SM.

Interviewee 14

The final interviewee is employed as the Chief Information Officer at a multinational car manufacturing facility. This interviewee emphasised the need to define procedures and services very carefully to avoid any confusion and misrepresentation. To this end, the interviewee believed that any ICT service provider should measure as much as possible. This should be done to satisfy management and enable the provider to measure their performance against something. The interviewee believed that a delicate balance needs to be found between client personal and SP personal in order to maximise industry specific knowledge.

4.6.3 Summary of Interviews

Noticeable common threads permeated through all of the interviews:

- The importance of effective communication
- The identification of core competencies
- The compulsory presence of a service catalogue
- The importance of preparation
- The importance of planning
- The importance of the balance between the legalities and technicalities that are associated with agreements and contracts, and their readability
- The value of managing expectations
- The value of skilled SM staff

4.7 Summary of the Exploratory Pilot Study

The exploratory pilot study provided interesting and valuable insight into the current ICT service management landscape. The analysis of the results of the online survey and the interviews can be grouped under the following three headings:

- Respondent Service Management Experience
- Successful Service Management Implementation
- Service Management Staff Skills

4.7.1 Respondent Service Management Experience

The majority of respondents to the online survey were confident in their understanding of SM. 46% declared that they have extensive SM understanding and a further 35% have moderate SM understanding. 67% of the respondents have had a recognised SM strategy in place for between 1 and 10 years.

Interestingly, however, one third (33.3%) of the respondents registered a lack of service management understanding as the most significant barrier to implementing or improving SM. An additional 19% regarded the lack of experienced staff and 17% suggested that difficulties with products and tools as the most significant barriers. Added to this, 46% of the respondents declared that SM initiatives were sometimes unsuccessful in their organisation, and a further 23% rated these failures as very often and an additional 3% suggested it was always.

Consequently, 62% of respondents acknowledged the need to improve their organisation's SM capabilities as very important and a further 24% suggested it was rather important.

4.7.2 Successful Service Management Implementation

The respondents confirmed that all the factors listed in Question 12 contribute to unsuccessful SM initiatives and 51% regarded the detailed understanding of client requirements as the most important part of an SM program.

The respondents also confirmed that the importance of appointing a service manager (64%), developing a catalogue of services (62%), designating SM teams (38%) as well as the understanding and documenting of client requirements (76%) are very important preparatory SM activities.

The importance of preparation was further emphasised by the interviewees. Each echoed a similar sentiment to that of interviewee 2 who stated that the absence of, or poor, preparation within a SM environment, leads to failure. Most of the interviewees acknowledged having a designated and competent service management staff that operates in an environment where an up-to-date and available Service Catalogue is present.

4.7.3 Service Management Staff Skills

73% of the respondents rated communication skills as very important for SM staff to possess. This is confirmed by the 31% of respondents who suggested that effective stakeholder communication always leads to successful SM and the further 45% who rated this importance of this communication as very often contributing to SM success.

Customer relationship skills were regarded as very important by 63% of the respondents and time management skills was regarded as very important by 36% of the respondents. While 44% of respondents regarded project management skills as somewhat important, only 17% rated these skills as very important. The presence of these skills was confirmed in each of the respondent's organisations.

4.8 Conclusion

The exploratory pilot study consisted of an online survey and interviews. The survey respondents were self-selected members of the *itSMF* and the interviewees were conducted with individuals who had expressed an interest in this research.

The value of adequate preparation, before attempting to manage ICT services, was the common denominator that was confirmed by the exploratory pilot study. The majority of the difficulties and obstacles, to ICT SM, identified in the literature and confirmed by the respondents and interviewees, resulted from insufficient attention to preparation. Communication, customer relationship management and the presence of skilled SM staff also featured as key aspects of ICT SM.

Questionnaires and interviews are useful mechanisms with which to gain opinion from respondents in a complimentary manner. The response rate to the online survey was lower than anticipated, yet the results still managed to provide insight into the implementation of SM.

Chapter 5: Theoretical Framework for the Implementation of Service Management

This chapter proposes a theoretical framework for the implementation of Service Management. The framework comprises two phases: a foundation phase and a managing services phase, both of which are comprised of sub-phases

5.1 Introduction

Following the analysis of SM of Chapter 2, the analysis of current frameworks of Chapter 3 and the results of the exploratory pilot study of Chapter 4, two key phases are evident for the successful implementation of SM in ICT.

For an ICT service provider to be in a position to provide services, certain preparatory activities need to have been completed. These preparatory activities form the platform for any number of service management projects. Without preparing themselves, the ICT service provider organisation will be unable to successfully manage the services they provide (ITIL, 2004b)

Once the ICT service provider is in a position to provide services successfully, they can engage any number of clients to whom they can provide services. In other words, once prepared, the ICT service provider can manage services to any variety of clients.

This Chapter proposes a theoretical framework for the successful implementation of SM in an ICT service provider organisation.

5.2 A Service Management Framework

The framework presented in this chapter recognises that an ICT service provider organisation needs to progress through two phases. The initial phase is characterised by the introspective activities required to place the organisation in a state of service management readiness. This phase is also done in the absence of clients. The latter phase is where a client is engaged and ICT services are being managed.

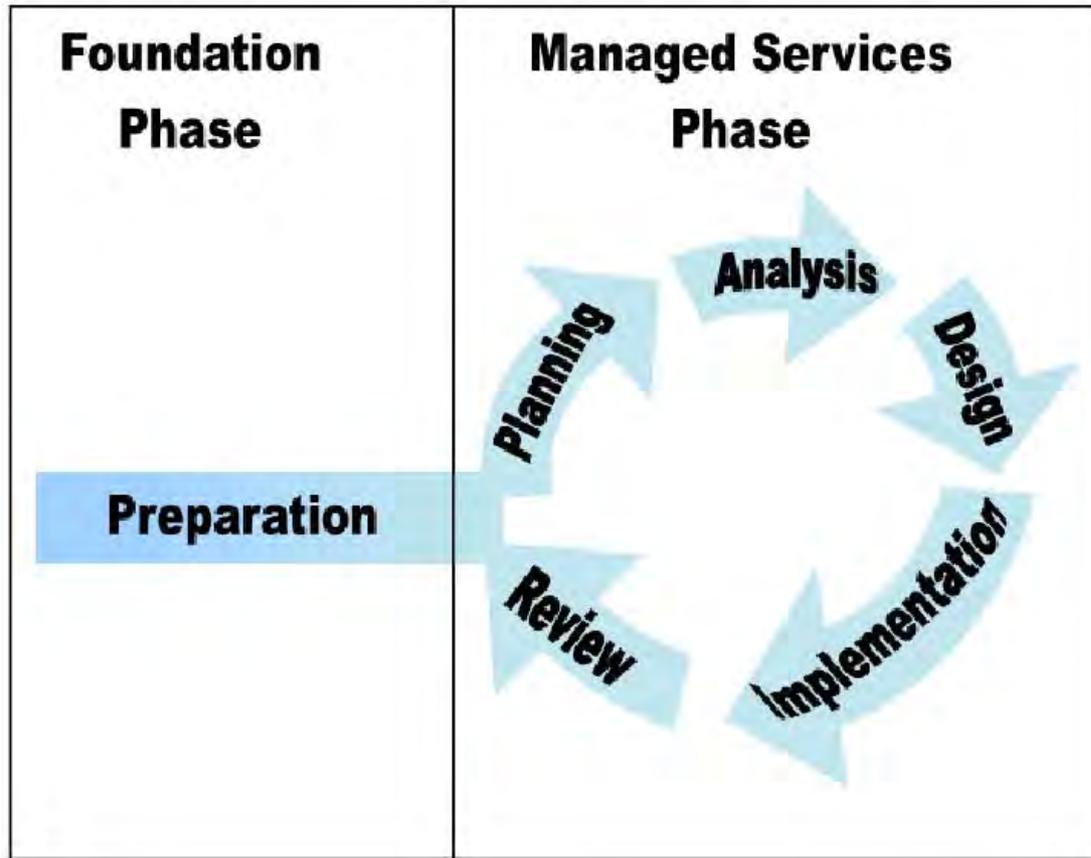


Figure 44: SM Framework

The relevance of an ICT implementation framework is of equal value to service providers as it is to service recipients. Services exist in an environment where there are providers and clients. In many instances, the providers may also be clients. While the perspective of a client may differ from that of the provider, the success of the service provision depends on the application of the implementation framework. While the service provider needs to complete the activities identified in the foundation phase, the client needs to seek evidence of the completion of these activities. The managed services phase involves the interaction of both the provider and client. The phases and steps identified in the proposed framework below are therefore of relevance to both service providers and clients.

The Foundation Phase comprises all the preparatory activities required for the implementation of SM. These preparatory activities do not result in an environment wherein services are effectively managed. Rather, this initial phase places an organisation in a position of readiness to provide and manage services. This is depicted in Figure 42 as a block of preparatory activities positioned before and overlapping into the second phase.

The Managed Services Phase is characterised by a lifecycle of activities that are required when implementing an individual SM project. This cycle is initiated by the planning step and originates from the preparatory activities. This cycle continues through Analysis, Design and Implementation steps. The cycle concludes with a review step that feeds back into the Preparatory activities in order to provide the necessary feedback into the review of the preparatory activities.

5.2.1 Phase 1: Foundation

The framework recognises eight key preparatory activities. These activities correspond to the key actions an organisation needs to complete before attempting to provide and manage services. While these activities are interdependent, they are sequential and are of equal priority. These eight preparatory activities are:

1. Appoint or nominate Service Management staff
2. Define Service Management scope and objectives
3. Quantify activities, resources, funding and quality criteria
4. Identify risks
5. Raise awareness of Service Management
6. Develop a Service Catalogue and pro-forma SA
7. Identify support tools, especially for SA monitoring
8. Set incident priority levels and escalation paths

5.2.1.1 Appoint or Nominate Service Management Staff

This first of the preparatory activities is the appointment or nomination of a service manager and possibly additional service management staff. This signifies the commitment by the organisation to invest in SM, as well as providing an organisational base and leadership for the SM strategy (ITIL, 2004a).

The identification of a service manager, who holds a senior position within the organisation, provides a focal point and channel for the management of services. By dedicating resources to SM, the organisation ensures that the development of an SM strategy is thorough and sustainable.

The seniority of the service manager impacts on the credibility of the SM strategy. The more senior the service manager, the more credibility is afforded the SM strategy. Further, the relationship between the head of the organisation's ICT and the service manager is of critical importance. In an in-sourcing environment, the service manager reports to the CIO, whereas in an outsourcing environment, the service manager reports to the executive management structure (ITIL, 2004b).

The responsibilities of SM staff include:

- Create and maintain a catalogue of existing services
- Formulate and maintain an appropriate SM structure for the organisation, including:
 - Service Agreements structure
 - Operating Level Agreements
 - Third Party Supplier / Contract Management relationships
 - Existing Service Improvement Programs
- Manage SAs, OLAs and Service Improvement Processes
- Review service performance against SAs and OLAs
- Produce regular service reports
- Manage service level review process

Some of the key skills and competencies include:

- Relationship Management skills
- Project Management skills
- Communication and negotiation skills
- People management and administrative skills
- Presentation skills
- Understanding of ICT provider services
- Understanding of customer's business

5.2.1.2 Define Service Management scope and objectives

It is important to ensure alignment of business and ICT strategies. In setting the ICT direction, the management of services form an important part. The identification of a strategic direction,

that aligns ICT with the business, enables the business to achieve improved service delivery and provide the flexibility to cope with change. In order to achieve this, policies and standards are required for consistent management of ICT. These encapsulate the vision, scope and objectives of the SM strategy (ITIL, 2004b).

In order to define the scope and objectives of an SM strategy, the following key features need to be considered:

- The flexibility to exploit opportunities, as well as to respond to external change
- A mechanism for accountability
- A framework for managing risk
- A mechanism for translating ICT developments into new business opportunities

In order to develop the scope and objectives, the following activities need to be completed:

- Analysis of business needs and how ICT can support their attainment
- Establishing of a policy of risk management
- Establishing an ICT strategy that integrates the business strategy and raises awareness of the contribution of ICT towards the business outcomes
- Recognition of future developments and business opportunities.

5.2.1.3 Quantify activities, resources, funding and quality criteria

Once the scope and objectives of the SM programme have been identified, the necessary activities, resources, funding and quality criteria need to be quantified. These four activities are closely related and each impacts on the other three. For example, if the quality criteria increase, a corresponding increase is required in the funding, which impacts the allocation of resources leading to a refinement of the activities (ITIL, 2004b)?

The development of job descriptions and work break down structures, along with the allocation of portfolios are the key components in quantifying activities.

Allocating and mapping resources to these activities is an important consideration. Ensuring that the appropriate skill sets are coupled to the task requirements impacts on the success of the initiative.

Funding is often problematic. These problems are two fold. Primarily, the sourcing of funding is difficult. This is compounded in an environment where there is limited buy-in from executive management. Secondly, creating a balance between activities, resources and quality, within a financially controlled environment requires skilled planning. Comprise on any of these activities to save costs can diminish the effectiveness of an SM program.

The quality criteria identified in an SM initiative requires in-depth analysis of the business processes and requirements. In bench-marking network and device uptime, as well as stipulating response times requires careful consideration of the impact these have on the business as a whole. Further, the priority of incidents needs to be considered before they can be quantified in terms of up-time and response time.

5.2.1.4 Identify Risks

The organisation derives added value from a continued service improvement programme. A business case for implementing SM recognises the projected costs and revenue. In reality, the costs are easy to describe and manage as they refer to people, time, tools, hardware and software. However, the improvements in revenue and or savings as a direct result of the improvements in service levels are more difficult to quantify (ITIL, 2004b).

The development of a business case requires a detailed understanding of the business need and scope before the change process can be undertaken. The business case should provide senior management with sufficient information to enable them to make decisions. These decisions consider the business needs and priorities of any improvement projects, and assure that the project is justified in terms of acceptable costs, quantified benefits and indented risks.

A structured approach to risk management is an important part of the preparatory SM activities. Risk management occurs once risks have been identified and analysed. In identifying risks, the following three risk areas need to be considered:

- The business vision
- The exiting business processes
- The environment and business constraints

The risks associated with a continued service improvement programme can be classified into three categories:

- Conceptual – relating to the scope of the continued service improvement process
- Technical – relating to the processes and procedures adopted by the organisation
- Resource – covering the skills and competencies necessary to deliver a successful change and improvement in service management

5.2.1.5 Raise awareness of Service Management

Although the definition of the SM scope and objectives are helpful tools and guide, the true benefits are only seen when these are communicated to all the associated stakeholders. Typically the stakeholder interest stems from the fact that they have invested time, energy, attention, money and resources with the expectation of a return on their investment.

A sense of urgency (“What if we do nothing?”) and the vision (“What is in it for me?”) should form the basis of all communication to the stakeholders. These messages should be aimed at motivating, inspiring and creating the necessary energy, commitment and buy-in.

It is important to use all the available communication channels. Examples of these include the organisation’s newsletters, Intranet, posters, meetings and seminars. It is important to aim the communication at the specific needs of each target group (ITIL, 2004b).

5.2.1.6 Develop a Service Catalogue

Service Management is a process that defines, negotiates, monitors, reports, and controls customer-specific service levels within predefined standard service parameters. It also generates customer-specific services if the SA requires it. A Service Catalogue is where all this information is contained in one place for service documentation, coordination, maintenance, and referral.

A Service Catalogue focuses specifically on documenting and articulating the ICT services provided to the organization. Typically it also contains the necessary service level requirements that are usually detailed in an SA. Such a catalogue should list all of the services being provided,

a summary of their characteristics and details of the client as well as the catalogue maintainer (ITIL, 2004; Microsoft 2003).

The following steps are recommended for developing of a Service Catalogue:

- Develop and document a Service Catalogue that includes identifying and qualifying the types of services being provided for all major business systems, similar to an inventory of systems that includes a detailed description of each. Over time these Service Catalogue entries are deepened in breath, scope, and detail dealing with a customer business level focus for transactions and the component areas that comprise it.
- Develop and document service level objectives. A primary focus should be on internal service such as the technology level for performance and availability. Examples are, network, server response, and "up-time". Over time these objectives should be deepened in breath, scope, and detail dealing with a customer business level focus for transactions and the component areas that comprise it.
- Document service level objectives within the Service Catalogue and/or develop and document formal service agreements with customers. (In some ICT organizations, individual SAs are not prepared since they are not charging back for services. In this case the SA may be replaced with a Service Catalogue that defines the same information but without the charges sections. The service catalogue then becomes a tool for the ICT support organization to establish its own measurable objectives. These objectives identify what the ICT staff must do to support the terms of the agreements.) Based on the service level objectives listed above, these agreements will be "contracts" of guaranteed levels of performance and availability. These agreements need to be reviewed and renegotiated as needed (typically on a cyclic basis). As the scope, breadth, and detailed level of the Service Level Objectives expand so to should the Service agreements. It is important that both the Service Level Objectives and Agreements, are realistic, can be measured, can be achieved, can be monitored, and are agreed to by both ICT and the customers.
- Implement the necessary hardware and software technologies to evaluate, monitor, and report on performance and availability. Off-the-shelf software and the associated hardware should be considered initially for practical reasons of maintenance, support, and resources requirements.

- Establish the necessary methods and processes for developing, publishing, and maintaining the Service Level Objectives and Agreements, as well as their evaluation, monitoring, and reporting.
- Appoint service managers (and associated ICT Service Management resources if and as necessary) whose primary role and responsibility is to support Service management enterprise-wide.
- Fully complete the Service Catalogue, verify it with the user community, and publish it. Assign the responsibility of maintaining and enhancing it.
- Enhance the Service Catalogue such that it is integrated with service level objectives and agreements and has a business and customer service focus.
- Fully develop the other areas of Service Management as defined by ICTSM as needed such that an optimized maturity level is attained as uniformly as possible.

5.2.1.7 Identify support tools, especially for SA monitoring

It is important to identify the appropriate tools for monitoring service levels (Lewis and Ray, 1999; Brittain and Matlus, 2002; Sturm, 2003; Microsoft, 2003; ITIL, 2004 and itSMF 2004). A number of factors need to be considered when assessing these tools.

Often a range of tools is available throughout the organisational departments. These tools need to be identified and analysed. More often than not:

- Little integration or sharing of data occurs between these tools
- Tools that are used to support specific processes do not support the functional level required by the SM initiative
- Data structures and handling cannot be tailored to record attributes and data to support work flows

It is important to define specific requirements in terms of technology-enabled processes requiring improvement, for example:

- Which processes and functionality can be effectively supported
- Which processes are required and which functionality is demanded for each process
- What data has to be captured to carry out and report upon process performance effectively
- What level of process integration is required in the tool support – the ability to link incidents to problems

Once this information has been gathered and the existing tool support is analysed, a clearer picture emerges about:

- Whether or not any of the existing tools meet requirements
- Whether the existing data needs to migrate to a new tool, or if it is necessary to implement a new integrated Service Management tool
- Where the current skills and expertise in using and configuring tools exist

Consideration must be given to the exact requirements for the tool. The following are some practical guidelines for selecting an SM tool:

- The tool must support the process; the process must not be modified to fit the tool
- Where possible, it is better to purchase a fully integrated tool to underpin as many of the SM processes as possible
- The tool must have the flexibility to support access rights
- Initial consideration must include the hardware and software operating platform for compatibility with the tool
- Negotiate with the many vendors and include on site demonstrations and reference sites to visit
- Assess the management reports generated by the tool
- Assess the training needs of the organisation in order to implement the tool as well as the support offered by the vendor
- Ensure that the tool interfaces with other tools and telephony

5.2.1.8 Set incident priority levels and escalation paths

The priority of an incident is primarily determined by the impact on the business and the urgency with which a resolution or work-around is needed. Targets for resolving incidents or handling

requests are generally embodied in an SA. In practice, resolution targets for incidents are often related to categories (ITIL, 2004a).

Incident classification is the process of identifying the reason(s) for the incident and hence the corresponding resolution action(s). Many incidents are regularly experienced and the appropriate resolution actions are well known. This is not always the case, however, and a procedure for matching incident classification data against that for problems and known errors is necessary. Successful matching gives access to proven resolution actions, which should require no further investigation effort.

In order to classify incidents, the following inputs are required:

- Recorded details of incidents
- Configuration details from the Change Management Database
- Response from incident matched against problems and known errors

Incident records raised in the input phase are now analysed to discover the reason for the incident. The incident should also be classified, the process on which further resolution actions are based.

Once the inputs have been gathered, the following processes and actions need to be performed:

- Classify incidents
- Matching against known errors and problems
- Informing problem management of the existence of new problems and of unmatched or multiple incidents
- Assigning impact and urgency – defining priority
- Assessing related configuration details
- Providing initial support (asses incident and find a quick resolution)
- Closing the incident or routing to a specialist support group and informing the user(s)

The outputs of the classification process are:

- Incident resolution
- Updated incident details
- Work-arounds for incidents, or incident routed to second or third line support

In order to manage incidents, its priority needs to be defined. In other words, the incident needs to be managed in relation to how important it is and what the impact it causes to the business. The responsibility for definition lies within SM within the parameters set in the Service Agreement. The priority with which incidents need to be resolved will depend on the following:

- How the incident impacts on the business
- The size, scope and complexity of the incident
- The availability of resources for coping during the correction of the fault

5.2.2 Phase 2: Managed Services

Once the SM foundations have been laid, any number of service management projects can be initiated. The framework identifies five key steps for the managing of services. While these steps detail a chronological path for an SM implementation, they provide flexibility of movement in both directions.

The Managed Services Phase begins with a link to the Foundation Phase to the Planning step. The Planning step leads into the Analysis, which is followed, in chronological order, by Design, Implementation and Review steps.

5.2.2.1 Planning

Three key planning activities occur in the implementation of an SM project (ITIL, 2004b). Firstly, the client is met to establish a broad understanding of the required services. Secondly, members of the SM team are identified. Once the SM project has been initiated, the final step is to raise awareness of it.

Meet with Client

Once the capacity to manage services has been established, the service provider can approach potential clients who require those services. The objective of this initial meeting is to establish the link between what managed services the provider is able to provide and those that the client requires. If the managed services on offer match those required, the SM project can proceed.

Establish SM Project Team

When the managed services on offer map to those that are required, the stakeholders provide human resources to the SM project. It is advisable for the project team to be made up of resources from both the client and the provider's organisations. This team needs to complete the following activities:

- **Assign roles and responsibilities**
Each team member must have an identifiable role with their associated responsibilities. This will provide focus to each team member as well as providing the links between people, as “who does what” is documented and communicated between team members. The structure of the team and the associated relationships between its members provides the transparency of where responsibilities lie.
- **Prepare Work Flows / Gantt Chart**
The second task of the SM project team is to detail the proposed activities against time, taking consideration of the associations and dependencies that exist between tasks.

Raise Awareness of SM Project

Once the client and the provider have agreed to enter into a service relationship, and have settled on the structure and makeup of a project team, they need to raise awareness of the SM project. This can be done in a number of ways. It is advisable to enlist the support and help of the marketing departments of either or both the parties. It is important to publicise the “why”, “when” and “how” of the proposed SM project. This improvement in the profile of the project assists in ensuring the support and buy-in of all parties affected by the resulting changes. It also helps to improve employee moral as more employees are made aware of the pending improved management of services.

5.2.2.2 Analysis

Once all the planning activities are complete, the SM project team can focus on providing a managed services solution. An in-depth analysis of the client's business processes and their existing services are a starting point to provide a picture of the client's current situation. When this picture is complete, the appropriate services that support the client's business processes can

be identified and catalogued to map the managed services solution (Lewis, 1999; Lewis and Ray, 1999; Brittain and Matlus, 2002; Sturm, 2003; ITIL, 2004 and *itSMF* 2003).

Identify Client's Business Processes

Analysis of the client's operating procedures and businesses processes is a critical part of any SM project. The identification and understanding of how the client conducts their business is of pivotal importance as the future of the SM project is guided by this. Any managed service environment is worthless, if the services do not assist or complement these business processes.

Review Client's Existing Services

Unless the project is green fields in nature, or the client requires a new service, it is probable that services are already in place. These existing services need to be reviewed and assessed in light of the identified business processes, the client's requirements and the provider's capacity to provide them. In a best case scenario, there may already be an existing fit between the business processes and the managed services. Alternatively, there may be a requirement for an adaptation of the managed services. In a worst case scenario, the client's managed services may need to be completely overhauled.

Identify the Services to Support those Business Processes

Once the business processes and the service environment have been identified and reviewed, the appropriate managed services need to be mapped to support the business processes.

Develop a Blueprint of the Client's Service Requirements

The conclusion of the analysis step is the development of a blueprint of the client's service requirements. The successful mapping of managed services to business processes is the result of the analysis step. Poorly executed analysis increases the probability of failure in the SM project. This situation may arise when the service provider has failed to understand the client's business processes and / or requirements. Additional factors that could contribute to the failure of an SM project are an over-commitment by the provider to manage services beyond its capacity.

A review of this blueprint by all stakeholders and possibly an independent authority could assist in the identification of these potential pitfalls.

5.2.2.3 Design

With the blueprint of the client's service requirements as a reference tool, the managed services solution can be designed. The primary activity in this step is the negotiation and development of an SA.

Negotiate and Create SAs

The process of developing an SA is considered by many authors to be the primary function of any SM project. In some cases, the authors regard the development of an SA as SM. While the importance of SAs in a managed services environment cannot be underestimated, it may not necessarily be a prerequisite for successful SM (Sturm, 2003).

All the models analysed in this research project recognise the pivotal role that the SA forms of an SM project (Lewis, 1999; Lewis and Ray, 1999; Brittain and Matlus, 2002; Sturm, 2003; Microsoft, 2003; ITIL, 2004 and *itSMF* 2004).

5.2.2.4 Implementation

Once an SA has been negotiated and created, it needs to be implemented. The implementation step in this framework is characterised by the deployment of the SA. If the Foundation phase and the previous steps in the Managed Services phase have been accurately completed, the deployment of the SA will be routine. It is a common error for an SM project to begin by attempting to implement an SA (Lewis, 1999; Lewis and Ray, 1999; Brittain and Matlus, 2002; Sturm, 2003; Microsoft, 2003; ITIL, 2004 and *itSMF* 2004).

Deploy SA

With the comprehensive design of the SA, the deployment thereof is routine. The skills of the implementation team are technical and their actions are governed by the developed document. A well structured SA that has been developed in accordance with this framework is easier to

implement than one developed in parallel with the implementation of a managed services environment.

Real-time monitoring of service levels

Lewis (1999) recommends that service managers must monitor everything. For services to be effectively managed, they need to be monitored in real-time. A myriad of tools monitor all aspects of an ICT environment. These tools provide service managers with accurate and current information regarding the state of all devices and processes operating across a variety of mediums.

Not only does real-time monitoring provide information on the current status across a broad spectrum of hardware and software devices and programs, it assists in the proactive management of services. Problems can be avoided if early warning signals are identified and attended to.

Service level reporting

Service levels in a managed environment must be referenced against those stipulated in the SA. Performance over a specified time can be assessed against the criteria set out in the SA. Detailed reporting should be done monthly and summarised annually. This reporting provides an opportunity for the provider and client to identify areas of strengths and weaknesses as well as provide a platform for the flexibility identified in the eight development principles.

5.2.2.5 Review

A managed services environment is dynamic. Technology is constantly changing and the requirements of the client are also subject to change. These changes impact on the ability to provide and manage services (Lewis, 1999; Lewis and Ray, 1999; Brittain and Matlus, 2002; Sturm, 2003; Microsoft, 2003; ITIL, 2004 and *itSMF* 2004). Review comprises three key activities:

Review Service Levels

There is no room for complacency with respect to service levels. These need to be continually reviewed in line with business requirements and advances in technology. The monthly reporting

interaction between the client and provider provides a platform for the initial review of service levels. The annual summary report is an additional interaction between client and provider to review services.

Establish Priorities and Plan for Change

Due to the dynamic nature of the ICT environment, change is inevitable. Priorities are also subject to change. The recognition of this is important. Planning for this is therefore of paramount importance if the managed services environment is to be flexible and sustainable to the benefit of all stakeholders.

Fine Tune or Reengineer Business Processes and / or Services

In reviewing service levels and embracing change, the organisation accepts that business processes and services are dynamic and are subject to change. Improvements in the way we do things, as well as improvements in the technology that assists us, occur regularly. As a result, there is a continued need to refine both the business processes and the managed services that support them.

The review step of the Managed Services Phase provides a link back into the Foundation Phase. This allows for the revision of the preparatory activities to make necessary adjustments in light of the lessons learnt in an SM project.

5.3 Conclusion

The framework for SM as proposed in this chapter represents a synthesis of the successful components of the various approaches towards SM. This framework accommodates the successful components of SM identified in 2.11.

The strength of this framework is the recognition of, and the emphasis on, the preparatory activities. A criticism of some of the approaches towards SM has been the failure to identify and clarify the foundational activities necessary to manage services effectively.

The link between the two phases provides for continual service improvements. Further, this link provides the organisation with the facility to continually assess their ability to provide managed services.

Chapter 6: Design of the Empirical Study

This chapter details the design of the empirical study. The empirical study is intended to further explore the framework proposed in the previous chapter. The first part of the chapter details the hypotheses that the empirical study explores. The survey instrument is then discussed. A full copy of the survey can be found in Appendix B.

6.1 Introduction

The preceding chapters described various factors that influence the success or failure of an SM initiative. These factors can be broadly categorised into SM experience, an SM strategy, preparation, planning and management of client requirements, SM staff and communication.

The factors that impact on the successful implementation of an SM strategy were presented in the previous chapter within the context of a theoretical framework. This framework relies on a number of interrelated and consecutive processes, each of which influences other processes and successful SM.

This research proposes that SM is a cyclical and collaborative process that is initiated by a number of preparatory activities necessary to ensure that the service provider is in a position to manage services. This is followed by a process of understanding and defining of client requirements; negotiating, creating, deploying and refining SAs; real-time monitoring and reporting of service levels. This is done within a framework of accountable costs, continual service improvements and perpetual development of the business relationship.

In order to explore further the Service Management Implementation framework and the relationship between this framework and successful SM, an empirical study is conducted.

The empirical study comprises an on-line survey. This chapter describes the hypotheses that the survey tests, as well as the structure and context of the survey instrument.

6.2 Hypotheses

The factors that are relevant in the development of a successful SM strategy were identified and explored in the previous chapters. The following six (6) key aspects of SM were identified as factors that contribute to successful SM:

1. Service Management Implementation Strategy
2. Service Management Preparation
3. Service Management Planning
4. Management of Client Requirements

5. Service Agreements
6. Service Monitoring and Reporting

These factors were further explored in the analysis of Service Management Implementation frameworks. The main focus of the empirical work is to investigate the importance of these factors. These factors and the supporting conditions can be found in Table 39.

Table 40: SM Factors and Supporting Conditions

1 Service Management Implementation Strategy	
1.1	Presence and extent of a corporate SM implementation strategy
2 Service Management Preparation	
2.1	Competent and senior service manager
2.2	Presence of an up-to-date, available and inclusive service catalogue
3 Service Management Planning	
3.1	Presence and composition of SM team
4 Management of Client Requirements	
4.1	Understanding and documenting of client’s business and requirements before attempting to manage their services.
5 Service Agreements	
5.1	Difficulty with developing and deploying SAs
6 Service Monitoring and Reporting	
6.1	The presence of real-time monitoring of service levels
6.2	The presence of real-time reporting on service levels

These factors are now converted into a series of hypotheses that are tested quantitatively in the questionnaire. The hypotheses are listed below along with their null hypothesis. Together the null hypothesis and the alternative should constitute mutually exclusive and collectively exhaustive descriptions of all the possible solutions in the population relating to the variable under scrutiny.

6.3 Perceived Successful Service Management

All the hypotheses in this study are tested against a dependent variable. The dependent variable in this study is the perceived successfulness of the organisation’s SM. The factors that contribute

to successful SM were identified in Chapter 2 and pivot around the successful mapping of services to client requirements, the sustained provision of services and a mutually beneficial relationship that is built on a shared strategy. Therefore, SM success is seen as a combination of the respondents' scoring of the following:

- Their perceived satisfaction with SM within their organisation
- The frequency with which services are mapped to client requirements
- The frequency with which SM relationships are terminated prematurely
- The frequency with which extendable contracts are extended

In other words, respondents who are generally satisfied with their organisation's SM, whose organisation's SM contracts are infrequently prematurely terminated, whose organisation's services are frequently mapped to client requirements, and whose organisations extendable contracts are frequently extended collectively represents perceived successful SM.

Conversely, perceived unsuccessful SM occurs when respondents register a general dissatisfaction with their organisation's SM, contracts are frequently terminated prematurely, mapping of services to client requirements does not occur and extendable contracts are rarely extended.

The success of SM also involves an interactive relationship with the client that grows with time. This interaction includes the effective eliciting and managing of client requirements and expectations. This management of the client is predicated on the service provider accurately identifying the client's business processes and mapping them to the services that support them.

In terms of the hypotheses, the following definitions are relevant:

- A fully implemented SM strategy is one that has completed an implemented lifecycle across all the relevant areas of an enterprise.
- Successful SM meets the requirements as described in 2.11.
- A competent service manager is one who understands SM and has successfully implemented it.

Hypothesis 1: Service Management Implementation Strategy

Sturm, Morris and Jander (2000) acknowledge that for the successful implementation and the sustainability of SM, a strategy is required. This strategy includes an organised and flexible plan for introducing SAs and working with them on a day-to-day basis in order to achieve maximum efficiency and savings.

SM that is implemented in the absence of an identified and recognised strategy is more likely to be flawed and unsustainable. There is consensus that the cyclical nature of the phases on SM implementation is holistic and comprehensive. The chances of successful SM in the presence of a fully implemented strategy are high.

- **H0₁:** There is no relationship between a fully implemented corporate SM strategy and the perceived successfulness of SM.
- **H1₁:** There is a relationship between a fully implemented corporate SM strategy and the perceived successfulness of SM.

Hypothesis 2, 3, 4 and 5: Service Management Preparation

The various implementation strategies identified in the previous chapters do not pay sufficient attention to the preparatory SM activities. The ITIL (2004), however, do identify these initial activities. They suggest the appointment of a qualified and competent Service Level Manager and necessary support staff, as well the presence of an up-to-date and documented service catalogue that includes all services and is available to all staff, as the most important preparatory activities.

- **H0₂:** There is no relationship between a competent Service Manager and the perceived successfulness of SM.
- **H1₂:** There is a relationship between a competent Service Manager and the perceived successfulness of SM.
- **H0₃:** There is no relationship between the existence of an up-to-date service catalogue and the perceived successfulness of SM.
- **H1₃:** There is a relationship between the existence of an up-to-date service catalogue and the perceived successfulness of SM.

- **H0₄:** There is no relationship between the comprehensiveness of a service catalogue and the perceived successfulness of SM.
- **H1₄:** There is a relationship between the comprehensiveness of a service catalogue and the perceived successfulness of SM.

- **H0₅:** There is no relationship between the availability of a service catalogue and the perceived successfulness of SM.
- **H1₅:** There is a relationship between the availability of a service catalogue and the perceived successfulness of SM.

Hypothesis 6 and 7: Service Management Planning

The implementation strategies identified in previous chapters also pay insufficient attention to the planning activities of an SM project. While a number of these strategies refer to the meetings of stakeholders, most suggest the designation of project staff as essential planning activities. Brittain and Matlus (2001) identify planning as an initial activity, recognising the need to identify a project team and recommend that this team contains members from each stakeholder organisation. In order to embark on an individual SM project, they acknowledge that attention needs to be paid to these planning activities.

- **H0₆:** There is no relationship between the appointment of an SM project team and the perceived successfulness of SM.
- **H1₆:** There is a relationship between the appointment of an SM project team and the perceived successfulness of SM.

- **H0₇:** There is no relationship between the composition of an SM project team and the perceived successfulness of SM.
- **H1₇:** There is a relationship between the composition of an SM project team and the perceived successfulness of SM.

Hypothesis 8 and 9: Management of Client Requirements

Identifying and understanding the client's requirements are important aspects of the analysis phase of any SM project (Lewis, 1999; Lewis and Ray, 1999; Brittain and Matlus, 2002; Sturm, 2003; Microsoft, 2003; ITIL, 2004 and *itSMF* 2004). SM is defined as the sustained provision of services that meet the client's requirements. This can only be achieved when these requirements are fully elicited, managed and understood.

- **H0₈**: There is no relationship between the detailed understanding of client's requirements before attempting to manage services and the perceived successfulness of SM.
- **H1₈**: There is a relationship between the detailed understanding of client's requirements before attempting to manage services and the perceived successfulness of SM.
- **H0₉**: There is no relationship between the documentation of client's requirements before attempting to manage services and the perceived successfulness of SM.
- **H1₉**: There is a relationship between the detailed documentation of client's requirements before attempting to manage services and the perceived successfulness of SM.

Hypothesis 10: Service Agreements

Blum (2002) acknowledged that SAs are the most significant barrier to implementing or improving SM. This view is supported by Sturm (2003), who recognises that while these agreements are central to the management of services, they can be difficult to develop and manage. Organisations who do not perceive the developing and deploying of SAs as an obstacle are likely to have a more successful SM strategy.

- **H0₁₀**: There is no relationship between the perception that service agreements are an obstacle and the perceived successfulness of SM.
- **H1₁₀**: There is a relationship between the perception that service agreements are an obstacle and the perceived successfulness of SM.

Hypothesis 11 and 12: Real-Time Monitoring and Reporting

Sturm (2003) recognises that real-time reporting adds significant value to the users of ICT services, suggesting that real-time reporting increases the satisfaction of the ICT user

community. Real-time monitoring and reporting of services is supported by Microsoft (2003) and ITIL (2004).

- **H0₁₁:** There is no relationship between the presence of real-time monitoring and the perceived successfulness of SM.
- **H1₁₁:** There is a relationship between the presence of real-time monitoring and the perceived successfulness of SM.

- **H0₁₂:** There is no relationship between the presence of real-time reporting and the perceived successfulness of SM.
- **H1₁₂:** There is a relationship between the presence of real-time reporting and the perceived successfulness of SM.

6.4 Methodology

The empirical study comprises an online questionnaire. The table below shows the distribution of questions within the research.

Table 41: Online Questionnaire

The Research
Questions 1 – 5 <i>(Demographics)</i>
Questions 6 and 7 <i>(SM Implementation Strategy)</i>
Questions 8, 9, 10 and 11 <i>(Perception of SM)</i>
Questions 12, 13, 14, 15 and 16 <i>(SM Preparation)</i>
Question 17 and 18 <i>(SM Planning)</i>
Questions 19, 20 and 21 <i>(Management of client requirements and SAs)</i>
Question 22 and 23 <i>(SM Monitoring and Reporting)</i>

6.4.1 Online Questionnaire

An online questionnaire was developed and loaded onto an online survey system. The survey instrument is discussed in section 6.3.1.4. The questions can be found in Appendix B.

6.4.1.2 Respondents and Channel

The survey targeted employees of Service Management focused enterprises in South Africa and preferably members of the South African chapter of the *itSMF*. These two groups were selected as:

- They represented a wide variety of organisations and positions
- They are actively employed or associated with the ICT field
- The respondents would have specific interest and experience in Service Management and Service Agreements

The employees of Service Management focused enterprises were contacted by either email or by using advertisements on corporate intranets. The members of the *itSMF* were emailed details regarding the research and the location of the electronic online questionnaire. The email and the advertisements required respondents to visit the site and complete the questionnaire or alternatively request the questionnaire via email. The questionnaire was initially available online for a period of one month. This period was later extended to two months to allow for further participation by respondents.

6.4.1.3 The Questionnaire Instrument

The survey instrument was hosted on an IS departmental server at Rhodes University. It was designed and implemented using Perception, an online questionnaire system, which catered for various versions of Internet Explorer. The questionnaire was entitled “Service Management and Service Agreement Development in South Africa.” An introduction to the questionnaire briefly explained the research, suggested an estimated time to complete it, and ensured the respondents of confidentiality. Preceding each set of questions were instructions clearly informing the respondents how to answer the various types of questions. The questions and their response types are discussed below. A copy of the questionnaire can be found in Appendix B.

6.4.2 The Relationship between Factors, Hypotheses and Questions

The survey questions are designed to elicit the demographic information of each respondent, to gauge their perceived satisfaction of SM and to explore the factors identified in Table 59.

Questions 1 to 5 address the demographic details of the respondents.

Questions 6 and 7 identify the presence and duration of a recognised SM strategy.

Questions 8, 9, 10 and 11 explore the perceived satisfaction and success of SM. These questions are used to extract the information used to develop the dependent variable.

Question 12 explores the competency of the SM manager. Questions 13, 14, 15 and 16 address the SM preparatory activities associated with the service catalogue and are the basis for testing hypothesis three four and five. Question 17 and 18 elicit responses that refer to the activities associated with the presence and composition of SM teams. These responses are used to test hypothesis six and seven.

The analysis and design activities are explored in questions 19, 20 and 21. These questions explore the extent of understanding and documenting of client requirements. Question 21 explores the organisation's difficulty in developing service agreements. The responses from these questions are used to test hypothesis eight, nine and ten.

The presence of real-time monitoring and reporting are addressed in questions 22 and 23. These questions test hypothesis eleven and twelve.

The relationship between the identified SM factors, the hypothesis and the questions are represented in Figure 44.

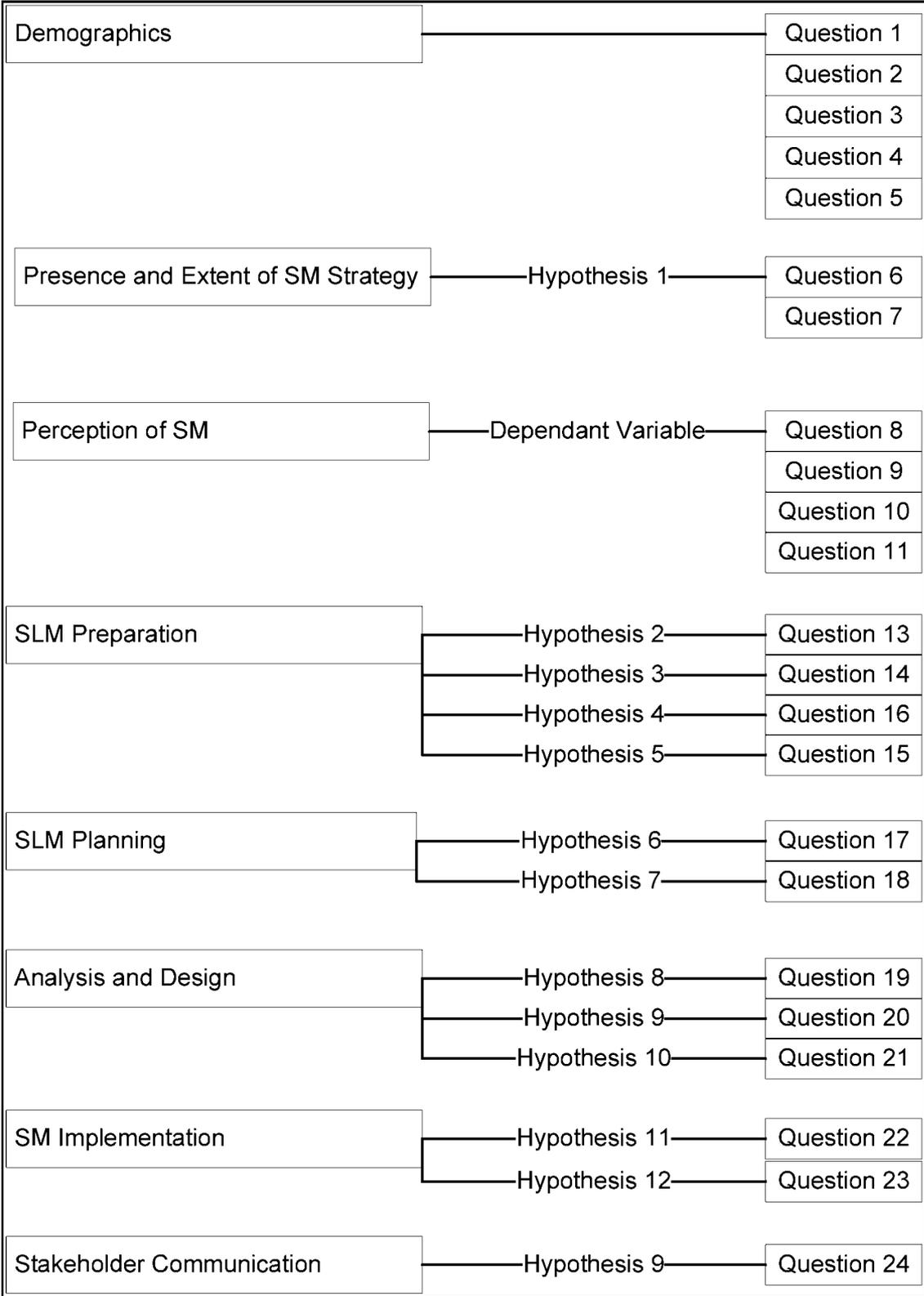


Figure 45: The Relationship between SM Factors, Questions and Hypothesis

6.5 Conclusion

This chapter provided a detailed description of the empirical study to be undertaken. The key aspects of SM were identified in preceding chapters and were converted into 12 hypotheses. These hypotheses were converted into 21 questions and these were polled using an online survey. The dependant variable for this survey was the perceived successfulness of SM.

Chapter 7: Results of the Empirical Study

This chapter presents the results of the empirical study, after which the hypothesis test results are presented.

7.1 Introduction

In this chapter the results of the empirical study designed in Chapter 6 are presented. The empirical study involved an online survey. This survey is separate from the one conducted during the exploratory pilot study. In both cases, participants were self selected from the *itSMF-SA*. While there may be instances where individuals participated in both surveys, there is no relationship between the two surveys.

7.2 Respondents

The online survey was open for a period of 1 month. The survey was constructed and managed by the survey management program Perception. The authors invited members and affiliates of the South African chapter of the *itSMF* to participate in the survey, as well as extending the invitation to other people within their respective organisations. Additional invitations were made to organisations who had expressed an interest in this research.

These interested organisations posted these invitations on their respective intranets, inviting interested persons to participate. The respondents therefore self-selected themselves. The Service Management survey was started 34 times was completed 29 times. The 5 respondents who did not complete the survey were disregarded.

7.3 Demographics

The first five questions of the survey addressed the respondent's demographic details. These questions were designed to elicit information regarding the respondent's location, industry sector, job title, SM experience and the size of their organisation. The following five tables and figures illustrate the demographic data collected on the survey respondents.

Question 1: Indicate the region in which you are currently employed.

Table 42: Geographic Location of Respondents

	Frequency	Percent
Western Cape	15	51.7
Gauteng	12	41.4
Eastern Cape	1	3.4
Outside of South Africa	1	3.4
Total	29	100.0

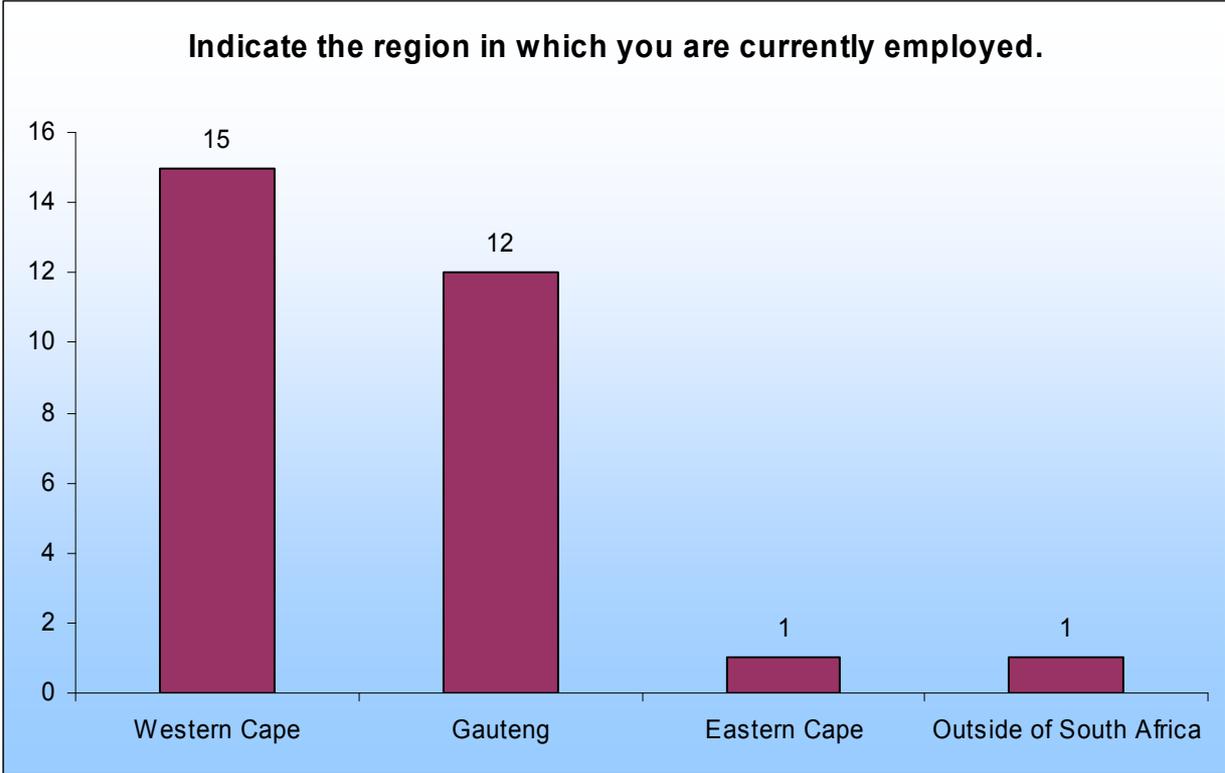


Figure 46: Geographic Location of Respondents

The majority of respondents (51.7%) are employed in the Western Cape, while 41.4% work in Gauteng, 1 respondent indicated that they were employed in the Eastern Cape and another outside of South Africa.

Question 2: Indicate the industry sector in which you are currently employed.

Table 43: Industry or Employment of Respondents

	Frequency	Percent
ICT Service Provider	18	62.1
Financial Services, Insurance or Legal	4	13.8
Telecommunications Provider	3	10.3
Manufacturing or Pharmaceuticals	1	3.4
Government, Education or Non-Profit	1	3.4
Other	2	6.9
Total	29	100.0

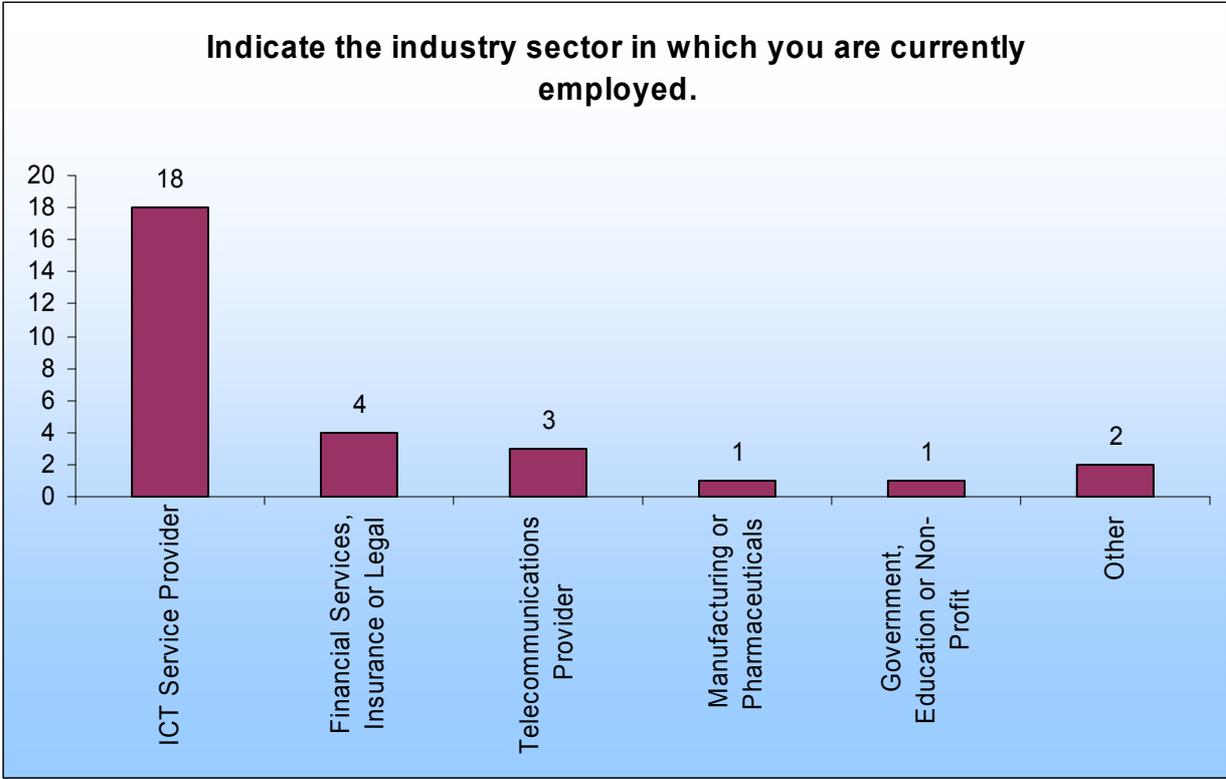


Figure 47: Industry or Employment of Respondents

The majority of respondents (62.1%) are employed by ICT Service Providers. The second largest grouping of respondents, represented by 13.8%, is the Financial Services and Insurance or Legal professions. 10.3% of those polled work in Telecommunications.

Question 3: Indicate which of these most closely represents your job title.

Table 44: Job Title of Respondents

	Frequency	Percent
ICT Director	2	6.9
ICT Manager	14	48.3
ICT Consultant	3	10.3
Network Administrator	2	6.9
Network or Systems Engineer	1	3.4
Other Technical Staff	4	13.8
Other	3	10.3
Total	29	100.0

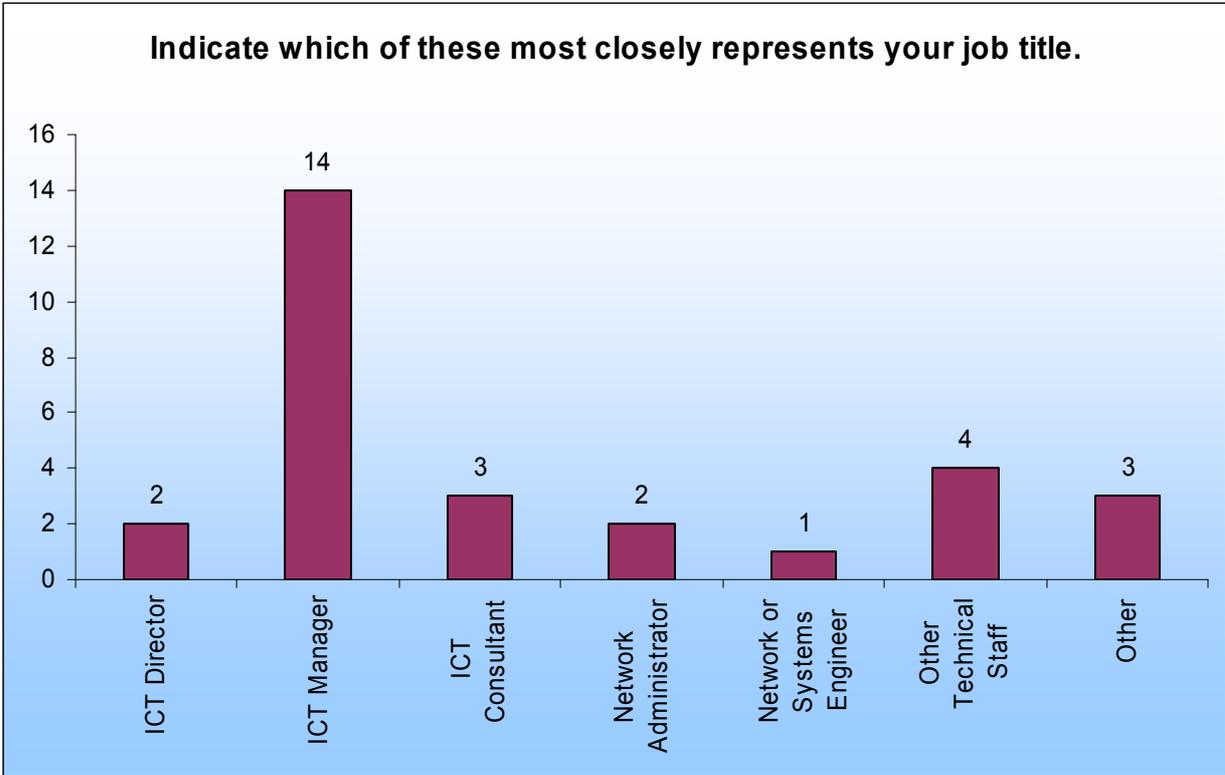


Figure 48: Job Title of Respondents

More than half the respondents work within ICT. 48.3% of the respondents work as ICT managers, 10.3% as ICT consultants and 6.9% as ICT Directors. 13.8% of those polled work as Technical Staff and 6.9% are Network Administrators. 13.8% of respondents selected other technical staff and 10.3 listed other.

Question 4: Indicate the number of years you have been involved in Service Management.

Table 45: Years of Involvement in SM

	Frequency	Percent
Less than 1 year	4	13.8
Between 1 and 4 years	9	31.0
Between 5 and 9 years	12	41.4
More than 10 years	4	13.8
Total	29	100.0

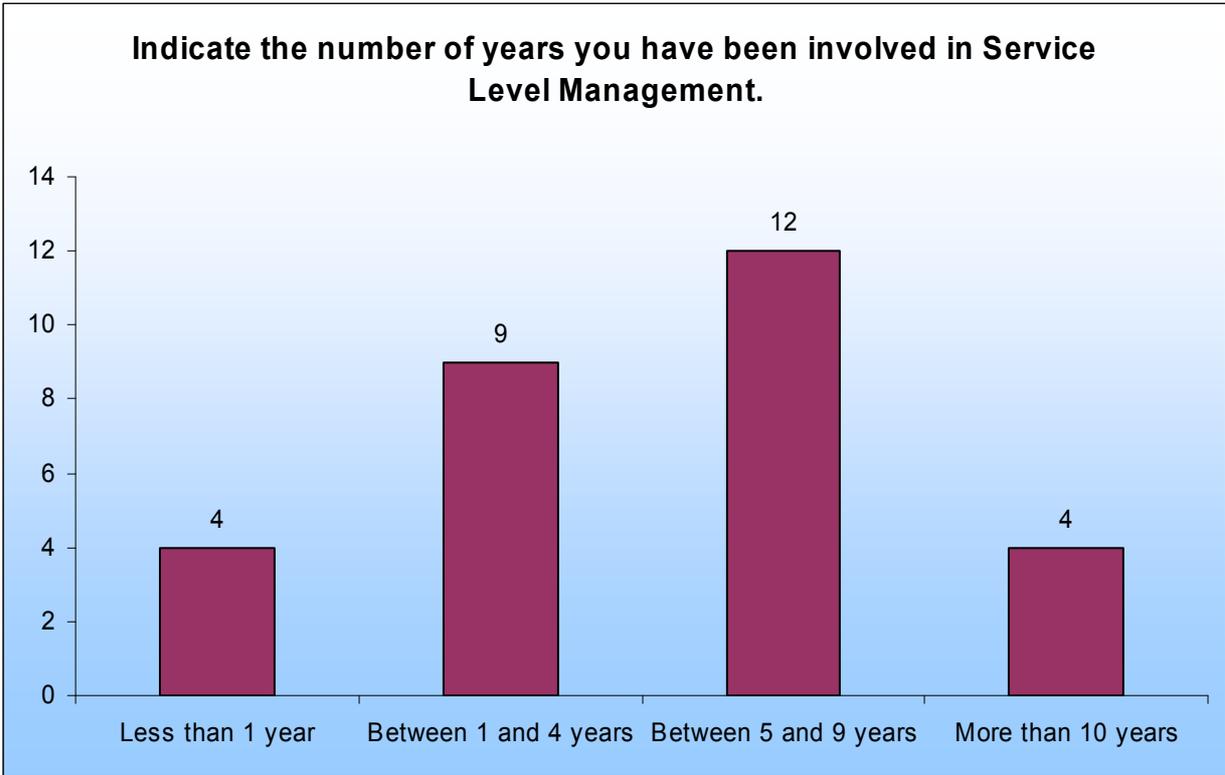


Figure 49: Years of Involvement in SM

The majority of respondents (41.4%) have been involved in SM for between 5 and 9 years. This is followed by 31.0% and 21.6%, who have been involved in SM for between 1 and 4 years. 13.8% have been involved in SM for less than 1 year or more than 10 years respectively.

Question 5: Indicate the number of people employed by your organisation.

Table 46: Size of Respondents Organisation

	Frequency	Percent
Less than 100	3	10.3
Between 100 and 499	5	17.2
Between 500 and 999	5	17.2
Between 1000 and 1999	4	13.8
More than 2000	12	41.4
Total	29	100.0

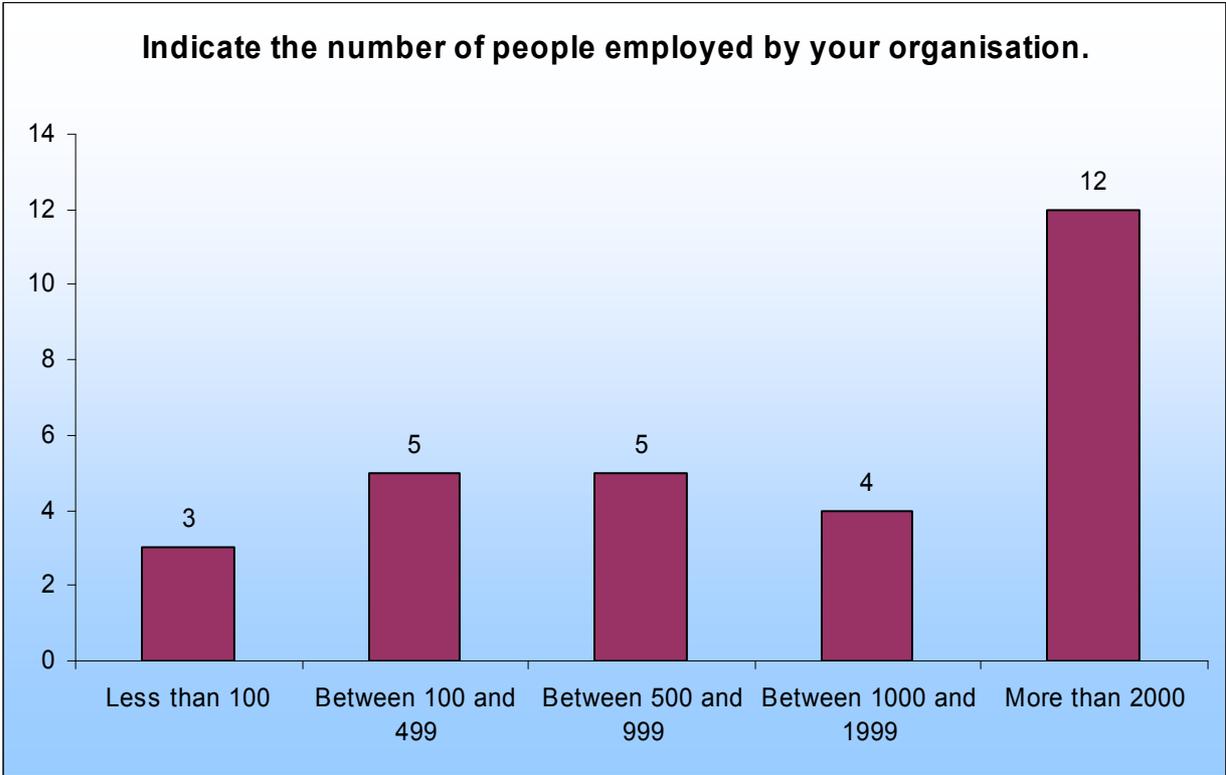


Figure 50: Size of Respondents Organisation

41.4% of respondents are employed in an organisation with more than 2000 employees, while 13.8% work in an organisation of between 1000 and 1999 employees. 17.2% of respondents are employed in organisations of between 500 and 999 and 100 and 499. Organisations of less than 100 people accounted for 3 of respondents.

7.4 Service Management

7.4.1 Service Management Strategy

Questions 6 and 7 explore the extent to which an SM strategy has been implemented as well as the length of time that it has been in place.

Question 6: Indicate the extent to which your organisation’s Service Management strategy is implemented.

Table 47: Extent of SM Implementation

	Frequency	Percent
Not Implemented	1	3.4
Limited Implementation	6	20.7
Sufficiently Implemented	2	6.9
Moderately Implemented	11	37.9
Fully Implemented	9	31.0
Total	29	100.0

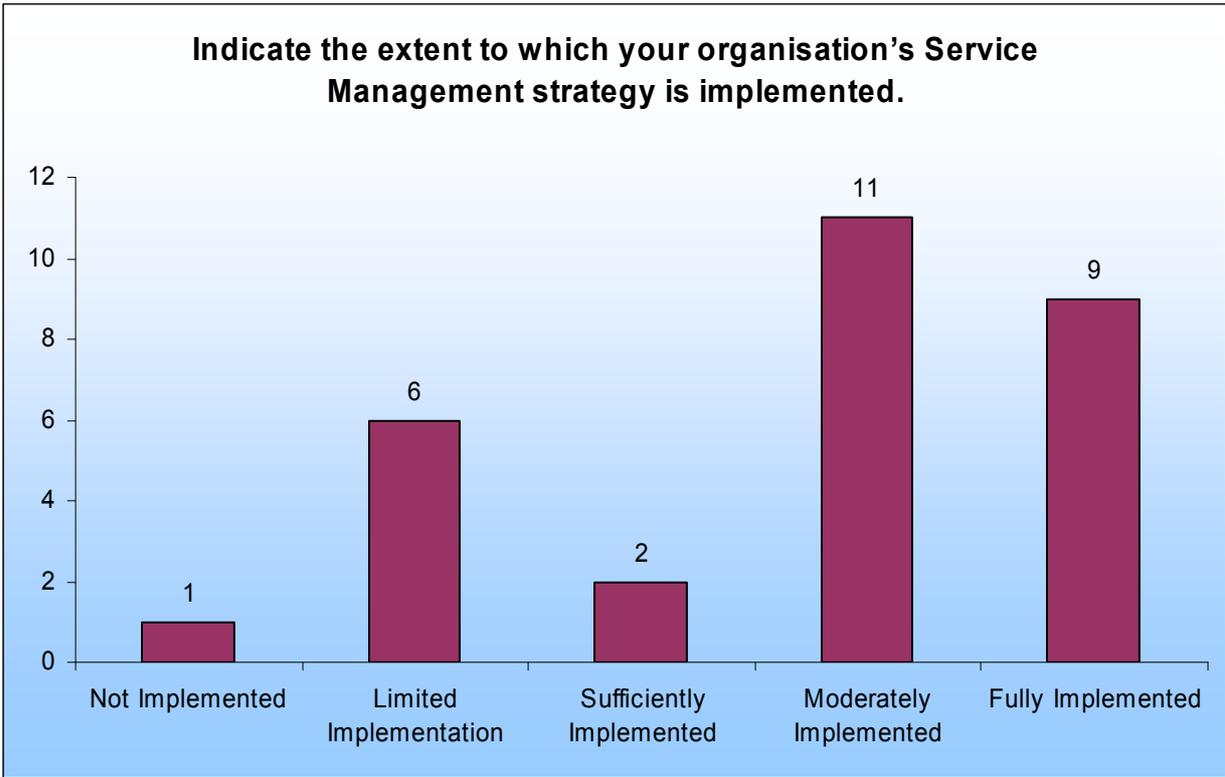


Figure 51: Extent of SM Implementation

37.9% of respondents rated their organisation’s SM implementation as moderate, while an additional 31% recorded this implementation as fully. 20.7% had limited implementation and 3.4% had not implemented SM at all.

Question 7: Indicate the length of time that your organisation has had a Service Management strategy in place.

Table 48: Time SM Strategy Has Been in Place

	Frequency	Percent
No strategy in place	2	6.9
Less than 1 year	4	13.8
1 to 4 years	15	51.7
5 to 10 years	6	20.7
More than 10 years	2	6.9

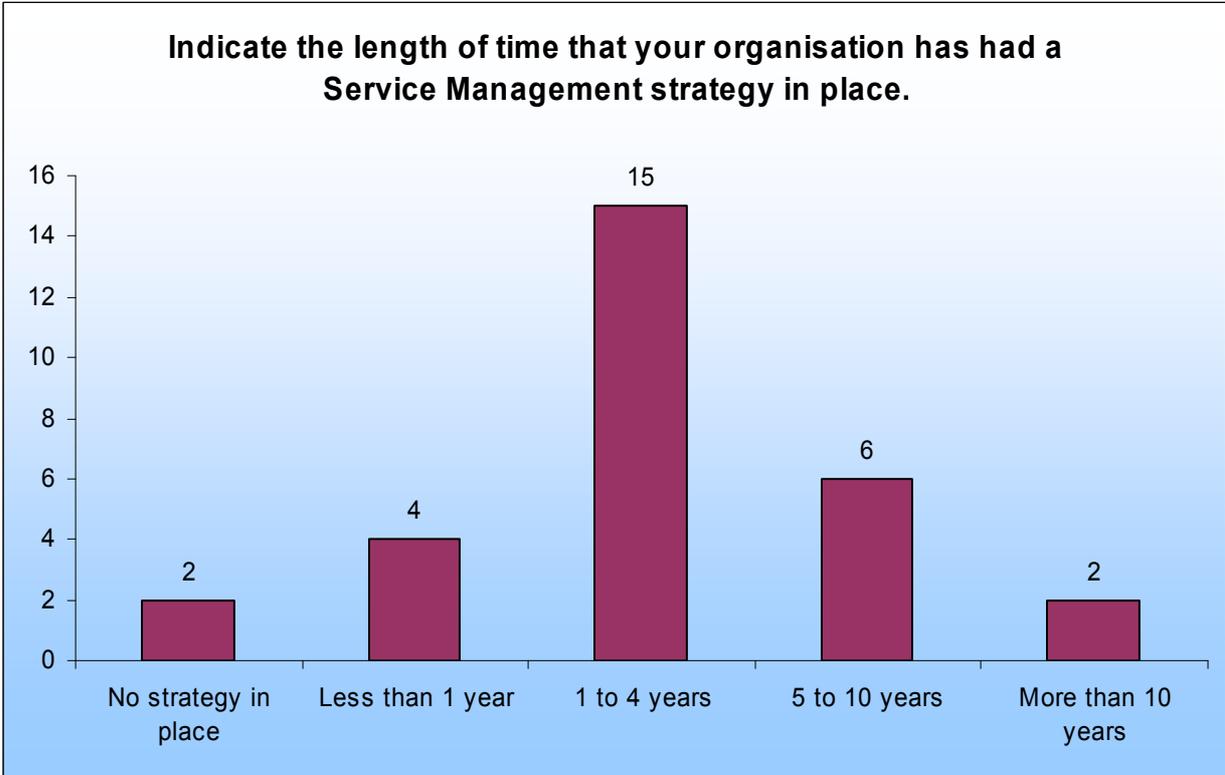


Figure 52: Time SM Strategy Has Been in Place

The majority (51.7%) of respondents have had an SM strategy in place for between 1 and 4 years. 6.9% have no SM strategy in place. 20.7% have an implemented strategy of between 5 and 10 years and 6.9% have had SM in place for more than 10 years.

7.4.2 Perception of Service Management

Questions 8, 9, 10 and 11 seek to establish the respondent’s perception of Service Management within their respective organisations.

Question 8: Indicate how satisfied you are with Service Management within your organisation.

Table 49: Satisfaction with SM

	Frequency	Percent
Very dissatisfied	3	10.3
Mostly dissatisfied	3	10.3
Neither satisfied or dissatisfied	4	13.8
Mostly satisfied	11	37.9
Very satisfied	8	27.6
Total	29	100.0



Figure 53: Satisfaction with SM

37.9% of respondents were mostly stratified with SM within their organisation and an additional 27.8% were very satisfied with SM within their organisation. 13.8% registered that they were neither satisfied nor dissatisfied with their organisation’s SM. 10.3% were mostly and very dissatisfied with their organisation’s SM.

Question 9: Indicate how frequently your organisation successfully maps services to the client's requirements.

Table 50: Mapping Services to Client Requirements

	Frequency	Percent
Never	0	0
Rarely	2	6.9
Sometimes	9	31.0
Often	8	27.6
Always	10	34.5
Total	29	100.0

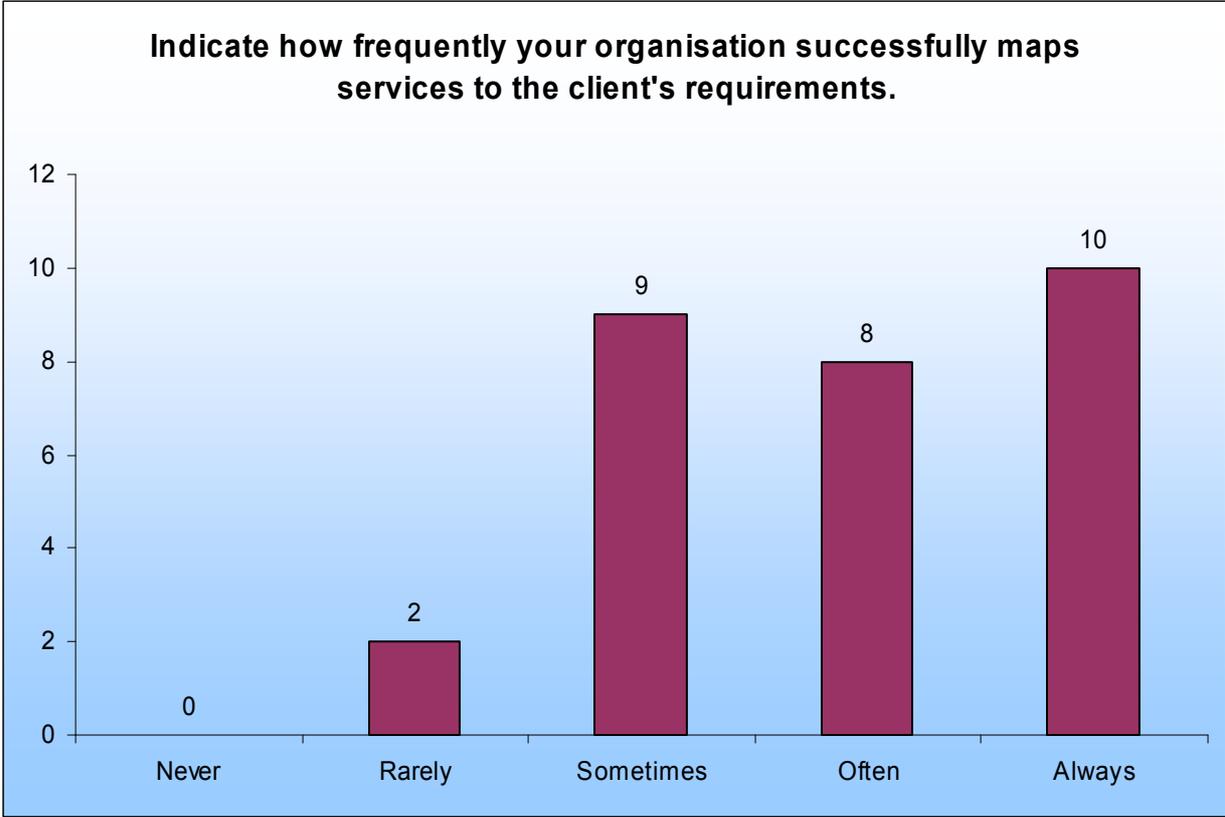


Figure 54: Mapping Services to Client Requirements

With respect to the mapping of services to client requirements, 34.5% declared that this occurred all the time, where 27.6% suggested it was often and a further 31.8% selected sometimes. 6.9% suggested that this rarely occurs.

Question 10: Indicate how often Service Management relationships between your organisation and your clients are terminated prematurely.

Table 51: SM Relationships Terminated Prematurely

	Frequency	Percent
Always	0	0
Often	6	20.7
Sometimes	3	10.3
Rarely	14	48.3
Never	6	20.7
Total	29	100.0

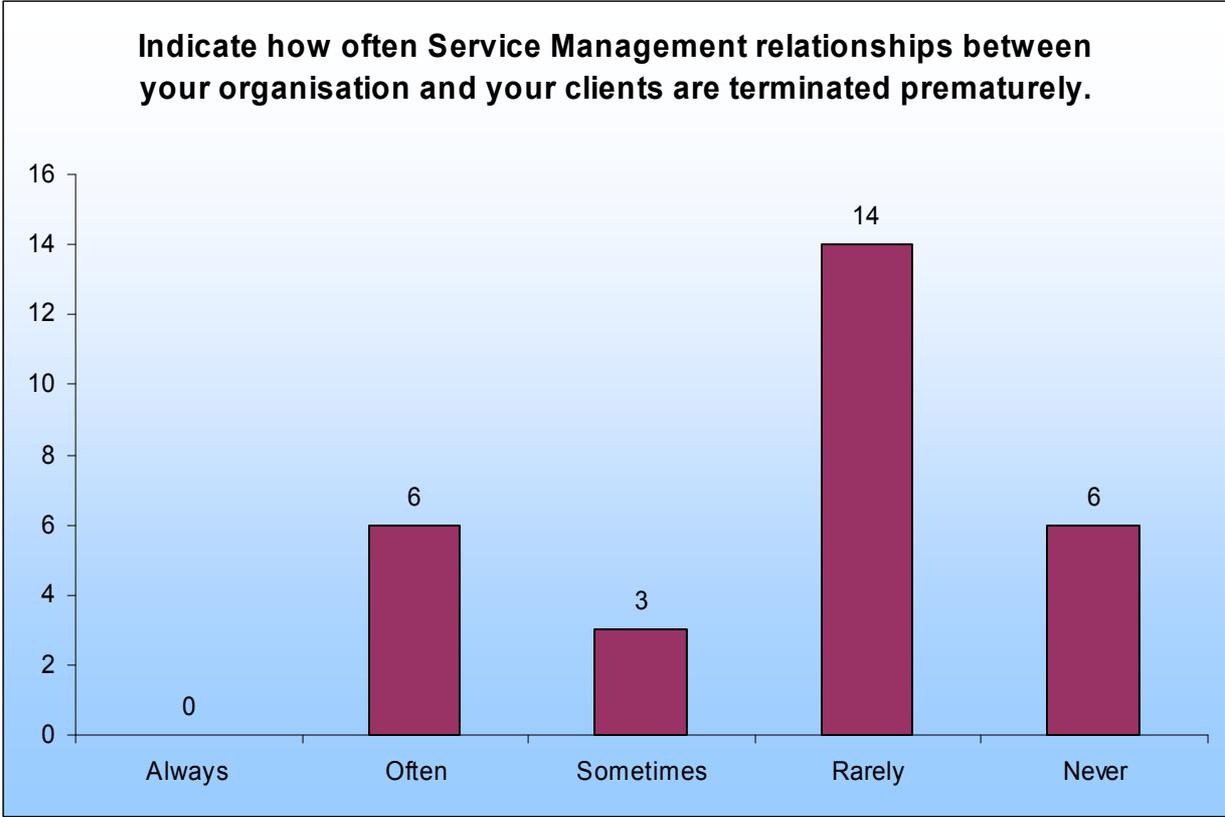


Figure 55 : SM Relationships Terminated Prematurely

20.7% of respondents declared that their SM relationships are never terminated prematurely. Where 48.3% of respondents suggested that this was a rare occurrence, 20.7% acknowledged that this often occurred.

Question 11: Indicate how frequently Service Management contracts, that can be extended, are in fact extended.

Table 52: Frequency of SM Extensions

	Frequency	Percent
Never	0	0
Rarely	4	13.8
Sometimes	3	10.3
Often	13	44.8
Always	9	31.0
Total	29	100.0

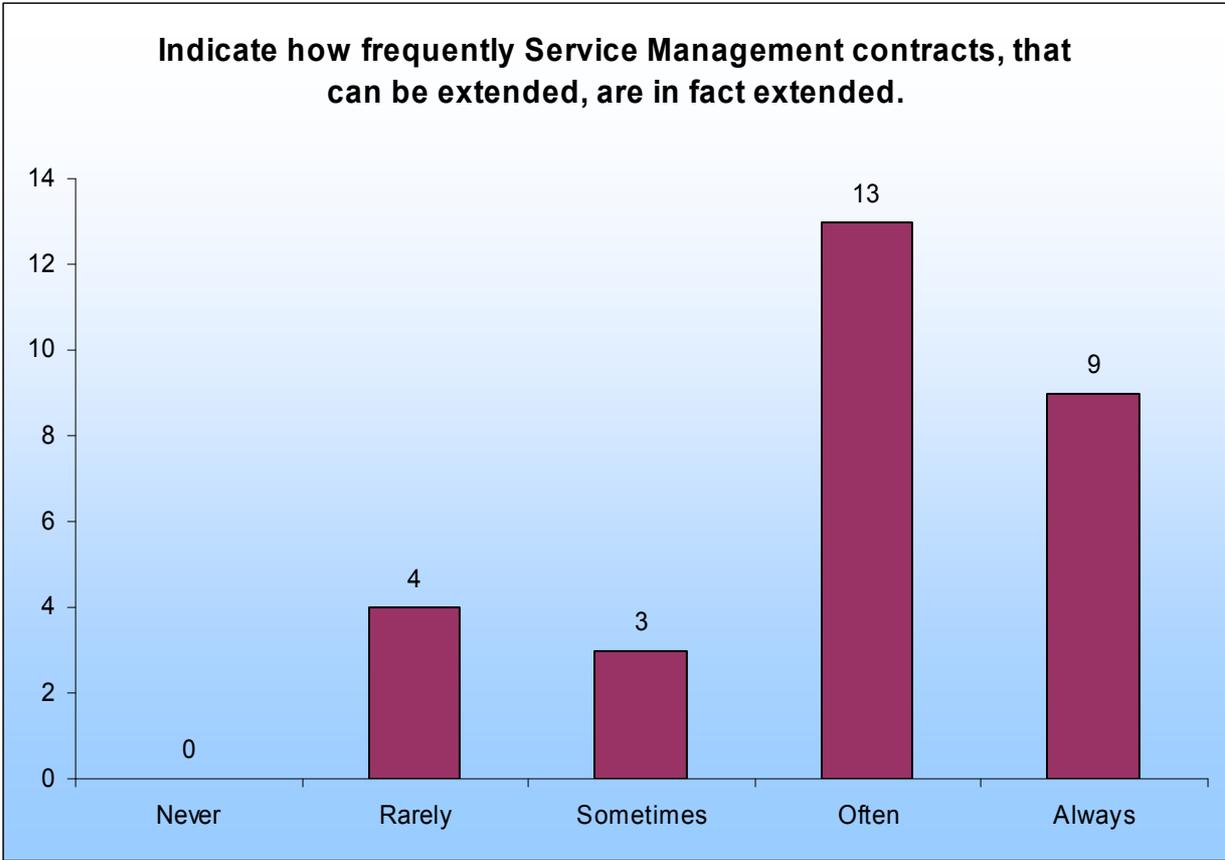


Figure 56: Frequency of SM Extensions

31% of those surveyed recorded that of extendable SM contracts are always extended. An additional 41.8% rated this as often and 10.3% as sometimes. 13.8% acknowledge this as a rare occurrence.

7.4.3 Service Management Preparation

Questions 12 to 16 examined the respondents’ approaches towards SM preparation and explore these activities with respect to successful SM.

Question 12: Indicate to which level your organisation’s Service Manager reports.

Table 53: The Level to Which the SM Reports

	Frequency	Percent
Not Applicable	0	0
Junior Management	0	0
Middle Management	4	13.8
Senior management	15	51.7
Executive management	10	34.5
Total	29	100.0

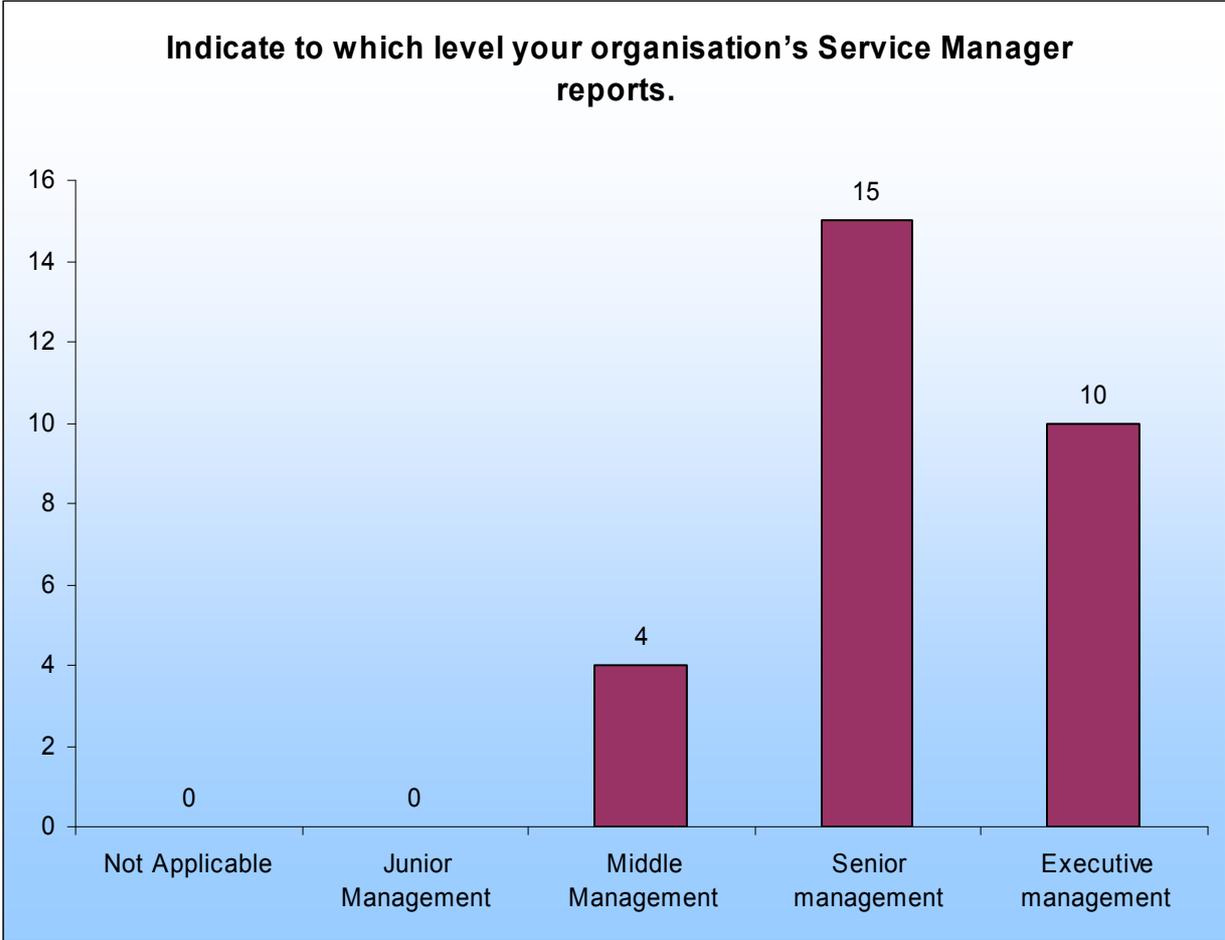


Figure 57: The Level to Which the SM Reports

More than half of the respondents (51.7%) declare that their service managers report to senior management and an additional 34.5% report to executive management.

Question 13: Indicate the level of competency (project, people, relationship management skills as well as communication, presentation and administrative skills) of the Service Managers employed by your organisation.

Table 54: Competency of Service Managers

	Frequency	Percent
Totally incompetent	0	0
Incompetent	3	10.3
Average	9	31.0
Competent	11	37.9
Totally competent	6	20.7
Total	29	100.0

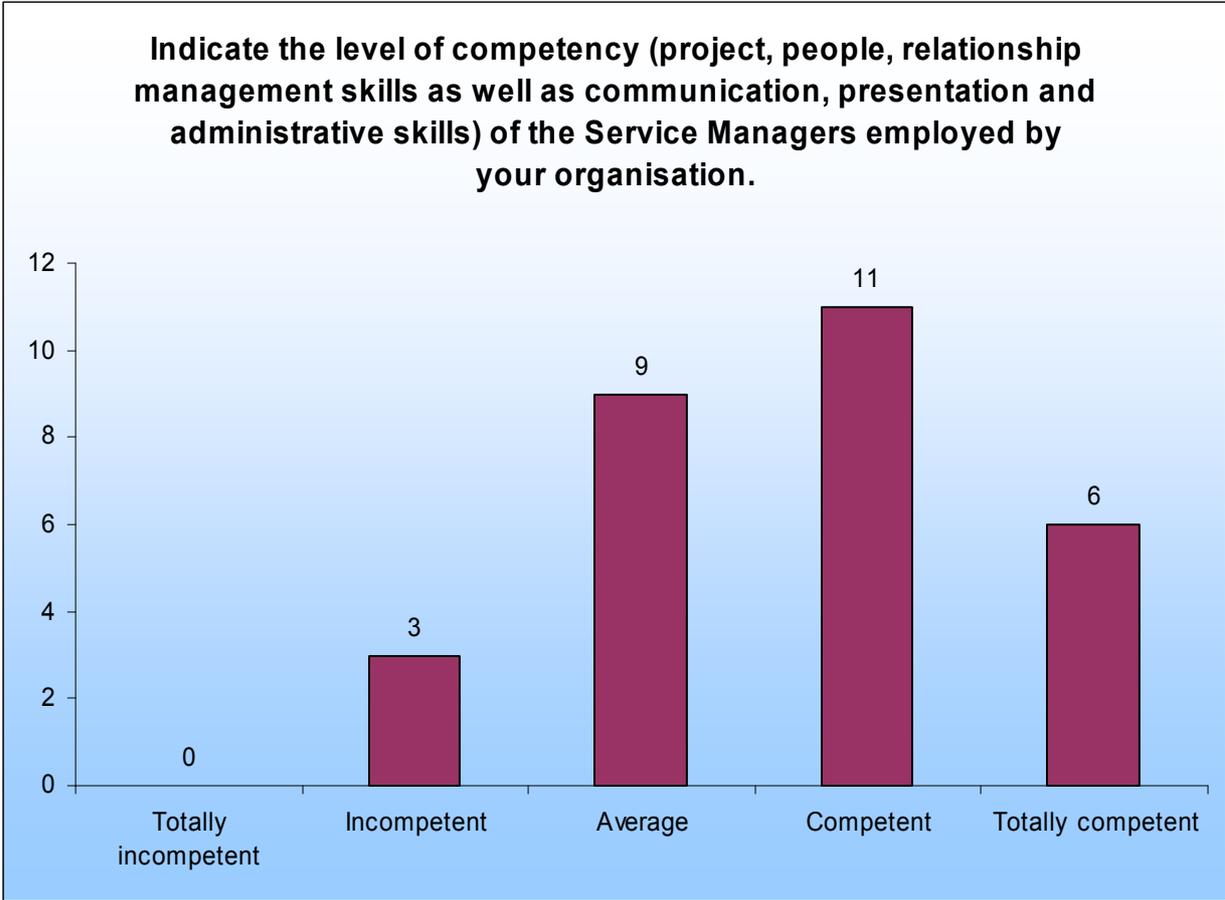


Figure 58: Competency of Service Managers

37.9% of respondents rated their service managers as competent. A further 20.7% declared their SM staff as totally competent, while 31% rated their staff as average and 10.3% believed that their SM staff were incompetent.

Question 14: Indicate how up-to-date your organisation's Service Catalogue is.

Table 55: Up-To-Date Service Catalogue

	Frequency	Percent
We do not have a service catalogue	5	17.2
Totally out-of-date	0	0.0
Mostly out-of-date	4	13.8
Somewhat up-to-date	4	13.8
Mostly up-to-date	8	27.6
Totally up-to-date	8	27.6
Total	29	100.0

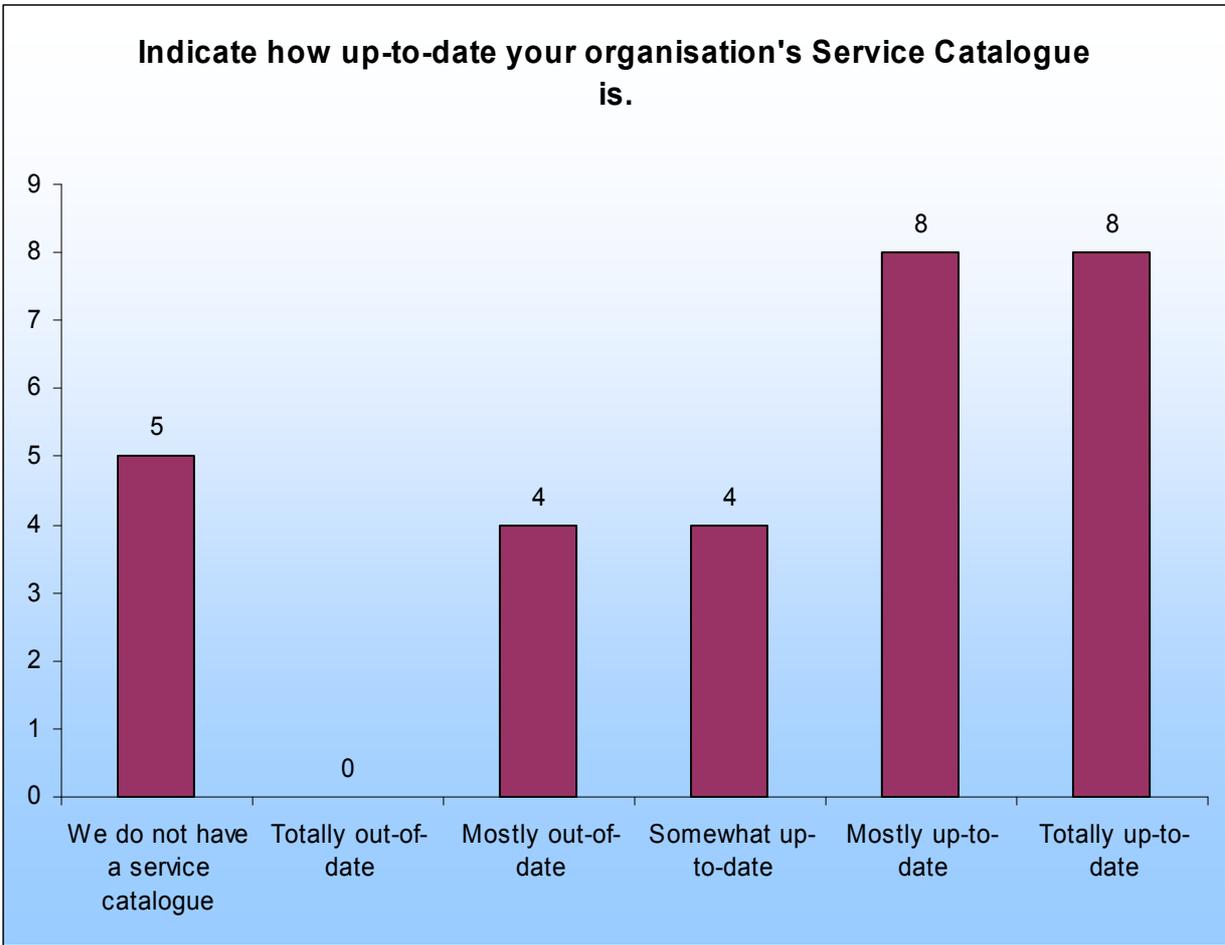


Figure 59: Up-To-Date Service Catalogue

27.6% respondents rated their Service Catalogue as either totally-up-to-date or mostly up-to-date. 13.8% suggested that their Service Catalogue was mostly out-of-date and 17.2% acknowledged that they did not have a Service Catalogue.

Question 15: Indicate the extent of availability of your organisation's Service Catalogue.

Table 56: Availability of Service Catalogue

	Frequency	Percent
We do not have a service catalogue	6	20.7
To a few members of staff	2	6.9
To some members of staff	6	20.7
To most members of staff	4	13.8
To all members of staff	11	37.9
Total	29	100.0

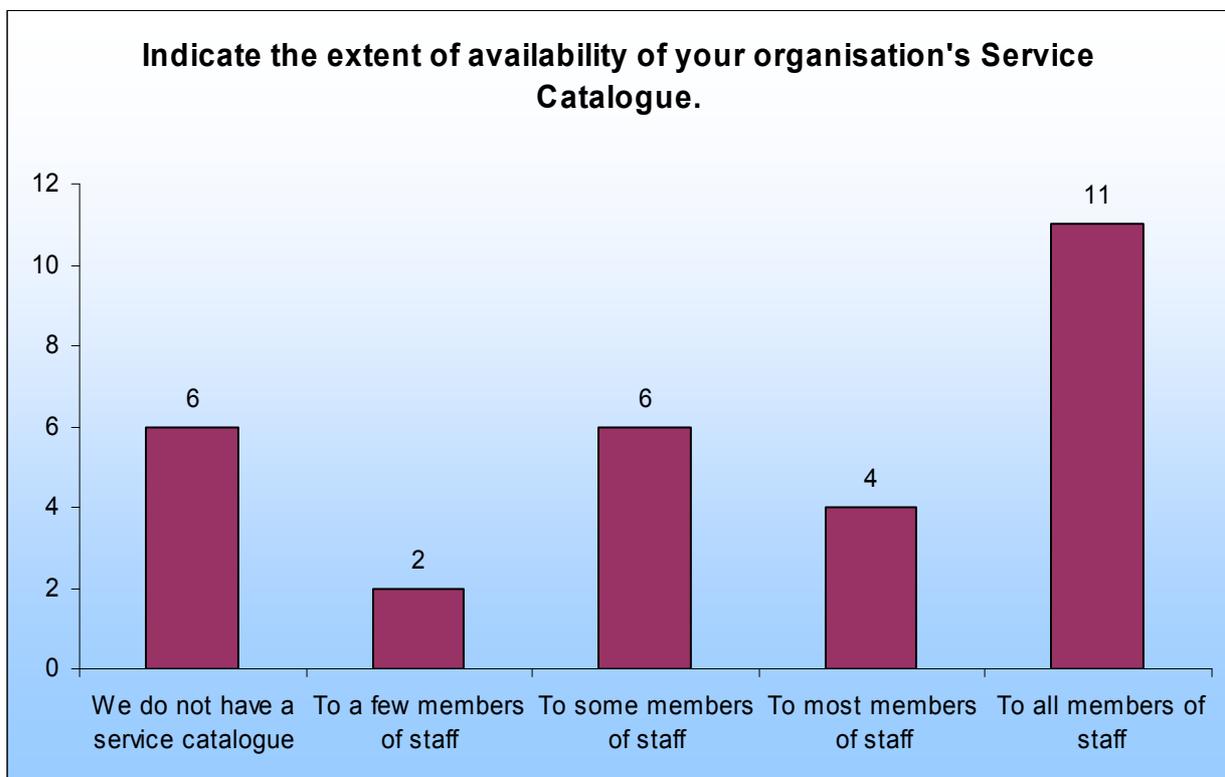


Figure 60: Availability of Service Catalogue

37.9% of the candidates polled, stated that their Service Catalogue was available to all members of staff. 13.8% was available to most members of staff and 20.7% was available to some members of staff. 6.9% suggested that their Service Catalogue was available to a few members of staff and 20.7% admitted not having a Service Catalogue.

Question 16: Indicate how many of your organisation's services are contained in the Service Catalogue.

Table 57: Number of Services in the Service Catalogue

	Frequency	Percent
We do not have a service catalogue	4	13.8
None of the services	0	0.0
A few of the services	3	10.3
Some of the services	3	10.3
Most of the services	12	41.4
All of the services	7	24.1
Total	29	100.0

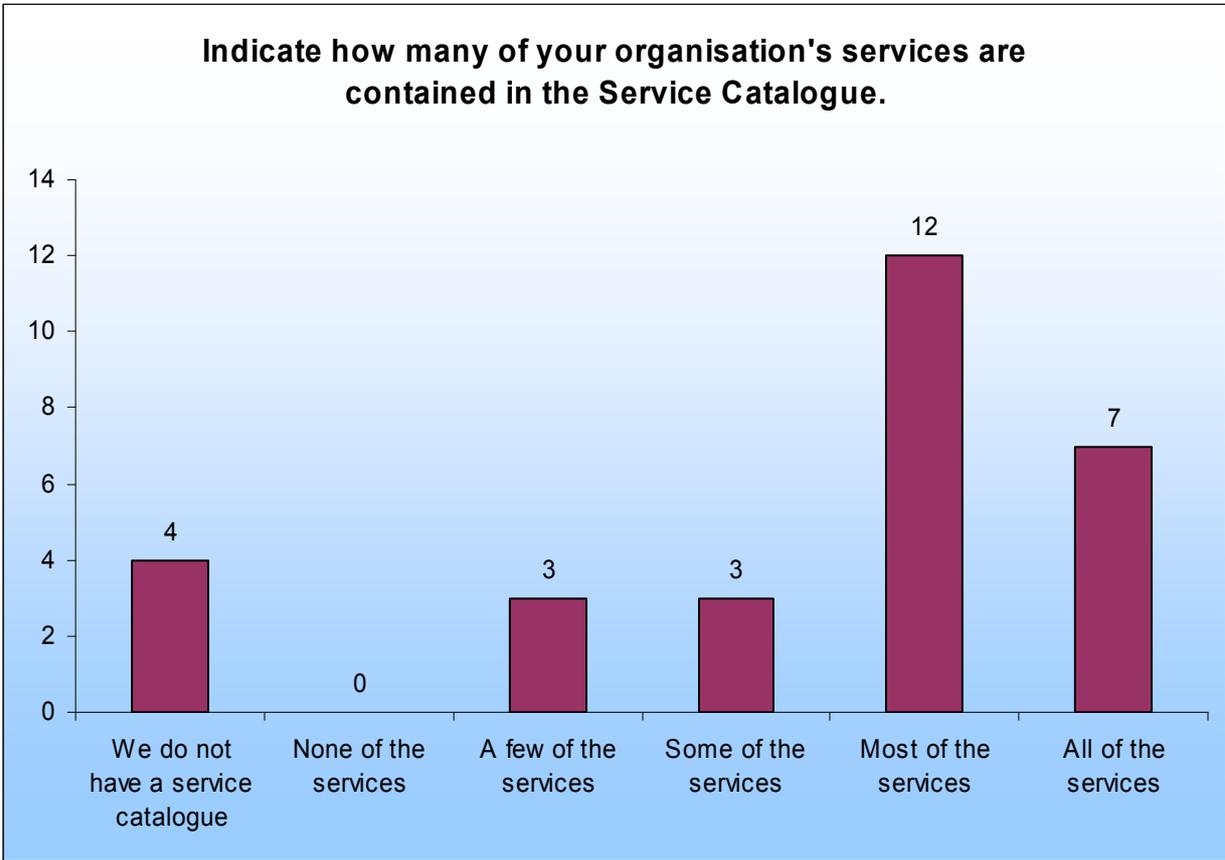


Figure 61: Number of Services in the Service Catalogue

Almost a quarter of respondents (24.1%) declared that their Service Catalogue contained all their services, while a further 41.4% suggested it included most of their services. 10.3% had Service Catalogues that included some or a few services. 13.8% acknowledged that they had no Service Catalogue.

7.3.4 Service Management Planning

Questions 17 and 18 elicit information from the respondents with respect to the extent of the SM planning activities in their organisations.

Question 17: Indicate the extent to which your organisation designates a service management team for individual service management projects.

Table 58: Service Management Teams

	Frequency	Percent
Never	0	0
Rarely	6	20.7
Sometimes	5	17.2
Mostly	7	24.1
Always	11	37.9
Total	29	100.0

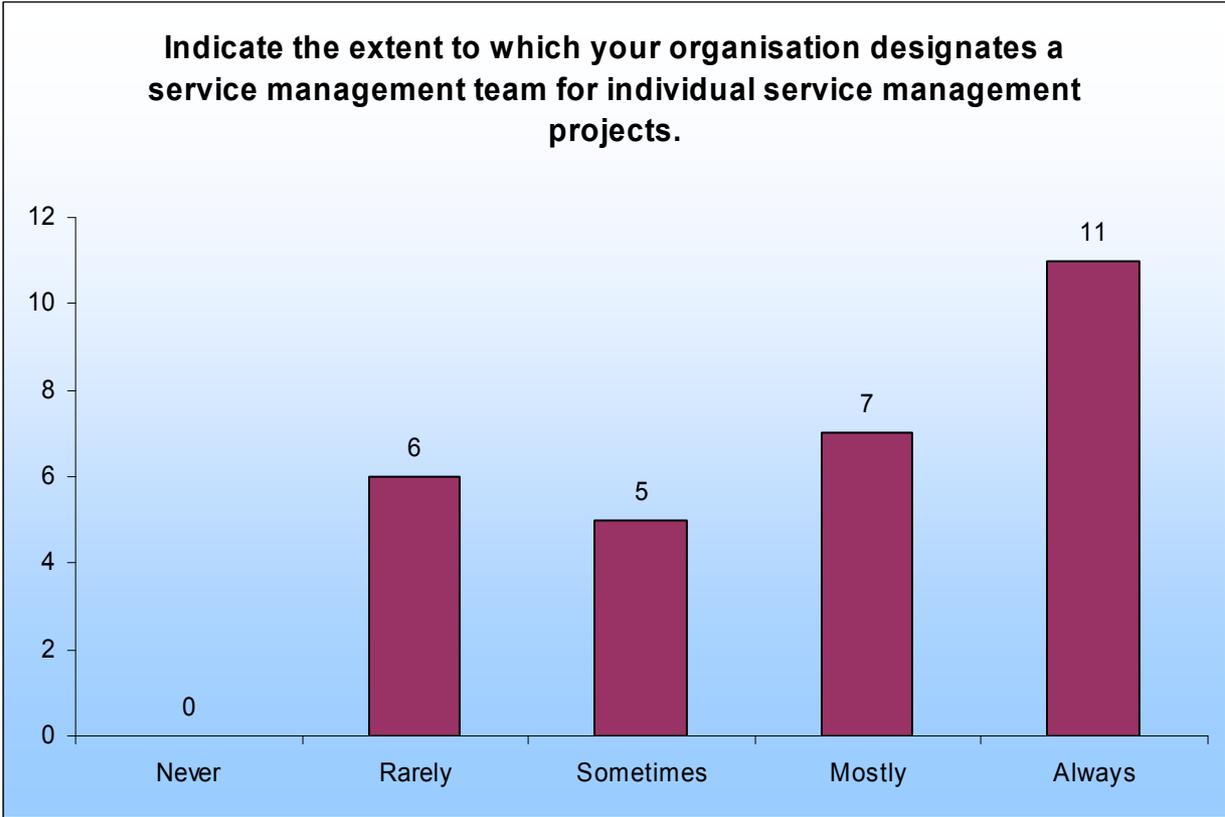


Figure 62: Service Management Teams

37.9% of respondents always designate a service management team for individual projects. An additional 24.1% rated the frequency as mostly and 17.2% as sometimes. 20.7% declared that their frequency of team allocating was rarely.

Question 18: Indicate the frequency with which the service management team includes members from both the provider and the client organisation.

Table 59: Composition of Teams

	Frequency	Percent
Never	1	3.4
Rarely	5	17.2
Sometimes	1	3.4
Mostly	9	31.0
Always	13	44.8
Total	29	100.0

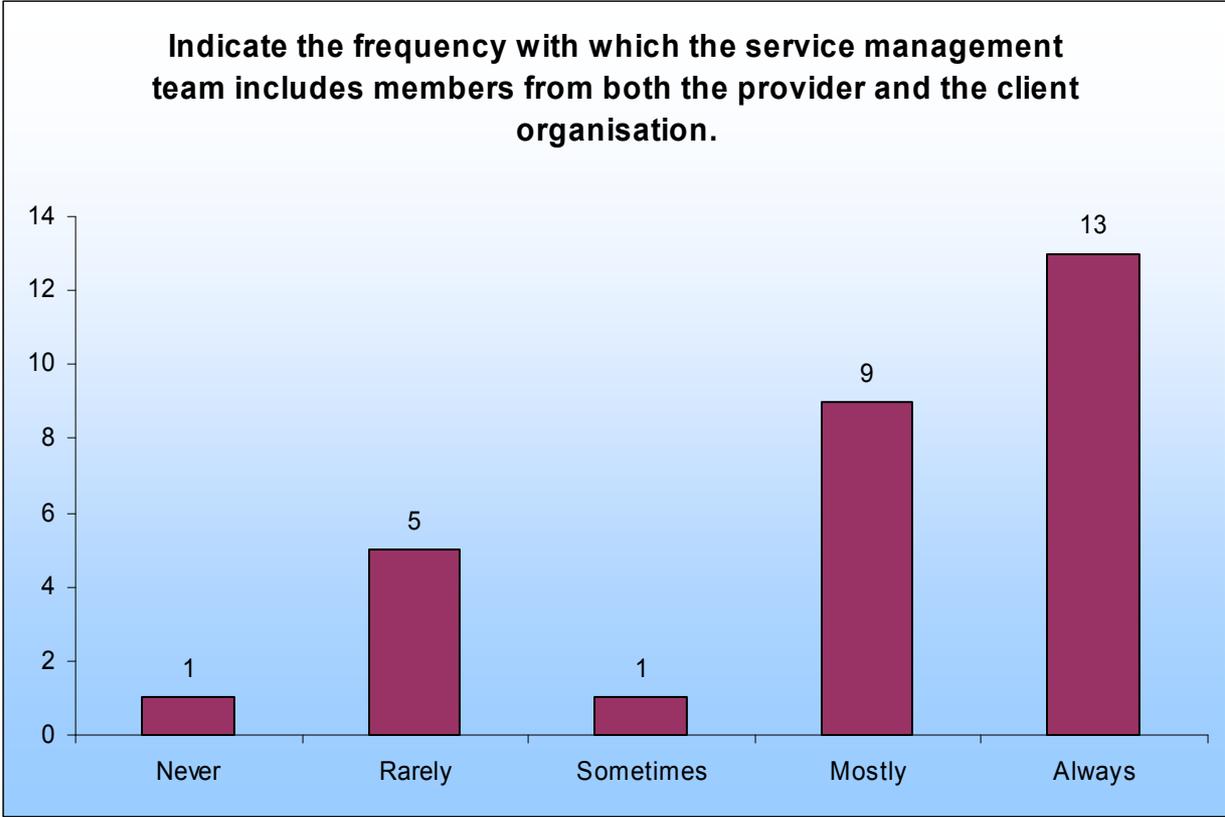


Figure 63: Composition of Teams

44.8% of respondents always include members from both the provider and client organisations on Service Management teams. 31% mostly included members from both parties, while 3.4% did sometimes. 17.2% rarely involved both parties and 3.4% rated the inclusion of both parties as never.

7.3.5 Management of Client Requirements

Questions 19 to 21 address the management of client requirements.

Question 19: Indicate the extent to which your organisation understands the client's requirements before attempting to manage their services.

Table 60: Understanding of Client Requirements

	Frequency	Percent
No Understanding	0	0
Limited understanding	4	13.8
Sufficient understanding	6	20.7
Moderate understanding	9	31.0
Fully understand	10	34.5
Total	29	100.0

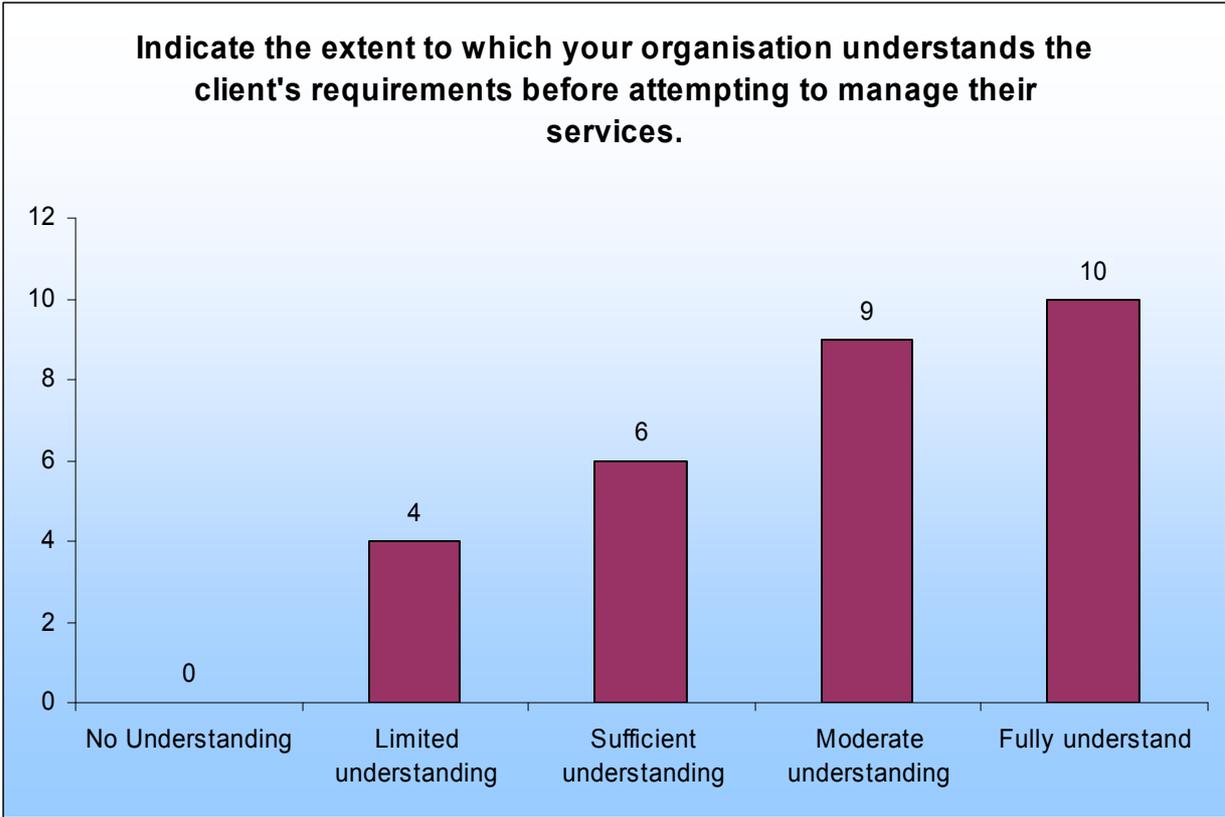


Figure 64: Understanding of Client Requirements

34.5% of respondents fully understand the client’s requirements before attempting to manage their services. 31% have a moderate understanding and 20.7% declared having sufficient understanding. 13.8% declared having limited understanding before attempting to manage services.

Question 20: Indicate the extent to which your organisation documents the client's requirements before attempting to manage their services.

Table 61: Documentation of Client Requirements

	Frequency	Percent
Not documented	1	3.4
Limited documentation	5	17.2
Sufficiently documented	4	13.8
Moderately documented	13	44.8
Fully documented	6	20.7
Total	29	100.0

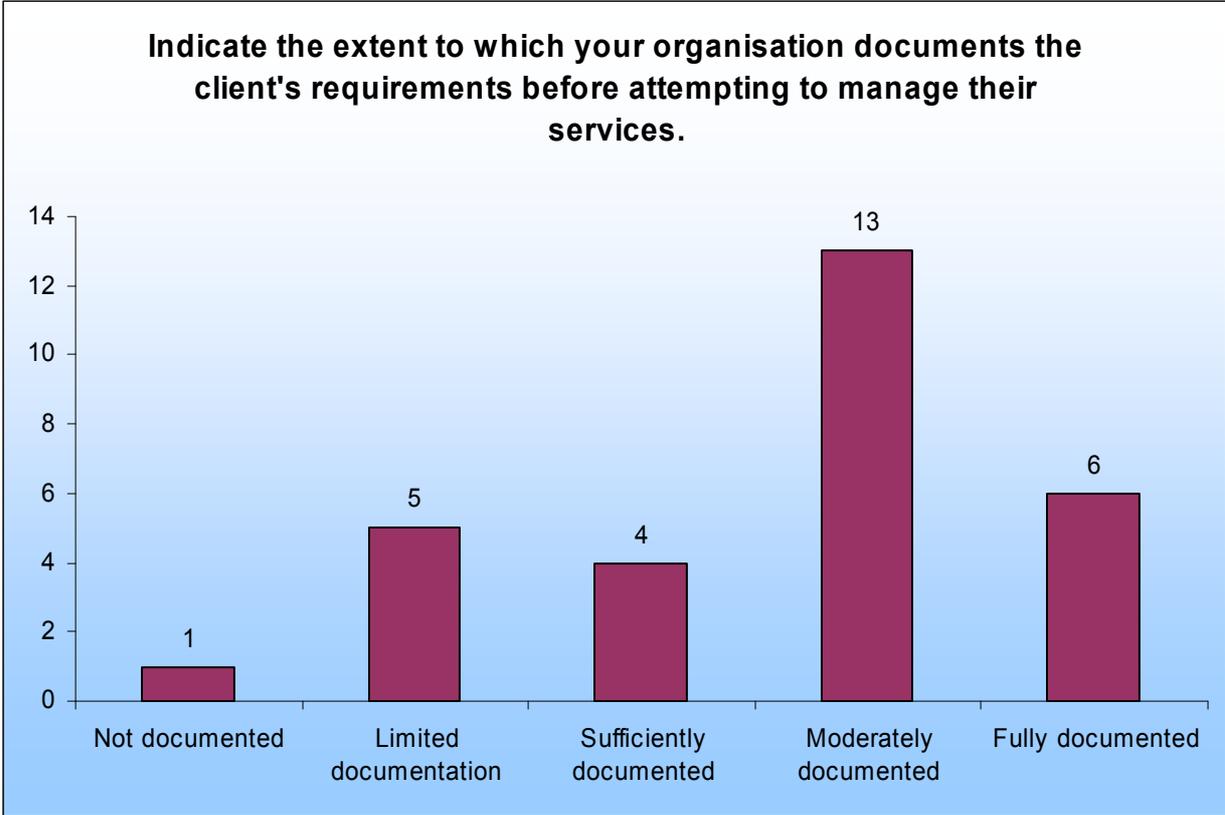


Figure 65: Documentation of Client Requirements

20.7% rated their extent of documenting a client’s requirements as fully, before attempting to manage their services. 44.8% moderately, and 13.8% sufficiently documented the client requirements. 17.2% declared their documentation as limited and 3.4% did not document the client’s service requirements.

Question 21: Indicate the extent to which the development of service agreements is viewed as an obstacle to successful service management in your organisation.

Table 62: Service Agreements as an Obstacle

	Frequency	Percent
A major obstacle	2	6.9
An obstacle	9	31.0
Somewhat an obstacle	7	24.1
A minor obstacle	7	24.1
No obstacle	4	13.8
Total	29	100.0

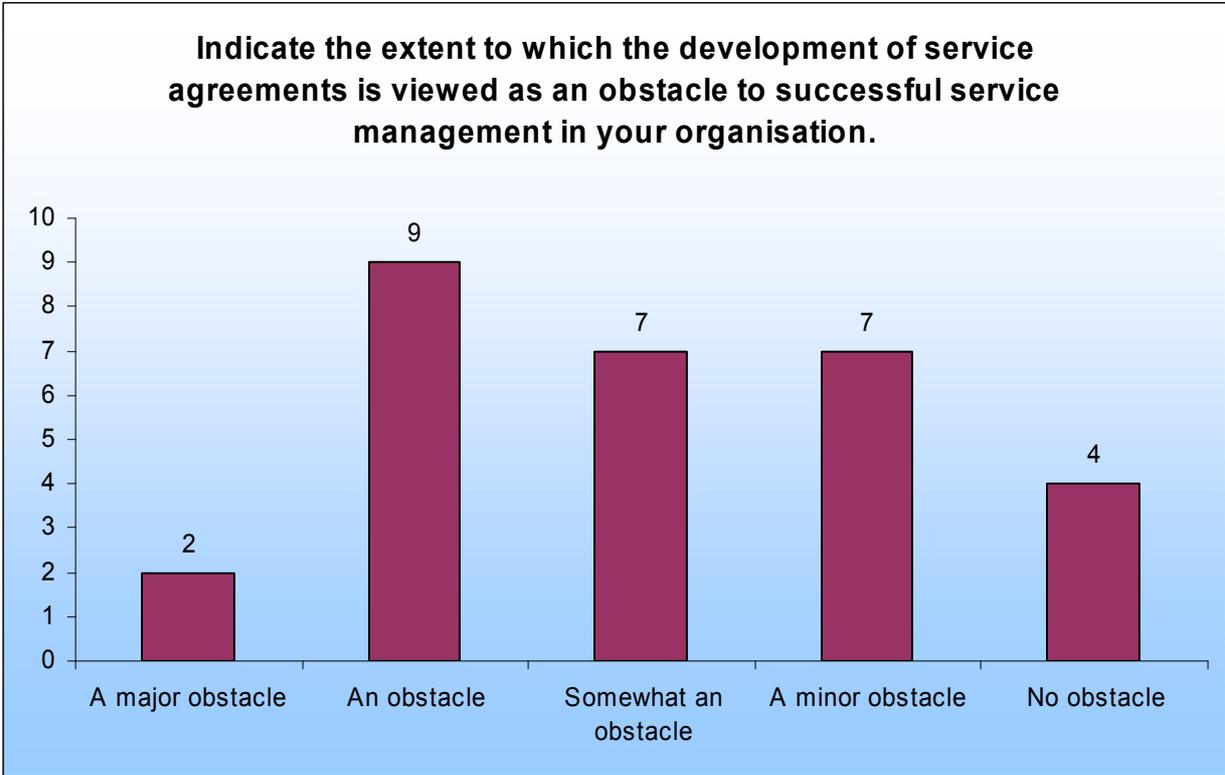


Figure 66: Service Agreements as an Obstacle

6.9% of respondents regard the development of Service Agreements as a major obstacle to successful SM. 31% view SAs as an obstacle, while 24.1% believed that SAs were either somewhat of an obstacle or a minor obstacle. 13.8% view SAs as no obstacle to successful SM.

7.3.6 Service Management Monitoring and Reporting

Questions 22 and 23 explore the extent of real-time monitoring and reporting.

Question 22: Indicate which of the services, as provided for by your organisation, are monitored in real-time.

Table 63: Monitoring of Services

	Frequency	Percent
No services	0	0
Too few services	2	6.9
Some services	8	27.6
Most services	9	31.0
All services	10	34.5
Total	29	100.0

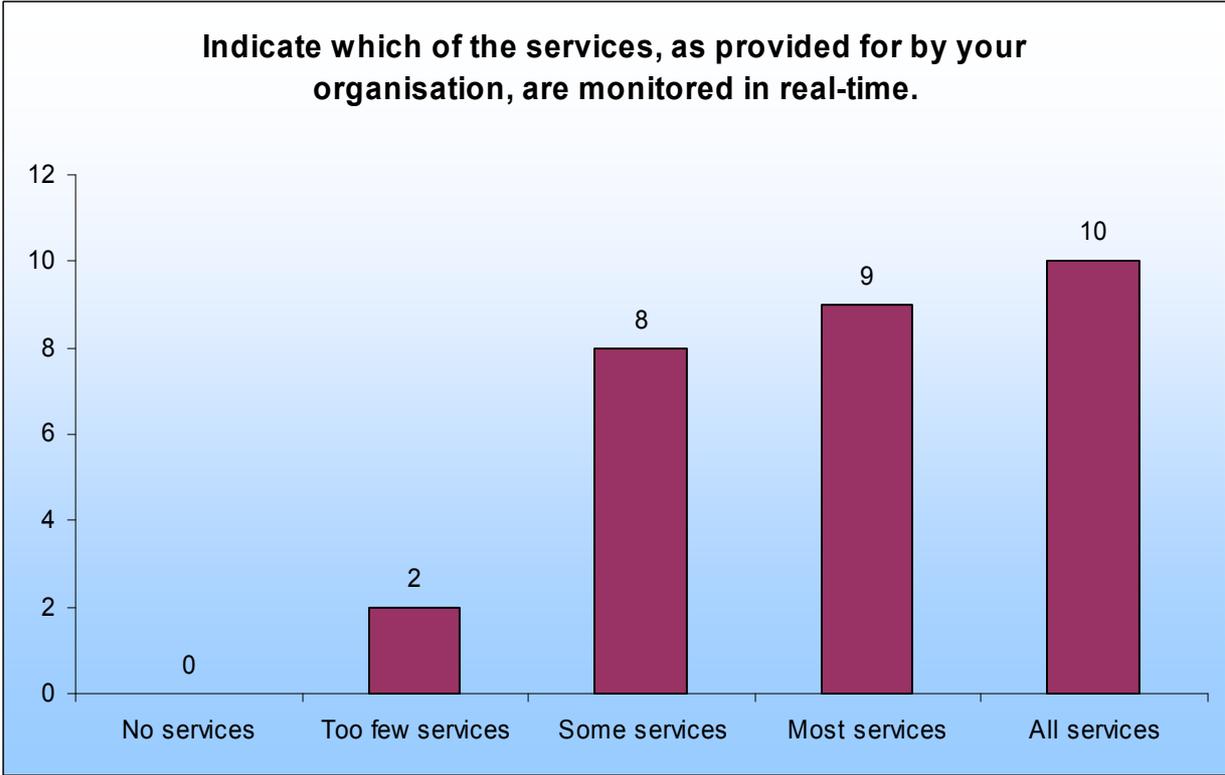


Figure 67: Monitoring of Services

34.5% of respondents monitor all services and 31.8% monitor most services in real-time. 27.6% admitted to monitoring some services and 6.9% monitor too few services.

Question 23: Indicate which of the service level reports, as provided by your organisation, are available to the client in real-time.

Table 64: Reporting of Services

	Frequency	Percent
No services	1	3.4
A few services	7	24.1
Some services	6	20.7
Most services	12	41.4
All services	3	10.3
Total	29	100.0

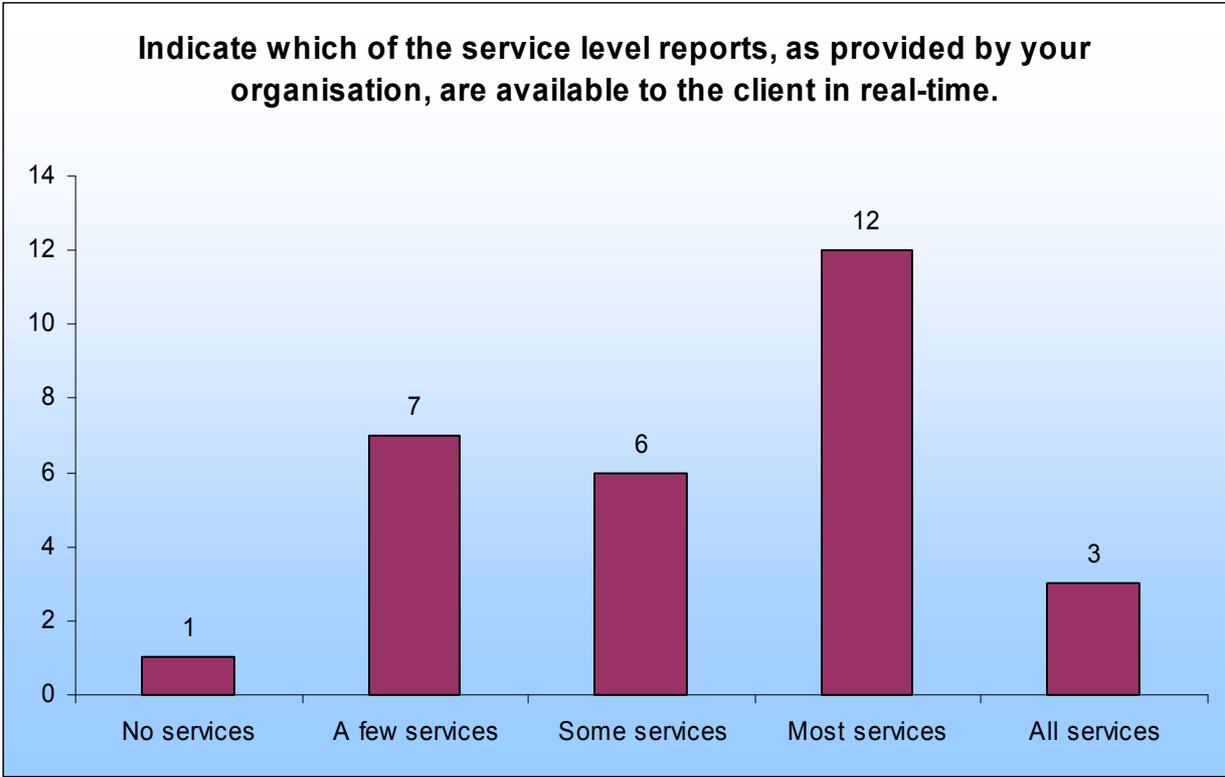


Figure 68: Reporting of Services

While 10.3% of respondents reported on all services in real-time, a further 41.4% reported on most services. 20.7% of respondents report on some services in real-time where 24.1% and 3.4% report on a few and no services respectively.

7.4 Hypothesis Tests

Twelve (12) hypotheses were developed and described in Chapter 6.2. Each hypothesis is now subject to statistical analysis using test statistics that include the Chi-Square test, Fishers Exact test and the Spearman Rank-Order correlation.

The dependant variable in this research is the perceived successfulness of the organisation's SM. This success is seen as a combination of the respondents' scoring of the following:

- Their perceived satisfaction with SM within their organisation
- The frequency with which services are mapped to client requirements
- The frequency with which SM relationships are terminated prematurely
- The frequency with which extendable contracts are extended

These individual responses were gathered in questions 8, 9, 10 and 11. To develop the dependent variable, the responses to these questions were scored. This score was then used as an indicator of the level of perceived successfulness of SM. The values for the dependent variable had a range of 0 to 20 which is derived as $4*(0 \text{ to } 5)$. The results of the dependent variable were as follows:

Table 65: The Aggregate Dependent Variable

Score	Frequency	Percent
1	0	0.0
2	0	0.0
3	0	0.0
4	0	0.0
5	0	0.0
6	0	0.0
7	1	3.4
8	1	3.4
9	3	10.3
11	1	3.4
13	2	6.9
14	1	3.4
15	5	17.2
16	3	10.3
17	3	10.3
18	3	10.3
19	2	6.9
20	4	13.8
Total	29	100.0

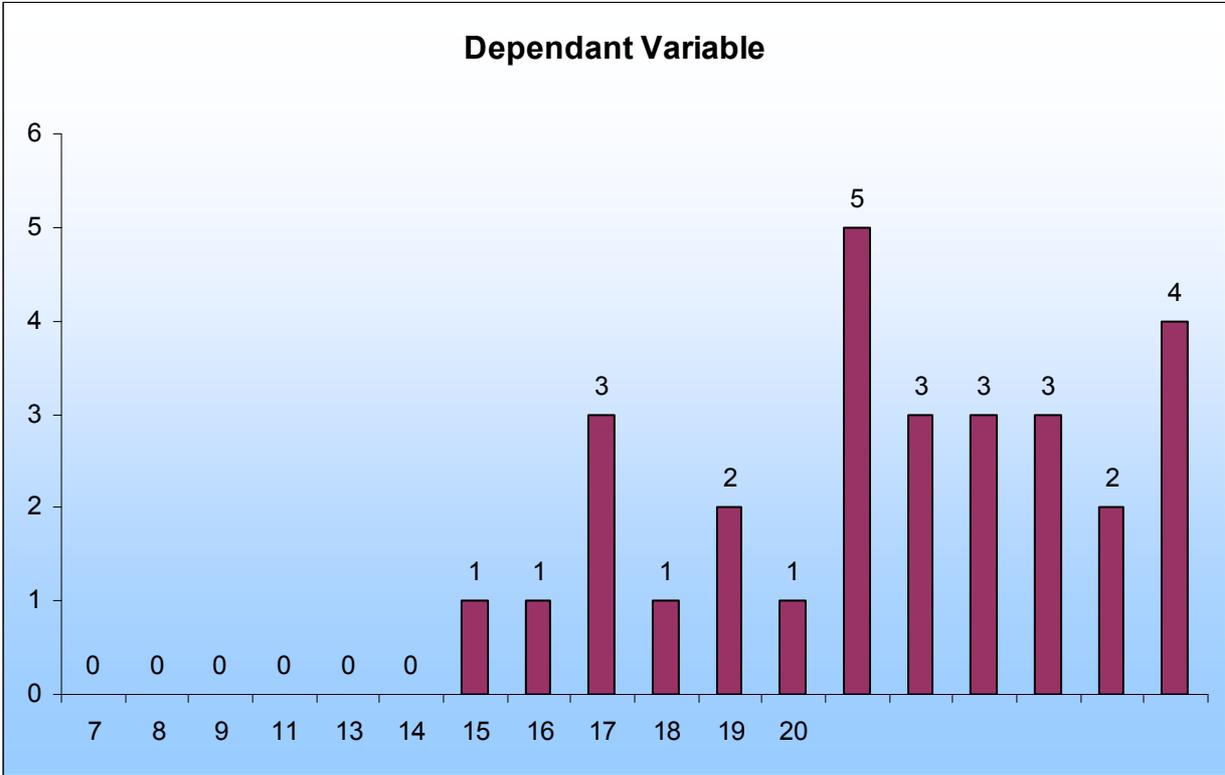


Figure 69: Dependant Variable Histogram

The limited response rate to the survey, however, made statistical analysis problematic. When faced with sparseness, some researchers collapse categories to conform to statistical rules, and apply an asymptotic test, such as a Pearson Chi-square. However, collapsing categories cannot always be recommended because it can seriously distort what the data convey about associations (Babinec and Mehta, 1998).

A Fisher Exact test can be used on data with small sample sizes. There is no restriction on the sample sizes. Generating a Fisher Exact p-value is computationally intensive. Fortunately, advances in statistical computing, coupled with advances in computing power, have made it possible to calculate Fisher Exact p-values quickly for common statistical situations.

Both the Pearson Chi-Square and the Fisher Exact tests indicate whether or not a relationship exists between two variables. A Spearman Rank-Order Correlation test can be conducted on the same data to determine the strength of the relationship. The Spearman Rank-Order Correlation Coefficient ranges from -1 to +1 and can be interpreted in the following way:

Table 66: Spearman Rank-Order Correlation

Negative	Negative correlation
0.0 to 0.2	Very weak to negligible correlation
0.2 to 0.4	Weak, low correlation (not very significant)
0.4 to 0.7	Moderate correlation
0.7 to 0.9	Strong, high correlation
0.9 to 1.0	Very strong correlation

If the coefficient is negative, then a negative relationship exists between the two variables. Conversely, if the coefficient is positive, a positive relationship exists between the two variables.

The hypothesis tests attempt to demonstrate relationships between the factors and processes identified in Chapter 6 and the perceived successfulness of SM. For the Fisher Exact Test, a confidence level of 95% was set. $P < 0.05$ (95.5%) represents a statistically significant relationship between the tested variables.

The hypothesis test results are as follows:

Table 67: Results of the Hypothesis Testing

	Fischer's Exact Test		Pearson Chi-Square		Spearman Correlation	
	p	Reject H ₀	p	Reject H ₀	Value	Reject H ₀
Hypothesis 1	0.000*	Yes	0.001	Yes	0.671	Moderate
Hypothesis 2	0.001	Yes	0.000	Yes	0.834	Strong
Hypothesis 3	0.005	Yes	0.005	Yes	0.759	Strong
Hypothesis 4	0.130	No	0.040	Yes	0.653	Moderate
Hypothesis 5	0.039	Yes	0.187	No	0.778	Strong
Hypothesis 6	0.015	Yes	0.011	Yes	0.586	Moderate
Hypothesis 7	0.025	Yes	0.176	No	0.548	Moderate
Hypothesis 8	0.006	Yes	0.003	Yes	0.724	Strong
Hypothesis 9	0.004	Yes	0.003	Yes	0.724	Strong
Hypothesis 10	0.107	No	0.034	Yes	0.635	Moderate
Hypothesis 11	0.020	Yes	0.022	Yes	0.722	Strong
Hypothesis 12	0.180	No	0.038	Yes	0.690	Moderate

*Note: The p score of 0.000 is the result of the rounding off of 0.0001.

Given the small sample size, the results of the analyses should be read with caution.

Hypothesis 1

- **H₀₁**: There is no relationship between a fully implemented corporate SM strategy and the perceived successfulness of SM.
- **H₁₁**: There is a relationship between a fully implemented corporate SM strategy and the perceived successfulness of SM.

Hypothesis 1: Fischer's Exact Test value of $p=0.000$. Thus the null hypothesis is rejected.

While the Spearman Correlation for the testing of hypothesis 1 is moderate (0.671), the Fischer's Exact test result confirms that a relationship exists between the extent of SM implementation and the perceived successfulness of SM. Partial or limited implementation of an SM strategy impacts negatively on the perceived successfulness of that strategy.

Hypothesis 2

- **H₀₂**: There is no relationship between a competent Service Manager and the perceived successfulness of SM.

- **H1₂**: There is a relationship between a competent Service Manager and the perceived successfulness of SM.

Hypothesis 2: Fischer's Exact Test value of $p=0.001$. Thus the null hypothesis is rejected.

The competency of the Service Manager impacts directly on the perceived successfulness of the organisation's SM strategy.

Interestingly, when testing a relationship between to whom the service manager reports and the perceived successfulness of SM, no relationship could be established ($p=0.984$). The majority of respondents elected either senior or executive management, confirming that the position of Service Manager is at a senior level, but this has no bearing on the success of SM.

Hypothesis 3

- **H0₃**: There is no relationship between the existence of an up-to-date service catalogue and the perceived successfulness of SM.
- **H1₃**: There is a relationship between the existence of an up-to-date service catalogue and the perceived successfulness of SM.

Hypothesis 3: Fischer's Exact Test value of $p=0.005$. Thus the null hypothesis is rejected.

The accuracy of the Service Catalogue, in terms of how up-to-date it is, impacts on the perceived successfulness of an SM strategy. Service catalogues that are not up-to-date, or do not exist leads to perceived unsuccessful SM.

Hypothesis 4

- **H0₄**: There is no relationship between the comprehensiveness of a service catalogue and the perceived successfulness of SM.
- **H1₄**: There is a relationship between the comprehensiveness of a service catalogue and the perceived successfulness of SM.

Hypothesis 4: Fischer’s Exact Test value of $p=0.130$. Thus the null hypothesis cannot be rejected.

The results of the survey confirm that Service Catalogue need not contain all the services for the SM strategy to be successful.

Interestingly, when the comprehensiveness of the Service Catalogue is tested individually against the four questions that constitute the dependent variable the following results emerge:

Table 68: Hypothesis 4 Tested Against the Individual Variables

	Indicate how many of your organisation's services are contained in the Service Catalogue.		
	Fischer's Exact Test (p)	Pearson Chi-Squared (p)	Spearman Correlation (value)
Indicate how satisfied you are with Service Management within your organisation.	0.044	0.196	0.579
Indicate how frequently your organisation successfully maps services to the client's requirements.	0.011	0.004	0.628
Indicate how often Service Management relationships between your organisation and your clients are terminated prematurely.	0.092	0.144	0.608
Indicate how frequently Service Management contracts, that can be extended, are in fact extended.	0.197	0.369	0.523

While the comprehensiveness of the Service Catalogue is related to SM satisfaction and the mapping of services to client requirements, it is not related to the premature termination or extension of SM contracts. This holds true as the Service Catalogue may not necessarily be a reason for termination or extension of SM contracts.

Hypothesis 5

- **H0₅:** There is no relationship between the availability of a service catalogue and the perceived successfulness of SM.

- **H1₅:** There is a relationship between the availability of a service catalogue and the perceived successfulness of SM.

Hypothesis 5: Fischer's Exact Test value of $p=0.039$. Thus the null hypothesis is rejected.

The contents of the Service Catalogue must be available to all staff if the SM strategy is to be successful.

The results of the hypotheses that test the nature of the Service Catalogue confirm that it needs to be up-to-date and available to all members of staff for the SM strategy to be successful.

Interestingly, the survey results suggest that it need not contain all services for the SM strategy to be successful. This result could be attributed to the fact that no distinction was drawn between critical and non-critical services in the catalogue. Further exploration of the contents of the service catalogue is therefore required.

Hypothesis 6

- **H0₆:** There is no relationship between the appointment of an SM project team and the perceived successfulness of SM.
- **H1₆:** There is a relationship between the appointment of an SM project team and the perceived successfulness of SM.

Hypothesis 6: Fischer's Exact Test value of $p=0.015$. Thus the null hypothesis is rejected.

The designation of a project team for SM is related to the perceived successfulness of SM.

Hypothesis 7

- **H0₇:** There is no relationship between the composition of an SM project team and the perceived successfulness of SM.
- **H1₇:** There is a relationship between the composition of an SM project team and the perceived successfulness of SM.

Hypothesis 7: Fischer's Exact Test value of $p=0.025$. Thus the null hypothesis is rejected.

The success of SM required the designation of a project team, as confirmed in hypothesis 6. Further, this team must contain members from both the service provider and client organisations.

Hypothesis 8

- **H0₈**: There is no relationship between the detailed understanding of client's requirements before attempting to manage services and the perceived successfulness of SM.
- **H1₈**: There is a relationship between the detailed understanding of client's requirements before attempting to manage services and the perceived successfulness of SM.

Hypothesis 8: Fischer's Exact Test value of $p=0.006$. Thus the null hypothesis is rejected.

For perceived successful SM, it is necessary to have a full understanding of the client's requirements before attempting to manage their services.

Hypothesis 9

- **H0₉**: There is no relationship between the documentation of client's requirements before attempting to manage services and the perceived successfulness of SM.
- **H1₉**: There is a relationship between the detailed documentation of client's requirements before attempting to manage services and the perceived successfulness of SM.

Hypothesis 9: Fischer's Exact Test value of $p=0.004$. Thus the null hypothesis is rejected.

The extent of documenting the client requirements will impact on the perceived successfulness of SM. Fully documented client requirements is a precursor for perceived successful SM.

Hypothesis 10

- **H0₁₀**: There is no relationship between the perception that service agreements are an obstacle and the perceived successfulness of SM.
- **H1₁₀**: There is a relationship between the perception that service agreements are an obstacle and the perceived successfulness of SM.

Hypothesis 10: Fischer’s Exact Test value of $p=0.105$. Thus the null hypothesis cannot be rejected.

Service Agreements are generally perceived as an obstacle to implementing SM as depicted in Table 69. However, this obstacle is not deemed to be impact on the success of an SM strategy.

This result would suggest that the journey through the obstacle of Service Agreements may in fact be a necessary process for the development of successful SM and requires additional research. When the perception that SAs are an obstacle is tested against the four questions that constitute the dependant variable, the following results emerge:

Table 69: Hypothesis 10 Tested Against the Individual Variables

	Indicate the extent to which the development of service agreements is viewed as an obstacle to successful service management in your organisation.		
	Fischer's Exact Test (p)	Pearson Chi-Squared (p)	Spearman Correlation (value)
Indicate how satisfied you are with Service Management within your organisation.	0.104	0.008	0.577
Indicate how frequently your organisation successfully maps services to the client's requirements.	0.140	0.118	0.596
Indicate how often Service Management relationships between your organisation and your clients are terminated prematurely.	0.003	0.005	0.668
Indicate how frequently Service Management contracts, that can be extended, are in fact extended.	0.222	0.037	0.449

The results suggest that the difficulty of developing Service Agreements does not impact on SM satisfaction, the mapping of services and the reluctance to renew contracts. The difficulties in the drafting of a Service Agreement are related to the premature termination of SM relationships with a Fischer’s Exact Test result of $p=0.003$.

Hypothesis 11

- **H0₁₁**: There is no relationship between the presence of real-time monitoring and the perceived successfulness of SM.
- **H1₁₁**: There is a relationship between the presence of real-time monitoring and the perceived successfulness of SM.

Hypothesis 11: Fischer’s Exact Test value of $p=0.020$. Thus the null hypothesis is rejected.

Perceived successful SM is dependent on the service provider being able to monitor all services in real-time.

Hypothesis 12

- **H0₁₂**: There is no relationship between the presence of real-time reporting and the perceived successfulness of SM.
- **H1₁₂**: There is a relationship between the presence of real-time reporting and the perceived successfulness of SM.

Hypothesis 12: Fischer’s Exact Test value of $p=0.180$. Thus the null hypothesis cannot be rejected.

It has been established that for perceived successful SM, the monitoring of services should be in real-time. However, the results of this research suggest that the status of these services should not also be reported to the client in real-time.

Interestingly, when the availability of real-time reporting is tested against the four variables that constitute the dependent variable, the following results emerge:

Table 70: Hypothesis 12 Tested Against the Individual Variables

Indicate which of the service level reports, as provided by your organisation, are available to the client in real-time.		
Fischer's Exact Test (p)	Pearson Chi-Squared (p)	Spearman Correlation (value)

Indicate how satisfied you are with Service Management within your organisation.	0.015	0.015	0.613
Indicate how frequently your organisation successfully maps services to the client's requirements.	0.033	0.058	0.656
Indicate how often Service Management relationships between your organisation and your clients are terminated prematurely.	0.019	0.042	0.640
Indicate how frequently Service Management contracts, that can be extended, are in fact extended.	0.004	0.006	0.548

The results for hypothesis 12 are interesting. There is no relationship when tested against the aggregate dependent variable, yet relationships exist in each of the individual variables. Additional analysis is required to establish the reason(s) that contribute to this.

The relationship that exists between reporting in real-time and the four variables that constitute the dependent variable is illustrated in the frequency scatter plots in Figures 68, 69, 70 and 71. For given levels of reporting in real-time, a restricted range of values is reported across satisfaction, mapping of services, premature termination and extended contracts.

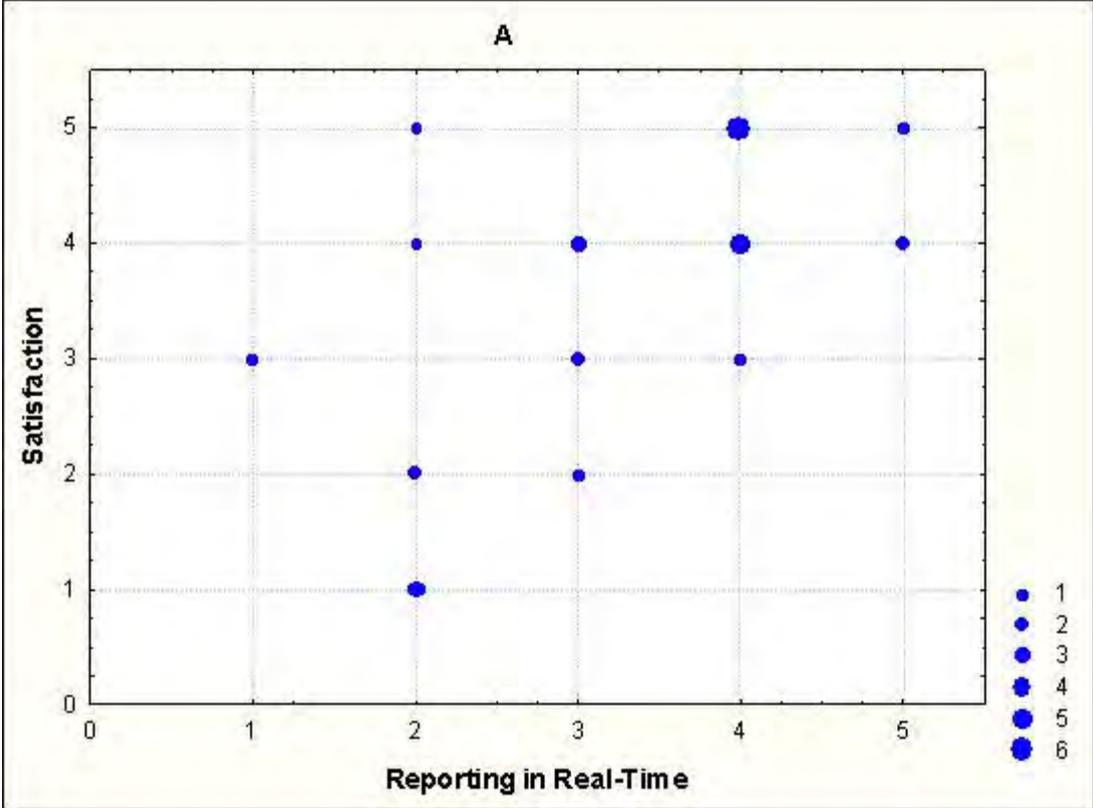


Figure 70: Reporting and Satisfaction

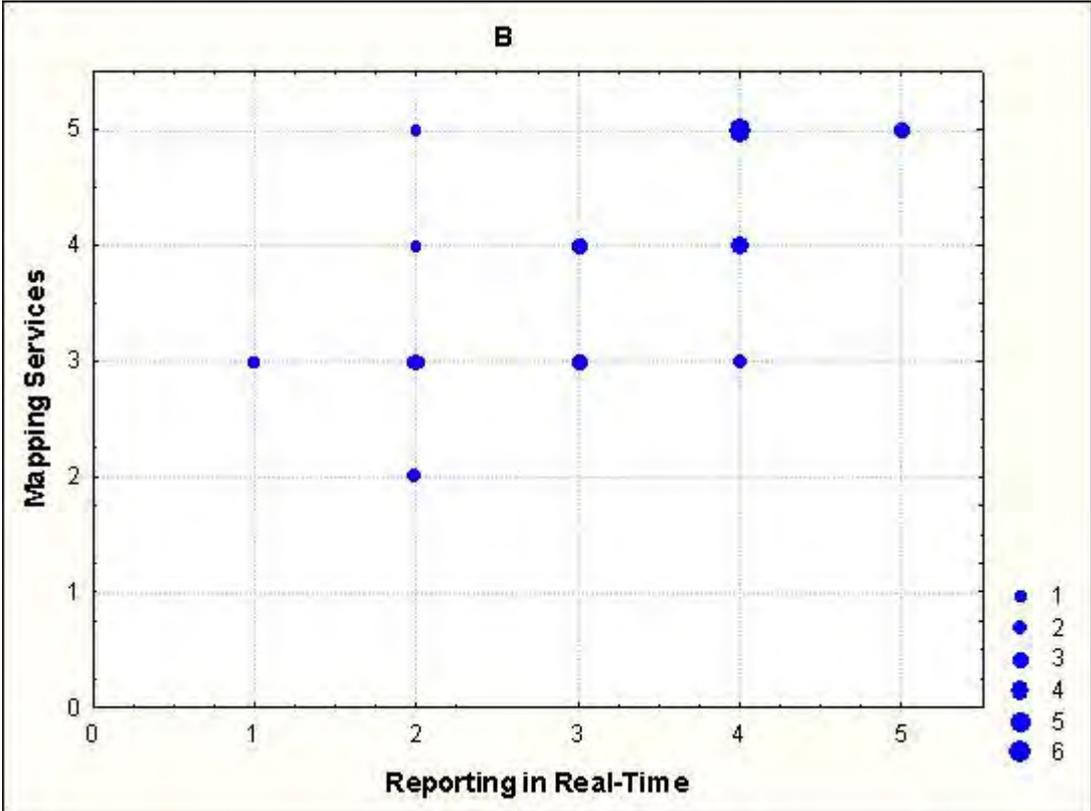


Figure 71: Reporting and Mapping Services

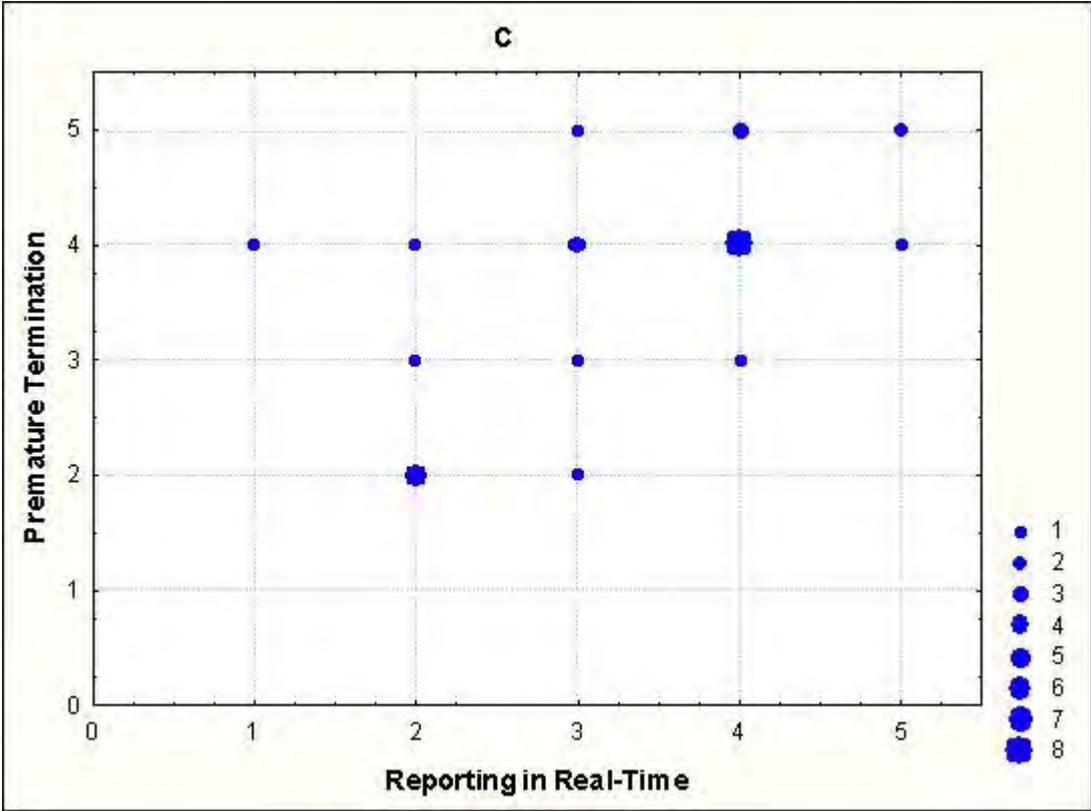


Figure 72: Reporting and Premature Termination

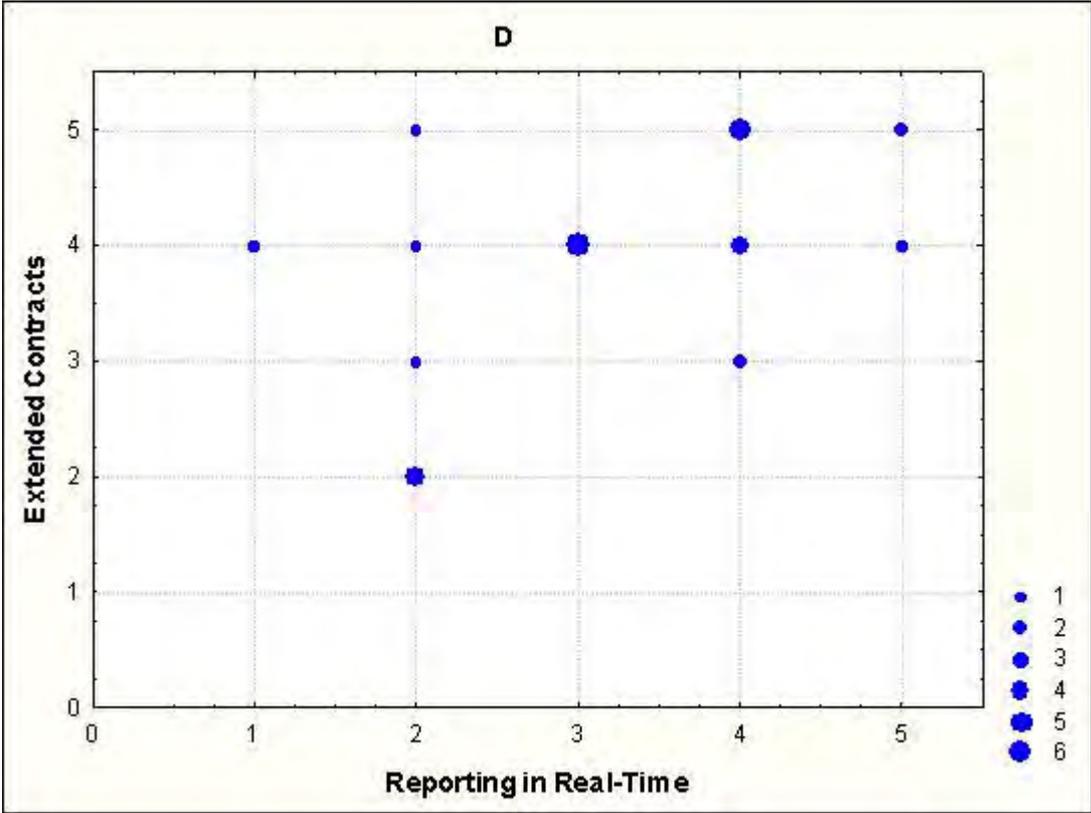


Figure 73: Reporting and Extended Contracts

The relationship that does not exist between reporting in real-time and the perceived successfulness of SM (combination of the four variables) is illustrated in the frequency scatter plot in Figure 72. Varying levels of reporting in real-time are not related to a restricted set of values. Rather they are spread across a range. Essentially, for a given level of reporting in real-time, a broad range of values (all low, all high or a mixture of low and high) is reported across satisfaction, mapping of services, premature termination and extended contracts.

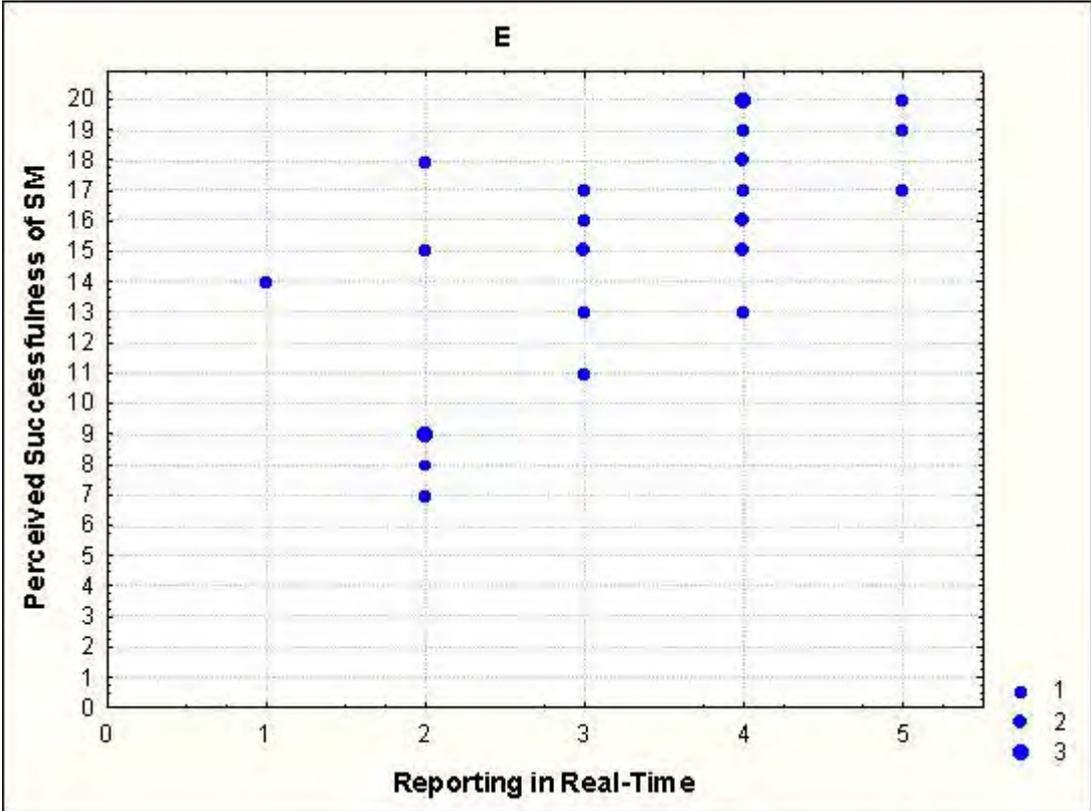


Figure 74: Reporting and Percieved Successfulness

7.5 Conclusion

Surveys are useful mechanisms with which to gather information and opinion from respondents in a complimentary manner. The response rate was lower than anticipated, but sufficient to provide for statistical analysis. The results provide insight into the implementation of SM and will receive further analysis in the following chapter.

Chapter 8: Analysis of the Results of the Empirical Study

This chapter analyses the results of the empirical study and discusses the impact that they have on the research and the framework. Each SM factor and process is discussed in turn and a summary of the results is then provided. Finally, the author discusses further issues related to the analysis of the results of the empirical study.

8.1 Introduction

Chapter 2 introduced SM by identifying the pertinent issues with respect to SM implementation. Chapter 3 detailed the results of the preliminary pilot study and Chapter 4 assessed current implementation protocols. These chapters provided the foundation for the resulting SM implementation framework of Chapter 5. Critical SM implementation factors were identified in Chapter 6, and these factors are used to analyse the results of the empirical study.

8.2 Participant Demographics

There were no significant features regarding the demographic data of the participants. Given that the participants were self selected through the South African charter of the *itSMF*, the bulk of the respondents were from Gauteng and the Western Cape. These two regions are the economic hubs of South Africa and this is also where the *itSMF* have offices.

The cross section of respondent industries bears further witness to this self selection by members of the *itSMF*. An interesting feature of this data is that it provides evidence that the need for ICT services has permeated across many industries. This is supported by the fact that ICT staff is spread across all economic sectors (Human Sciences Research Council's Human Resources Development Review of 2003).

As anticipated, the majority (62.1%) of respondents are employed in an ICT service provider organisation. Financial services, insurance or legal (13.8%) and telecommunications (10.3%) were also represented. Given the fact that the research targeted ICT services, the employment sectors of the respondents who participated in the survey are as anticipated.

Given that ICT Service Management falls into the management domain, the majority of the respondents were employed in management (48.3%), or director (6.9%) positions. Of interest to the research is the contribution of ICT practitioners, providing data from an alternative vantage point. These include consultants (10.3%), network administrators (6.9%) and other technical staff (13.8%).

Lewis (1999) and Sturm (2003) acknowledge that although SM is not a new concept, they do, however, concede that it has only recently begun to be prevalent in the ICT sector. This is

confirmed by the fact that 44.8% of respondents have less than 5 years of SM experience. 55.2% of respondents have more than 10 years of SM experience.

Larger organisations have embraced SM and this is evident in the size of respondent's organisations. 41.4% of respondent's worked in organisations with in excess of 2000 employees.

8.3 Analysis of the Service Management Factors

The following six (6) factors were identified in Chapter 6 as contributing to perceived successfulness of SM:

1. Service Management Implementation Strategy

The results of the survey confirm that it is important to have a strategy for the implementation of SM. While there are various SM implementation frameworks, as identified in Chapter 3, the ITIL is the most commonly adopted (65% of respondents have adopted the ITIL).

All the frameworks presented and evaluated in Chapter 3 provide guidelines for the implementation of SM, but of critical interest to success of SM, is not the nature of the strategy, but the extent to which it is implemented.

Question 6 and 7 addressed the extent to which the SM strategy is implemented. 31% of respondents recorded a fully implemented strategy and a further 37.9% recorded moderate implementation. Additionally, 79.3% of respondents have had a strategy in place for more than a year.

Hypothesis 1 tested the relationship between the extent of the implementation of an SM strategy and the perceived successfulness of SM. The relationship was determined to be strong, with a Fischer's Exact Test result of 0.0001 and a Pearson Chi-Square result of 0.001.

It can therefore be concluded that in order to successfully manage services in the ICT sector, a fully implemented SM strategy needs to be present.

2. Service Management Preparation

The results of the survey confirm that before a service organisation can successfully offer managed services, they need to have a clear understanding of what those services are and how they will be managed. The preparatory activities of an SM strategy address this.

The key preparatory activities include the appointment of a competent Service Manager and the development of an up-to-date, comprehensive and available Service Catalogue.

Questions 12 to 16 addressed the preparatory activities associated with the Service Manager and the Service Catalogue. The majority of respondents recorded, at least, employing a competent Service Managers and had Service Catalogues that were mostly-up-to-date, included most services and was available to most staff members.

Hypothesis 2, 3, 4 and 5 tested these factors against the perceived successfulness of SM. A statistical relationship exists between the competency of the Service Manager, an up-to-date and available Service Catalogue and the perceived successfulness of SM. Interestingly, no significant relationship exists between the comprehensiveness of the Service Catalogue and perceived successfulness of SM.

Additional analysis suggests that the comprehensiveness of the Service Catalogue does have a statistical impact on two of the four variables used to make up the dependent variable. These relationships existed with respect to SM satisfaction and the successful mapping of service client requirements, while no statistical relationship existed between the comprehensiveness of the Service Catalogue and the premature termination and the extension of SM contracts.

3. Service Management Planning

The results of the survey confirm that developing a plan before embarking on any project is a foundation of any potentially successful endeavour and impacts on the perceived successfulness of SM. Entering into a managed services environment is not an exception. The planning activities identified in the literature and tested in the survey include the appointment of a SM project team that includes members from both organisations. In other words, for successful service management, a designated service management team, that contains members from the client and provider organisations, should be designated.

Questions 17 and 18 address presence and composition of SM teams. The majority of respondents did designate a SM team and these do include members from both stakeholder groups.

Hypothesis 6 and 7 tested the relationship between the presence and composition of this team and perceived successfulness of SM. A relationship exists between the presence and composition of these teams and the perceived successfulness of SM.

4. Management of Client Requirements

The results confirm that the extent of understanding of the client's requirements impacts on the perceived successfulness of SM. Further, this understanding should be fully documented. The development of a Service Agreement is where these requirements are detailed, documented and plotted against the appropriate services. The development of SAs has been identified as something of an obstacle in the implementation of an SM strategy.

Questions 19 and 20 explored the extent of understanding of client requirements and the documentation of those requirements before service providers attempted to manage the services that support those requirements. The majority of respondents declared that they had an in-depth understanding and detailed documentation of the client requirements before attempting to manage services.

Hypothesis 8 and 9 tested the relationship between the extent of understanding and documentation of client requirements and the perceived successfulness of SM. A relationship exists between the extent and understanding and documentation of client requirements and the perceived successfulness of SM.

5. Service Agreements

Service Agreements form a cornerstone of SM. They are complex agreements that provide the foundation for a managed services environment.

Question 21 explored the nature of the obstacle posed by the development of SAs. Only 13.8% of respondents regarded the development as no obstacle to successful SM, while 48.2% regarded SA development as somewhat and a minor obstacle.

Hypothesis 10 tested the relationship between the difficulties in developing SAs and the perceived successfulness of SM. There is no statistical relationship between the obstacle posed by developing SAs and the perceived successfulness of SM.

Further analysis confirms that a relationship exists between the premature termination of SM relationships and the difficulties associated with developing SAs. This provides further support for the difficulties in developing SAs, and the important role they fulfil in SM.

6. Service Monitoring and Reporting

The results of the survey confirm that providing a managed service requires the provider to know the status of all things in all places and at all times. It also helps to improve the relationship between provider and client, if these services are reported to the client in real-time.

Questions 22 and 23 explore the extent of real-time monitoring and reporting of service levels. The results reflect an SM arena where the majority of respondents either monitor all services in real-time (34.5%) and report on most of the services in real-time (41.4%).

Hypotheses, 11 and 12 tested the relationship between the monitoring and reporting on services in real-time and the perceived successfulness of SM. A relationship exists between the monitoring of services in real-time and the perceived successfulness of SM. No relationship exists between the reporting of services in real-time and the perceived successfulness of SM.

Additional analysis suggested that reporting in real-time has a statistical relationship with each of the individual variables that make up the independent variables. That is to say that there is a relationship between reporting in real-time, SM satisfaction, the mapping of client requirements, premature SM termination and the extension of SM contracts, yet not to all four combined.

8.4 Summary of the Results of the Empirical Study

The results of the empirical study are encouraging as they confirmed the important components of an SM implementation strategy.

8.4.1 Service Management Implementation Strategy

Strong support exists for the complete implementation of an SM strategy. The respondents who were satisfied with service management within their organisation had a fully implemented strategy in place. The majority of these strategies (51.7%) had been in place for between 1 to 4 years. A further 27.6% have had a strategy in place for in excess of 5 years.

8.4.2 Service Management Preparation

Confirmation of the importance of the preparatory activities identified as part of a successful SM strategy was obtained. To ensure a successful SM strategy, the organisation must appoint a competent service manager and develop a Service Catalogue that is up-to-date and available to all members of staff.

While no evidence exists to support a relationship between successful SM and the comprehensiveness of the Service Catalogue, the results confirm that a comprehensive Service Catalogue improves SM satisfaction and the mapping of services to client requirements. The comprehensiveness of the Service Catalogue was not found to influence premature terminations and extensions of SM contracts.

8.4.3 Service Management Planning

In order to successfully manage services, designated project teams that include members from all stakeholder organisations are imperative.

8.4.4 Management of Client Requirements

A service management project is unlikely to be successful if the service provider does not fully understand and document the client's requirements before attempting to manage their services.

8.4.5 Service Agreements

Interestingly, the majority of respondents acknowledged that SAs are to some extent an obstacle to successful SM. This is not confirmed by the presence of a statistical relationship between degree of obstacle provided by the development of SAs and the perceived successfulness of SM. There is, however, a relationship between the difficulties in developing SAs and the premature termination of SM relationships. This result would suggest that if an SA cannot be developed, it is regarded as an insurmountable obstacle. Furthermore, the difficulties associated with the development of SAs are in fact an integral part of the process of SM. Further research in this area is therefore needed to explore the nature of the relationship between developing service agreements and the success of SM.

8.4.6 Service Monitoring and Reporting

While it is imperative, for perceived successful SM, that services are monitored in real-time, the provision of reports need not be. Where the majority of respondents (34.5%) monitored all services in real-time, only 10.3% provided complete reporting to their clients in real-time. 41.4% of the respondents acknowledged offering some of their reports in real-time.

8.5 Conclusion

For the successful management of ICT services, a fully implemented SM strategy needs to be present. This strategy must be led by a competent Service Manager and be based on an up-to-date and available Service Catalogue. Individual SM project teams must be designated for SM projects and contain members from both stakeholder organisations. Client requirements must be fully understood and documented before any attempt is made to manage services and all service levels must then be monitored in real-time.

Chapter 9: Revisions to the Service Management Implementation Framework

The previous chapter analysed the results of the empirical study and their impact on the framework proposed in Chapter 5. Based on the results and analysis, this Chapter details the revisions to the framework.

9.1 Introduction

Following the review of literature in Chapter 2, the analysis of current implementation frameworks in Chapter 3 and the exploratory pilot study in Chapter 4; a theoretical implementation framework was proposed in Chapter 5. The empirical study was designed to further explore and verify the relevance and validity of this proposed framework. The results of the empirical study are now discussed in relation to the proposed SM framework of Chapter 5. Any significant changes are made to reflect the results of the empirical study.

9.2 Impact of the Empirical Study

The empirical study explored an SM framework. The results of the empirical study are used to make revisions and adaptations to the framework. Table 71 details the revisions made to the framework.

Table 71: The Impact of the Empirical Study on the Proposed Model

Proposed Framework	Empirical Study Results	Revised Framework
Preparation		
Appoint or nominate Service Management staff	Competent service management staff are important	Appoint or nominate competent Service Management staff
Define Service Management scope and objectives	Not Tested	Define Service Management scope and objectives
Quantify activities, resources, funding and quality criteria	Not Tested	Quantify activities, resources, funding and quality criteria
Identify risks	Not Tested	Identify risks
Raise awareness of Service Management	Not Tested	Raise awareness of Service Management
Develop a Service Catalogue	Must be kept up-to-date and be available to all staff	Develop a Service Catalogue that is kept up-to-date and is available to all staff
Identify support tools, especially for SA monitoring	Not Tested	Identify support tools, especially for SA monitoring
Set incident priority levels and escalation paths	Not Tested	Set incident priority levels and escalation paths
Planning		
Meet with client	Not Tested	Meet with client
Establish SM project team	Include members from both organisations	Establish SM project team with members from both organisations
Raise awareness of SM project	Not Tested	Raise awareness of SM project
Analysis		
Identify Client’s Business Processes	Confirmed	Identify Client’s Business Processes
Review Client’s Existing Services	Confirmed	Review Client’s Existing Services
Identify the Services to Support those Business Processes	Confirmed	Identify the Services to Support those Business Processes
Develop a Blueprint of the Client’s Service Requirements	Detailed understanding and documenting of the client's requirements	Develop a Blueprint of the Client’s Service Requirements that is built on detailed understanding and documenting of the client's requirements
Design		
Negotiate and Create SAs	May be a necessary obstacle	Dedicate the necessary resources to SAs
Implementation		
Deploy SA	Not Tested	Deploy SA
Real-time monitoring of service levels	Confirmed	Real-time monitoring of service levels
Service level reporting	Not all services need be reported in real-time	Service level reporting when appropriate
Review		
Review Service Levels	Not Tested	Review Service Levels
Establish Priorities and Plan for Change	Not Tested	Establish Priorities and Plan for Change
Fine Tune or Reengineer Business Processes and / or Services	Not Tested	Fine Tune or Reengineer Business Processes and / or Services

9.3 Framework Revisions

The framework for the implementation of SM comprises two phases:

1. Foundation Phase

This phase represents the preparatory activities that the service provider needs to complete in order to place them in a position to manage services. This phase is also relevant to the client as they will need to see evidence of its completion by the service provider.

2. Managed Services Phase

The managed services phase represents an iteration of an SM project. This phase involves the service provider and the client. The steps in this phase are Planning, Analysis, Design, Implementation and Review. This process is repeated for any number of SM projects.

9.3.1 Foundation Phase

Preparation

A service provider must ensure that they are in a position to provide services. In order to reach this point, they must complete some preparatory activities. The preparatory activities identified in chapter 5 are:

1. Appoint or nominate Service Management staff
2. Define Service Management scope and objectives
3. Quantify activities, resources, funding and quality criteria
4. Identify risks
5. Raise awareness of Service Management
6. Develop a Service Catalogue and pro-forma SA
7. Identify support tools, especially for SA monitoring
8. Set incident priority levels and escalation paths

Not tested:

- a. Define Service Management scope and objectives
- b. Quantify activities, resources, funding and quality criteria

- c. Identify risks
- d. Raise awareness of Service Management
- e. Identify support tools, especially for SA monitoring
- f. Set incident priority levels and escalation paths

Revisions:

- a. The competency of the service management staff need to be high.
- b. The nature of the Service Catalogue must be kept up-to-date and be available to all members of staff. Non-critical services need not be in the service catalogue.

9.3.2 Managed Services Phase

Planning

Planning an SM project is a critical stage of the model and the 3 planning activities identified in chapter 5 are:

1. Meet with the client
2. Establish the SM project team
3. Raise awareness of the SM project

Not Tested:

- a. Meet with the client
- b. Raise awareness of the SM project

Revisions:

- a. Confirmation of the importance of including team members from each organisation.

Analysis

Analysis of the current situation and the desired outcome is performed in this step. The 4 analysis activities identified in chapter 5 are:

1. Identify Client's Business Processes
2. Review Client's Existing Services

3. Identify the Services to Support those Business Processes
4. Develop a Blueprint of the Client's Service Requirements

Revisions:

- a. Confirmation was obtained that the client's requirements must be fully identified and understood as well as fully documented.

Design

The design of the solution is completed in one step:

1. Negotiate and create an SA

Revisions:

- a. Recognition of the difficulties in developing SAs has been recognised and these difficulties are regarded as an integral part of and SM strategy.

Implementation

The implementation step of chapter 5 recognises the going live with the project. There are 3 implementation steps:

1. Deploy SA
2. Real-time monitoring of service levels
3. Real-time service level reporting

Revisions:

- a. Confirmation of the need to report on all services in real-time
- b. Only essential services need be reported in real-time.

Review

The reviewing of a managed service environment is identified by three tasks. The 3 tasks identified in chapter 5 are:

1. Review Service Levels
2. Establish Priorities and Plan for Change
3. Fine Tune or Reengineer Business Processes and / or Services

Not Tested:

- a. Review Service Levels
- b. Establish Priorities and Plan for Change
- c. Fine Tune or Reengineer Business Processes and / or Services

9.3.3 The Graphical Framework

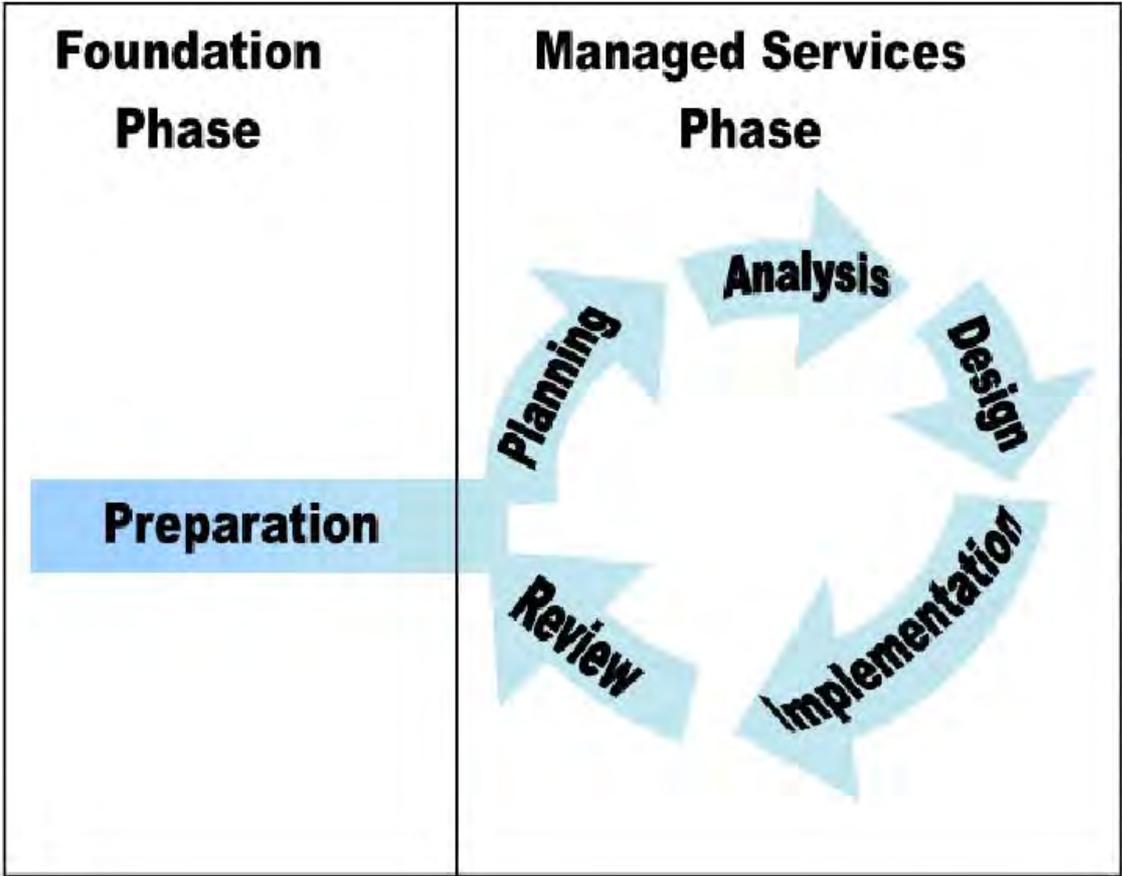


Figure 75: The Service Management Framework

9.4 Conclusion

The literature survey, the analysis of current SM implementation strategies and the results of the exploratory pilot study led to the development of the theoretical SM framework of Chapter 5. The empirical study was developed to test the important aspects of this framework identified in Chapter 6. The survey confirmed nine (9) of the twelve (12) hypothesis. The confirmation of the framework included some minor alterations and some changes. The resulting changes are characterised by the accurate involvement of people, namely the composition of SM project

teams, the availability and communication of information and the competency of service management staff.

Chapter 10: Conclusion

This chapter concludes the research by identifying the most significant contributions of the research and by suggesting areas of future work.

10.1 Introduction

The ICT industry has been plagued by overzealous sales and marketing strategies that tend to “over-promise and under-deliver”. While much of the blame for this can be attributed to a competitive marketplace, many ICT service providers are ill-prepared or inadequately equipped to manage services. Many ICT service vendors incorrectly seek clients, who require services, before they have established their capacity to manage those services. A framework for the implementation of SM in the ICT sector is required to guide prospective and current service providers into an environment where they can successfully manage ICT services.

Service Management in the ICT sector is a comprehensive process that extends beyond the development of Service Agreements. A number of recognisable steps need to be followed to ensure the success of an SM strategy. These begin with the introspective foundational activities an organisation must embrace in preparation for entering into a managed services environment. This preparation is followed by the planning of an individual SM project. The planning activities lead into the identification, documentation and satisfaction of the client’s requirements. The process is cyclical and once services are being managed, they are reviewed with the view to improvements. This review of services completes a single cycle. Thereafter the process is initiated again.

10.2 Contributions of the Research

The value of this research is the contribution it makes to the following:

- **The benefits of managing ICT services include:**
 - ICT services are designed to meet service level requirements
 - Improved relationships are fostered with satisfied clients
 - Both parties to the agreement have a clearer view of roles and responsibilities, avoiding potential misunderstandings or omissions
 - Specific targets are noted, against which service quality can be measured, monitored and reported
 - ICT effort is focussed on those areas that the business thinks are key
 - ICT and clients have a clear and consistent expectation of the level of service required

- Service monitoring allows weak areas to be identified, so that remedial action can be taken, thus improving future service quality
 - Service monitoring also shows where client actions are causing the fault and so identify where working efficiency and/or training can be improved
 - SM underpins provider management
 - In some cases where services are outsourced, SAs are a key part of managing the relationship with the third-party. In other cases, service monitoring allows the performance of providers to be evaluated and managed
 - An SA can be used as a basis for charging and helps demonstrate what value clients are receiving for their money
- **Successful Service Management can be measured in terms of:**
- Their perceived satisfaction with SM within their organisation
 - The frequency with which services are mapped to client requirements
 - The frequency with which SM relationships are terminated prematurely
 - The frequency with which extendable contracts are extended
- **A framework for successful service management comprises two phases and a number of sub phases.**
- Foundation Phase
This phase guides a service provider to a state of readiness to manage services.
 - Managed Services Phase
This phase maps the steps required to effectively manage services.
 - Planning
 - Analysis
 - Design
 - Implementation
 - Review
- **Successful SM is dependant on:**
- The appointment of competent Service Management staff
 - The developing a Service Catalogue that includes standard operating procedures
 - The designation of Service Management project teams that include members from both organisations

- The comprehensive management of clients and their requirements
 - The accurate mapping of service to client requirements
- The implementation of a process to manage the reviewing of services
- The focus on accurate and appropriate communication between all stakeholders

10.3 Future Research

Future research in this area includes:

- **The Implementation of the Framework Developed in this Research**

This framework has been developed theoretically. It is developed from a set of current frameworks and an exploratory pilot study and tested empirically. Further testing of this framework is required in a practical deployment in an ICT service provider environment.

- **The Nature and Development of a Service Catalogue**

The importance of a Service Catalogue has been identified in this research. It is regarded as fundamental to successful SM. There is scope for further research into its successful development and nature. Mechanisms for keeping it up-to-date, comprehensive and available to all staff need to be developed.

- **Non-critical and critical services in the Service Catalogue**

The content of the Service Catalogue impacts on its effectiveness. This research has identified that while critical services should be included in the Service Catalogue, it is not essential to include non-critical services. This research did not identify the distinction between these services and further research is required to establish what constitutes critical and non-critical services and what these services are.

- **The Development of Service Agreements**

SAs have been identified as a critical part of an SM strategy. The process of SM development has been identified as an obstacle, yet a necessary one. Further research in the development of SAs with a focus on reducing these obstacles is therefore required.

- **The Value of Real-Time Monitoring and Reporting of Services**

Monitoring of all services in real-time has been confirmed as a factor in successful SM. The value of real-time reporting of all services could not be fully established. This research concluded that a relationship does exist between the individual variables of perceived successfulness of SM and reporting in real-time. Interestingly, there was no relationship between the aggregated variables and reporting in real-time. Further research into this is therefore required.

- **Cost Benefit Analysis of Implementing Service Management**

This research recognises that there are costs and benefits associated with implementing SM. The exact financial impact of SM implementation was not explored and further research is required in this regard.

10.4 Concluding Remarks

The successful management of ICT services provides for the maturation of the ICT industry after the highly publicised crash of the late 1990's. For ICT to shed its "over promise and under deliver" reputation, service providers are going to need to provide and manage services that meet and even exceed the client's requirements. The framework developed in this research provides service providers with a practical tool for SM implementation. This framework also provides insight to service clients who wish to assess the SM capabilities of a prospective service provider.

References

- BABINEC, T and MEHTA, C (1998) **Thinking About Exact Statistics**, SPSS Software. [Online] Available at: www.spss.com [Accessed 8 November 2005]
- BLUM, R (2002) **Service Level Management and Service Level Agreements, International Network Services**, 25 March 2002.
- BOARDMAN, B (2001) **Network & Systems Management, Network Computing**, 17 December 2001.
- BRITTAİN, K (2002) **Infrastructure Management: Standards, Best Practices, ITIL, Gartner Research**, 10 June 2002.
- BRITTAİN, K and MATLUS R (2002) **Road Map for IT Service-Level Management, Gartner Research**, 28 January 2002.
- CAINE, A (1997) **Negotiating An Effective Service Level Agreement**, Gilbert and Tobin Lawyers. [Online] Available: <http://www.gtlaw.com.au/gt/site/articleIDs/B685FA264603E965CA256D1E000CF754?open&&ui=dom&template=domGTPrint> [Accessed 7 March 2005]
- DRAKE, J (2000) **The HP IT Service Management Reference Model**, Hewlett-Packard Company.
- ERICKSON-HARRIS, L (2003) **Help with SLM, Network World Fusion**, 21 July 2003.
- HANNEMAN, A, SAILER, M and SCHMITZ, D (2004) **Assured Service Quality by Improved Fault Management**, Proceedings of the 2nd international conference on Service Oriented Computing, ACM Press.
- HAUTAMÄKI, J, LAHTEENMÄKI, T and RIMPILÄ, N (2004) **An Assessment of Maturity Level of the IT Service Management, Institute of Information Technology**, Jyväskylä Polytechnic, 24 January 2004 [Online] Available: http://koti.mbnet.fi/tela79/ITSM/CMM_ITSM_introduction.doc [Accessed 10 May 2004]
- HUMAN SCIENCES RESEARCH COUNCIL (2003) **Human Resources Development Review**, [Online] Available: <http://hrdreview.hsrc.ac.za> [Accessed 25 November 2005]
- INTERNATIONAL ENGINEERING CONSORTIUM (2002.) **Service-Level Management**, International Engineering Consortium. [Online] Available: <http://www.iec.org> [Accessed 17 April 2004]

- JANSSEN, M and JONA, A (2004) **Issues in Relationship Management for Obtaining the Benefits of a Shared Service Centre**, Proceedings of the 6th international conference on Electronic Commerce, ICEC '04, ACM Press.
- KAY, R (2002) QuickStudy: System Development Life Cycle, **Computerworld**, 14 May 2002.
- LABOUNTY, C (2004) **Implementing Service Level Management**, [Online] Available: <http://www.labountyassociates.com/publications.html> [Accessed June 2005]
- LAWES, A (2004) **About Best Practice**, *itSMF* [Online] Available: <http://www.itsmf.com/bestpractice/aboutbp.asp> [Accessed April 2005]
- LEONARD, A (2002) A Conceptual Framework for Managing Relationships between participants During IT Service and Support Activities, **SA Journal of Industrial Engineering**, 2002 Volume 13, Issue 2, 2002.
- LEVINE, S (2003) Service Management: Uncharted Territory, **America's Network**, 15 January 2003.
- LEWIS, L (1999) **Service Level Management for Enterprise Networks**, Artech House, INC.
- LEWIS, L and RAY, P (1999) **Service Level Management. Definition, Architecture, and Research Challenges**, Proceedings of Global Telecommunications Conference GLOBECOM'99 1999, 3 1974–1978.
- MAHAJAN, A, RAMANATHAN A and PARASHAR, M (2004) Active Resource Management for the Differentiated Services Environment, **International Journal of Network Management**, Volume 14 Issue 3.
- MCKEEN, J, SMITH, H and SINGH, S (2005) Developments in Practice XVI: A Framework for enhancing IT Capabilities, **Communications of the Association for Information Systems**, Volume 15, 2005.
- MICROSOFT (2003) **Managing the Windows Server Platform**, [Online] Available: <http://www.microsoft.com/technet/itsolutions/techguide/msm/smf/smfslamg.mspx> [Accessed May 2004]
- MINGAY, S and GOVEKAR, M (2002) **ITIL's Service Level Management Strength is in its Integration**, [Online] Available: <http://www.tarrani.net/linda/docs/ITIL-GartnerView.pdf> [Accessed May 2004]
- MULLER, N (1999) Managing Service Level Agreements, **International Journal of Network Management**, Volume 9 Issue 3 1999.

- SAUER, C, LIU, L and JOHNSTON, K (1999) **Enterprise-Level Project Management Capabilities: A Comparison of the Construction and IT Services Industries**, Proceeding of the 20th international conference on Information Systems, Association for Information Systems.
- STURM, R (2000) The Truth About Service-Level Management, **InformationWeek News**, 8 May 2000.
- STURM, R (2001A) The Functions of Service-Level Management, **Network World Fusion**, 17 September 2001.
- STURM, R (2002A) Look Beyond IT for Service-Level Management Successes, **Network World Fusion**, 7 January 2002.
- STURM, R (2002B) Reporting for SLM, **Network World Fusion**, 7 February 2002.
- STURM, R (2002C) Service-Level Management: What is in it for IT, **Network World Fusion**, 10 April 2002.
- STURM, R and ERICKSON-HARRIS, L (2003) **SLM Solutions: A Buyers Guide**, Second Edition, Enterprise Management Associates.
- STURM, R, ERICKSON-HARRIS, L, and ST. ONGE, D (2002) **SLM Solutions: A Buyers Guide**, First Edition, Enterprise Management Associates 2002.
- STURM, R, MORRIS, W and JANDER, M (2000) **Foundations of Service Level Management**, SAMS, Indiana.
- THE IT INFRASTRUCTURE LIBRARY (2003) **Service Delivery**, Sixth Impression, The Stationery Office.
- THE IT INFRASTRUCTURE LIBRARY (2004A) **Service Support**, Seventh Impression, The Stationery Office.
- THE IT INFRASTRUCTURE LIBRARY (2004B) **Planning to Implement Service Management**, Third Impression, The Stationery Office.
- THE ITIL & ITSM WORLD (2005) **Service Level Management**, [Online] Available: <http://www.itil-itsm-world.com/itil-6.htm>
- VAN HEMMEN, L (2000) Models supporting the network management organization, **International Journal of Network Management**, Volume 10 Issue 6.

VERMA, D (1999) **Supporting Service Level Agreements on IP Networks**, Macmillan Technical Publishing.

YALLOF, J and
MORGAN C (2003) Beyond Performance Standards: How to Get the Most From Your Outsourcing Relationship, **Benefits Quarterly**, Third Quarter 2003 p. 17-22.

Bibliography

- APPLEBY, K,
FAKHOURI, S.,
FONG, L,
GOLDSZMIDT, G,
KALANTAR, M,
KRISHNAKUMAR, S,
PASEL, D.P,
PERSHING, J and
ROCHWERGER, B
(2001) **Océano – SLA Based Management of a Computing Utility**, IBM TJ Watson Research Centre. [Online] Available:
<http://www.research.ibm.com/compsci/distributed/workshop.html>
- AXIOS SYSTEMS
(2002) **An Introduction to IT Service Management Best Practice**, Axios Systems Limited Whitepaper.
- AXIOS SYSTEMS
(2004) **Everybody's doing ITIL - or are they?** Axios Systems Limited BS15000 Whitepaper.
- AXIOIS SYSTEMS
(2003) **Taking You Beyond ITIL**, Axios Systems Limited, BS15000 Whitepaper 2.
- BECTA (2004) **Service Level Management**, British Educational Communications and Technology Agency, Coventry.
- BEHLING, J (2003) **Accenture Back to Basics**, Accenture. [Online] Available:
<Http://www.accenture.com/Outlook>
- BOARDMAN, B
(2001) Network and Systems Management, **Network Computing** 2003.
- BOSHOFF, T (2005) The Pitfalls of ITIL, **Computing SA**, 18 April 2005.
- BOUILLET, E
MITRA, D and
RAMAKRISHNAN, K
(2002) The Structure and Management of Service Level Agreements in Networks, **IEEE Journal on Selected areas in Communications**, [Online] Available:
<http://www.cs.umanitoba.ca/~maheswar/anc2002/PAPERS/BoM02.pdf>
- BUCO, M, CHANG,
R, LUAN, L, WARD,
C, WOLF, J, and YU,
P, (2004) Utility Computing SLA Management based on business objectives, **IBM Systems Journal**, Volume 33 No 1, (2004) [Online] Available:
<http://www.research.ibm.com/journal/sj/431/buco.pdf>
- GARDNER, D (2000) **How do we Start a Project? Ensuring the Right Sponsorship, Stakeholder Alignment and Thoughtful Preparation for a Project**, Proceedings of the Project Management Institute Annual Seminars and Symposium, September 2000, Houston Texas.

- EMPIRIX (2003) **Managing Service Level Agreements with C.A.R.E.**, Empirix. [Online] Available: http://www.slm-info.com/industrypapers/Empirix_Managing%20SAs%20with%20CARE_90303.pdf
- ENTERPRISE MANAGEMENT ASSOCIATES (2002) **Implementing SLAs: Tools for Success**, Compuware Corporation. [Online] Available: <http://www.enterpriseassociates.com>
- ERIKSON-HARRIS, L (2003) Six Sigma and ITIL: Two methods of Managing Services, **Network World** 04/14/03.
- GILLET-LILOIA, T, and KOTWICA, J (2002) **Executives guide to Service Level Agreements**, Darwin Executive Guides. [Online] Available: <http://guide.darwinmag.com/technology/outsourcing/sla/>
- GOMOLSKI, B, (2004) It's Time to Re-engineer IT, **Computerworld**, 38(16), April 19 2004.
- GRUBIC, J and THOMSON, D (2002) Negotiating a Superior Logistics Services Level Agreement, **Logistics Quarterly**. [Online] Available: <http://www.lq.ca/issues/fall2002/articles/article05.html>
- HARTLEY, K (2005) Defining Effective Service Level Agreements for Network Operation and Maintenance, **Bell Labs Technical Journal** 9(4). [Online] Available: doi.wiley.com/10.1002/bltj.20067
- HAVENSTEIN, H (2003) CRM Crisis ASP's Save the Day, **InfoWorld.com**. [Online] Available: <http://www.infoworld.com>
- HECHENLEITNER, B and HETZER, D (2002) **Toolkit for Quality of Service and Resource Optimization**, Salzburg University, Salzburg, Austria. [Online] Available: <http://www3.fh-sbg.ac.at/~bhechenl/publications.htm>
- HEINE, J (2004) Management Update: Improving Service-Level Agreements in Contracts, **Gartner Research**. [Online] Available: http://www4.gartner.com/DisplayDocument?ref=g_search&id=426620
- HILES, A (1999) **The Complete IT Guide to Service Level Agreements — Matching Service Quality to Business Needs**, Rothstein Associates Inc., Brookfield, CT.
- INFORMATION WEEK (2002) Behind the Numbers, **Informationweek.com**. [Online] Available: <http://www.informationweek.com>.
- ITWORLD (2001) 10 myths about service-level agreements, **ITworld.com** 4/27/2001 [Online] Available : <http://www.itworld.com/Man/2679/ITW010427sla/>

- JOHNSON, A and ROLLINS, J (2004) **Improving Business Performance**, Accenture. [Online] Available: <http://www.accenture.com>
- KETTINGER, J and LEE, C (1997) Pragmatic Perspectives on the Measurement of Information Systems **Service Quality MIS Quarterly** June 1997.
- LEHR, W and MCKNIGHT, L (2002) **Show Me The Money: Contracts and Agents in Service Level Agreement Markets, Program on Internet and Telecoms Convergence**, MIT. [Online] Available: itc.mit.edu/itel/docs/2002/show_me_the_money.pdf
- LEON, M (2001) Agreements on the Level, **InfoWorld.com**. [Online] Available: <http://www.infoworld.com>
- LEOPOLDI, R (2002.) **ITSM: A Description of Service Level Agreements**, RL Consulting. [Online] Available: <http://www.itsm.info/>
- LEOPOLDI, R (2002) **ITSM: A description of a Service Catalogue**, RL Consulting. [Online] Available: <http://www.itsm.info/>
- LEOPOLDI, R (2002) **ITSM: Service Management**, RL Consulting. [Online] Available: <http://www.itsm.info/>
- LIU, Z, SQUILLANTE, S and WOLF, J (2001) **On Maximizing Service-Level-Agreement Profits**, IBM TJ Watson Research Centre. [Online] Available: <http://portal.acm.org/citation.cfm?id=501185&dl=ACM&coll=portal>
- LOGAN, I (2004) **Initiating the SLA Culture, ITIL People**. [Online] Available: <http://www.casaubon-eck.co.uk/>
- LUDWIG, H (2004) **Web Services QoS: External SLAs and Internal Policies**, IBM TJ Watson Research Centre. [Online] Available: <http://www.research.ibm.com/people/h/hludwig/publications/WQW%20KeynoteDec2003.pdf>
- MINGAY, S (2004) How Managing Services Using ITIL Profited an IT Department, **Gartner Research Note**, Gartner 23 January 2004.
- MORGAN, C and YALLOF, J (2003) Beyond Performance Standards, **Benefits Quarterly**. [Online] Available: <http://www.iscebs.org/BQinfo/bq32003.asp>
- MUSICH, P (2003) Managing Services to a T, **Enterprise News and Reviews**. [Online] Available: <http://www.eweek.com/article2/0,1759,1094846,00.asp>

Bibliography

- NETWORK PHYSICS (2003) Bridging the Network Management Gap, **Network Physics**. [Online] Available: <http://www.networkphysics.com>
- NETWORK PHYSICS (2003) Go With the Flow, **Network Physics**. [Online] Available: <http://www.networkphysics.com>
- NETWORK PHYSICS (2004) Flow Based Network Management, **Network Physics**. [Online] Available: <http://www.networkphysics.com>
- PEPPARD, J, EARL, M and EDWARDS, C (1996) Whose job is it anyway? Organizational information competencies for value creation, **Information Systems Journal**, 10.
- PISELLO, T (2003) The Marriage of ROI and SA, **Computerworld**. [Online] Available: <http://www.computerworld.com/managementtopics/management/story/0,10801,86182,00.html>
- PROXIMA TECHNOLOGY (2003) **Six Sigma for IT Service Management**, Enterprise Management Associates.
- PUGH, N (2001) What Constitutes a good SLA? **Communication News**. [Online] Available: http://www.findarticles.com/p/articles/mi_m0CMN/is_7_38/ai_76769725
- RAPPA, M (2004) The Utility Business Model and the Future of Computing Services, **IBM Systems Journal**. [Online] Available: <http://www.research.ibm.com/journal/sj/431/rappa.pdf>
- ROCKART, J, EARL, M and ROSS, J (1996) **Eight Imperatives for the New IT Organization**, Sloan Management Review, 36(1) Fall.
- ROSS RESEARCH (2004) F&A Outsourcing, **Financial Executive**. [Online] Available: <http://search.epnet.com/login.aspx?direct=true&AuthType=cookie,ip,url,uid&db=buh&an=12469042>
- ROSS, J and WESTERMAN, G (2004) Preparing for Utility Computing, **IBM Systems Journal**. [Online] Available: www.research.ibm.com/journal/sj/431/ross.pdf
- SANTANA, J (2004) **Tips for Crafting Better Outsourcing Relationships**, Tech Republic. [Online] Available: <http://techrepublic.com.com/2001-6240-0.html>

- SCHMIDT, H (2000) **Service Level Agreements Based on Business Process Modelling**, University of Munich, Germany. [Online] Available: <http://www.mnmteam.informatik.uni-muenchen.de/Literatur/MNMPub/Publikationen/schm00a/HTML-Version/main.html>
- SHIH, G and SHIM, S (2002) A Service Management Framework for M-Commerce Applications, **Mobile Networks and Applications**, 7, Kluwer Academic Publishers.
- SM THACKER and ASSOCIATES (2000) **Guide to Service Level Agreements**, SM Thacker and Associates. [Online] Available: http://www.smthacker.co.uk/service_level_agreements.htm
- STURM, R (2001B) Assessing Service Availability, **Network World Fusion**. [Online] Available: <http://www.nwfusion.com>
- STURM, R (2001C) Response time tools for SLM, **Network World Fusion**. [Online] Available: <http://www.nwfusion.com>
- STURM, R (2001D) Choosing SLM Tools, **Network World Fusion**. [Online] Available: <http://www.nwfusion.com>
- STURM, R (2001E) Who can you trust with your SLA? **Network World Fusion**. [Online] Available: <http://www.nwfusion.com>
- STURM, R (2001F) Real SLM Means Being Proactive, **Network World Fusion**. [Online] Available: <http://www.nwfusion.com>
- STURM, R (2002D) Reporting for SLM, **Nextslm.org**. [Online] Available: <http://www.nextslm.org>
- STURM, R (2002E) Be Reasonable with SLAs, **Network World Fusion**. [Online] Available: <http://www.nwfusion.com>
- STURM, R (2002F) Getting Ready for SLAs, **Network World Fusion**. [Online] Available: <http://www.nwfusion.com>.
- STURM, R (2002G) Look Beyond IT for SLM Successes, **Network World Fusion**. [Online] Available: <http://www.nwfusion.com>
- STURM, R (2002H) Defining SLM Tools, **Network World Fusion**. [Online] Available: <http://www.nwfusion.com>
- STURM, R (2002I) Do Your Homework before writing SLAs, **Network World Fusion**. [Online] Available: <http://www.nwfusion.com>
- STURM, R (2002J) Don't sign a SLA you can't meet, **Network World Fusion**. [Online] Available: <http://www.nwfusion.com>

- STURM, R (2002K) What do Users want from SLM? **Network World Fusion**. [Online] Available: <http://www.nwfusion.com>
- STURM, R (2002L) Service Level Management: The Big Picture, **slminfo.org**. [Online] Available: <http://www.slminfo.com/articles/thebigpicture.htm>
- STURM, R (2004) **SLM Solutions: A Buyers Guide SE**, Enterprise Management Associates. [Online] Available: <http://www.enterprisemanagement.com/>
- SYNTEL (2003) **How to Outsource**, Syntel. [Online] Available: <http://www.syntelinc.com/showpage.jsp>
- TERASA SETTAS (2004) **BS15000 Standard in IT Service Management**, Foster-Melliari [Online] Available: <http://www.foster-melliari.co.za>
- THE INTERNATIONAL ENGINEERING CONSORTIUM (2002) **Client Care**, The International Engineering Consortium. [Online] Available: <http://www.iec.org>
- VISUAL NETWORKS, INC. (2002) **Carrier Service Level Agreements**, The International Engineering Consortium. [Online] Available: <http://www.iec.org>
- WALDER, B (1998) **Service Level Agreements**, The Network Security Services Group. [Online] Available: <http://www.nss.co.uk/Articles/March98.htm>
- YARNALL, P (2004) Focus on the Business, **Computer Weekly**, 15 June 2004.
- KETTINGER, J and LEE, C (1997) Pragmatic Perspectives on the Measurement of Information Systems Service Quality **MIS Quarterly** June 1997.

Appendices

Appendix A: Results of the Initial Pilot Study Survey

1. Indicate the region in which you are currently employed

Eastern Cape	4
Free State	0
Gauteng	25
KwaZulu Natal	3
Mpumalanga	0
Northern Cape	0
Limpopo	0
North West Province	0
Western Cape	15
Outside of South Africa	3

2. Indicate the industry sector in which you are currently employed

Telecommunications Provider	4
ICT Service Provider	23
Computer Manufacturer	1
Government, Education or Non-Profit	2
Financial Services, Insurance or Legal	9
Retail or Wholesale	2
Energy or Mining	0
Manufacturing or Pharmaceuticals	2
Transportation	0
Healthcare	0
Other, please specify	6

3. Indicate the number of years you have been involved in Service Management

Less than 1 year	5
Between 1 and 4 years	18
Between 5 and 9 years	16
More than 10 years	11

4. Indicate the number of people employed by your organisation

Less than 100	9
Between 100 and 499	6
Between 500 and 999	5
Between 1000 and 1999	2
More than 2000	28

5. Indicate the extent of your understanding of the processes, procedures, goals and objectives of Service Management.

Extensive	17
Moderate	13
Sufficient	5
Limited	2
None	0

6. Indicate the length of time that your organisation has had a Service Management strategy in place.

Less than 1 year	2
1 to 4 years	13
5 to 9 years	12
10 to 14 years	7
More than 15 years	3

7. On what standard, if any, is your organisation's Service Management policy based?

ITIL	24
Six Sigma	2
TMF	0
Developed in-house	6
Not sure	4
Other (please specify)	1

8. Indicate how satisfied you are with your organisation's Service Management capabilities.

Very Satisfied	3
Mostly satisfied	17
Somewhat satisfied	7
Somewhat dissatisfied	7
Very dissatisfied	3

9. Indicate how important you regard the need to improve your organisation's Service Management capabilities.

Very Important	23
Rather Important	9
Somewhat Important	5
Not so Important	0
Not Important at all	0

10. Indicate the frequency that Service Management initiatives are unsuccessful in your organisation.

Always	1
Very Often	8
Sometimes	16
Rarely	10
Never	0

11. Indicate the extent to which each of the following contributes to unsuccessful Service Management initiatives.

- Poorly developed Service Management strategy

Extensive	14
Moderate	9
Sufficient	9
Limited	3
None	1

- Inadequate preparation

Extensive	10
Moderate	11
Sufficient	9
Limited	5
None	1

- Lack of planning

Extensive	15
Moderate	15
Sufficient	6
Limited	6
None	0

- Poor understanding of client requirements

Extensive	17
Moderate	11
Sufficient	5
Limited	4
None	0

- Poorly developed Service Agreements

Extensive	14
Moderate	11
Sufficient	7

Limited	4
None	0

- Lack of supporting processes

Extensive	16
Moderate	5
Sufficient	11
Limited	4
None	4

- Poor customer relationship management

Extensive	9
Moderate	17
Sufficient	9
Limited	2
None	0

- Poor communication

Extensive	15
Moderate	14
Sufficient	6
Limited	2
None	0

- Problems with reporting

Extensive	11
Moderate	10
Sufficient	9
Limited	6
None	0

12. Indicate the most significant barrier to implementing or improving Service Management.

Difficulty with Service Agreements	2
Lack of experienced staff	8
Lack of Service Management understanding	12
Difficulty with products and tools	5
Cost and time justification	4
Executive support	5
Customer relationship management	1

13. Indicate what you understand to be the most important part of a good Service Management program.

Good customer relationship management	5
Flexibility in the organisation and proactive change management	1
Proactive change management	3
Detailed understanding of client requirements	19
Continued delivery on services	1
Good communication	8

14. Indicate, as a service provider, how important you regard the appointment of a Service Level Manager for the success of a Service Management strategy.

Very Important	22
Rather important	11
Somewhat important	4
Not so important	0
Not important at all	0

15. Indicate, as a service provider, how important you regard the development of a catalogue of services for the success of a Service Management strategy.

Very Important	23
Rather important	10
Somewhat important	4
Not so important	0
Not important at all	0

16. Indicate how important, for individual Service Management projects, it is to identify a Service Management.

Very Important	14
Rather important	14
Somewhat important	9
Not so important	0
Not important at all	0

17. Indicate how important it is to understand and document a client's requirements before initiating a Service Management project.

Very Important	28
Rather important	9
Somewhat important	0
Not so important	0
Not important at all	0

18. Indicate how important it is for Service Management Staff to have the following skills:

- Project Management

Very Important	6
Rather important	13
Somewhat important	16
Not so important	1
Not important at all	0

- Communication Skills

Very Important	27
Rather important	7
Somewhat important	3
Not so important	0
Not important at all	0

- Customer Relationship Skills

Very Important	23
Rather important	10
Somewhat important	3
Not so important	1
Not important at all	0

- Time Management Skills

Very Important	13
Rather important	13
Somewhat important	8
Not so important	2
Not important at all	0

19. Indicate the extent of the project management skills of the staff involved in Service Management in your organisation.

Extensive	3
Moderate	13
Sufficient	14
Limited	7
None	0

20. Indicate the extent of the communication skills of the staff involved in Service Management in your organisation.

Extensive	7
Moderate	18
Sufficient	6
Limited	6
None	0

21. Indicate the extent of the customer relationship skills of the staff involved in Service Management in your organisation.

Extensive	8
Moderate	12
Sufficient	9
Limited	8
None	0

22. Indicate the extent of the time management skills of the staff involved in Service Management in your organisation.

Extensive	8
Moderate	9
Sufficient	10
Limited	10
None	0

23. Indicate how often has the presence of effective communication between Service Management stakeholders contributes to the success of a Service Management initiative.

Always	11
Very Often	16
Sometimes	6
Rarely	3
Never	0

Appendix B: Survey Questions

1. Demographics

Indicate the region in which you are currently employed

- Eastern Cape
 - Free State
 - Gauteng
 - KwaZulu Natal
 - Mpumalanga
 - Northern Cape
 - Limpopo
 - North West Province
 - Western Cape
 - Outside of South Africa
-

Indicate the industry sector in which you are currently employed

- Telecommunications Provider
 - ICT Service Provider
 - Computer Manufacturer
 - Government, Education or Non-Profit
 - Financial Services, Insurance or Legal
 - Retail or Wholesale
 - Energy or Mining
 - Manufacturing or Pharmaceuticals
 - Transportation
 - Healthcare
 - Other
-

Indicate which of these most closely represents your job title

- ICT Executive
 - ICT Director
 - ICT Manager
 - Network Administrator
 - Network or Systems Engineer
 - Other technical staff
 - ICT Consultant
 - Financial Consultant
 - Legal Consultant
 - Other
-

Indicate the number of years you have been involved in Service Management

- Less than 1 year
 - Between 1 and 4 years
 - Between 5 and 9 years
 - More than 10 years
-

Indicate the number of people employed by your organisation

- Less than 100
 - Between 100 and 499
 - Between 500 and 999
 - Between 1000 and 1999
 - More than 2000
-

Indicate the standard, if any, on which your organisation's Service Management policy is based.

- ITIL
 - Six Sigma
 - Developed in-house
 - Not sure
 - No service management policy in place
 - Other
-

2. Service Management

Indicate the extent to which your organisation's Service Management strategy is implemented.

- Fully implemented
 - Moderately implemented
 - Sufficiently implemented
 - Limited implementation
 - Not implemented
-

Indicate the length of time that your organisation has had an implemented Service Management strategy.

- No strategy in place
 - Less than 1 year
 - 1 to 4 years
 - 5 to 10 years
 - More than 10 years
-

Indicate how satisfied you are with Service Management within your organisation.

- Very satisfied
 - Mostly satisfied
 - Neither satisfied or dissatisfied
 - Mostly dissatisfied
 - Very dissatisfied
-

Indicate how frequently your organisation successfully maps services to the client's requirements.

- Always
 - Often
 - Sometimes
 - Rarely
 - Never
-

Indicate how often Service Management relationships between your organisation and your clients are terminated prematurely.

- Never
 - Rarely
 - Sometimes
 - Often
 - Always
-

Indicate how frequently Service Management contracts, that can be extended, are in fact extended.

- Always
 - Often
 - Sometimes
 - Rarely
 - Never
-

Indicate to which level your organisation's Service Manager reports.

- Executive Management
 - Senior Management
 - Middle Management
 - Junior Management
 - Not applicable
-

Indicate the level of competency (project, people, relationship management skills as well as communication, presentation and administrative skills) of the Service Managers employed by your organisation.

- Totally competent
 - Competent
 - Average
 - Incompetent
 - Totally incompetent
 - Not applicable
-

Indicate how up-to-date your organisation's Service Catalogue is.

- Totally up-to-date
 - Mostly up-to-date
 - Somewhat up-to-date
 - Mostly out-of-date
 - Totally out-of-date
 - We do not have a Service Catalogue
-

Indicate the extent of availability of your organisation's Service Catalogue.

- To all members of staff
 - To most members of staff
 - To some members of staff
 - To a few members of staff
 - To no members of staff
 - We do not have a Service Catalogue
-

Indicate how many of your organisation's services are contained in the Service Catalogue.

- All of the services
 - Most of the services
 - Some of the services
 - A few of the services
 - None of the services
 - We do not have a Service Catalogue
-

Indicate the frequency with which your organisation designates a service management team for individual service management projects.

- Always
 - Mostly
 - Sometimes
 - Rarely
 - Never
-

Indicate the frequency with which the service management team includes members from both the provider and the client organisation.

- Always
 - Mostly
 - Sometimes
 - Rarely
 - Never
-

Indicate the extent to which your organisation understands the client's requirements before attempting to manage their services.

- Fully understand
 - Moderate understanding
 - Sufficient understanding
 - Limited understanding
 - No understanding
-

Indicate the extent to which your organisation documents the client's requirements before attempting to manage their services.

- Fully documented
 - Moderately documented
 - Sufficiently documented
 - Limited documentation
 - Not documented
-

Indicate the extent to which the development of service agreements is viewed as an obstacle (taking up too much time, costing too much money, difficulty in reaching agreement or a drain on resources) to successful service management in your organisation.

- A major obstacle
 - An obstacle
 - Somewhat an obstacle
 - A minor obstacle
 - No obstacle
-

Indicate which of the services, as provided for by your organisation, are monitored in real-time.

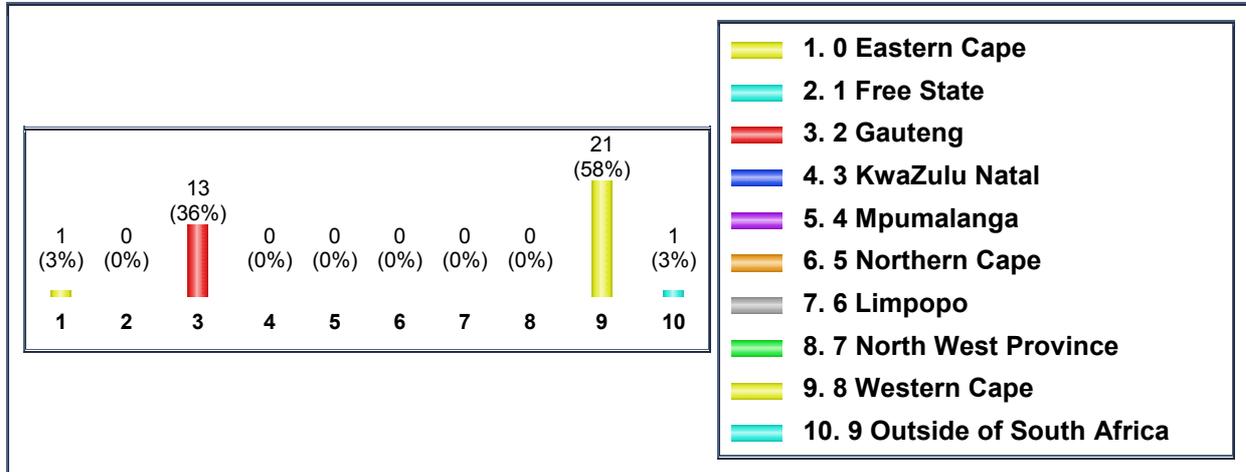
- All services
 - Most services
 - Some services
 - A few services
 - Too few services
 - No services
-

Indicate which of the service level reports, as provided by your organisation, are available to the client in real-time.

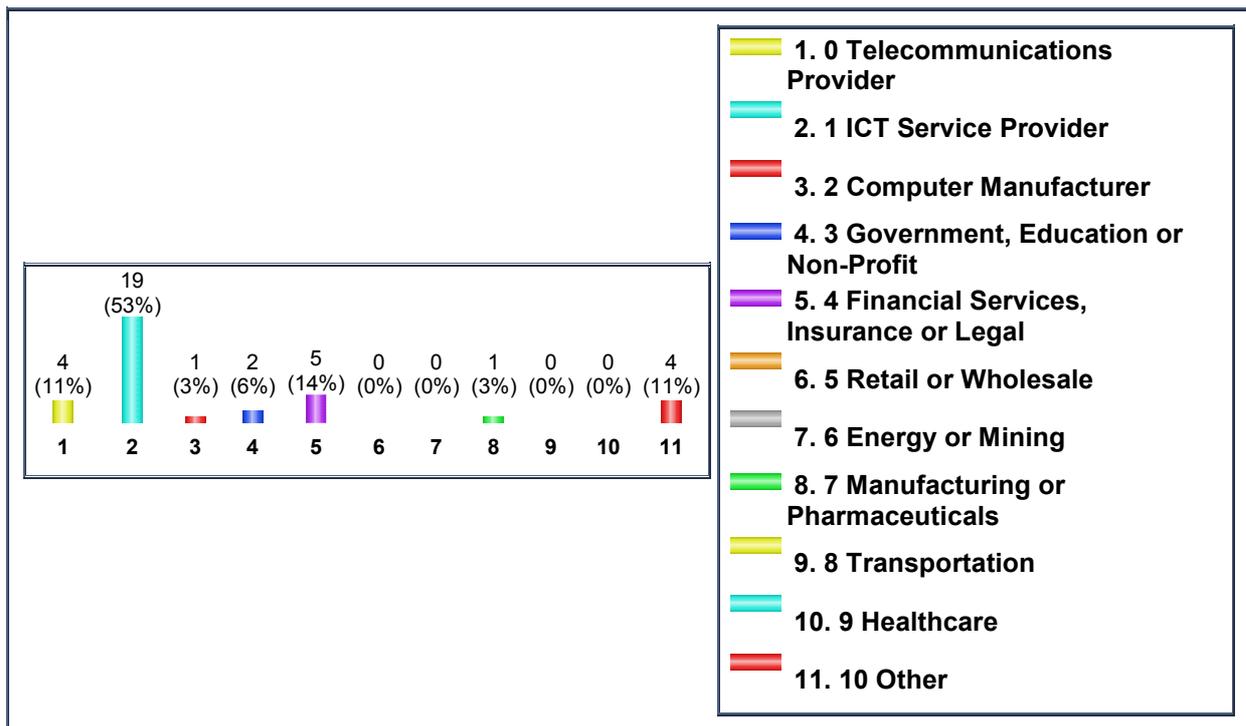
- All services
 - Most services
 - Some services
 - Too few services
 - No services
-

Appendix C: Results of the Empirical Study

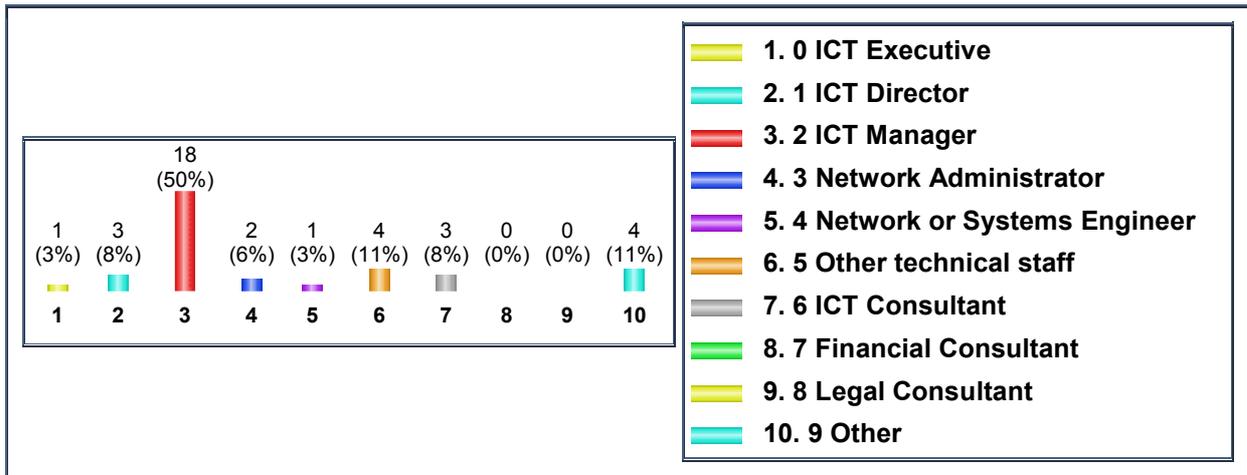
Indicate the region in which you are currently employed.



Indicate the industry sector in which you are currently employed.



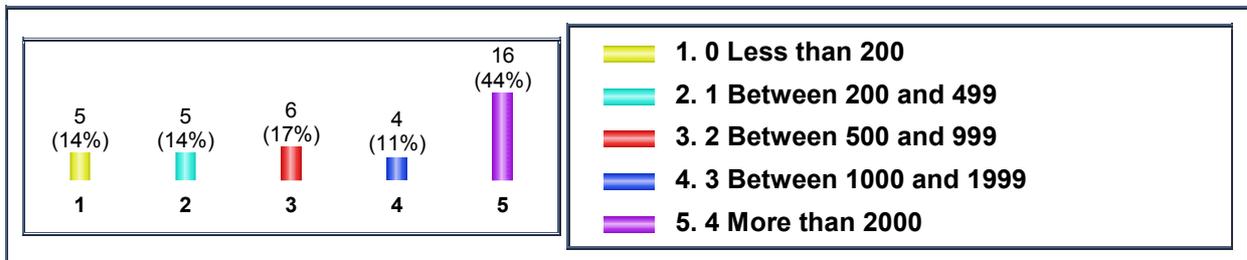
Indicate which of these most closely represents your job title.



Indicate the number of years you have been involved in Service Management.



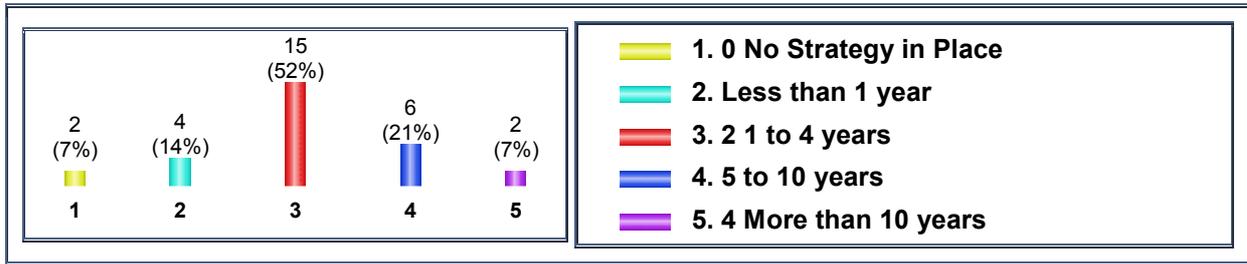
Indicate the number of people employed by your organisation.



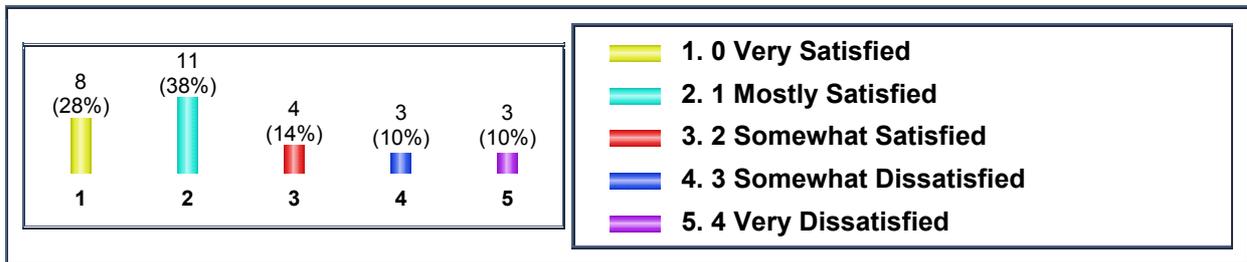
Indicate the extent to which your organisation's Service Management strategy is implemented.



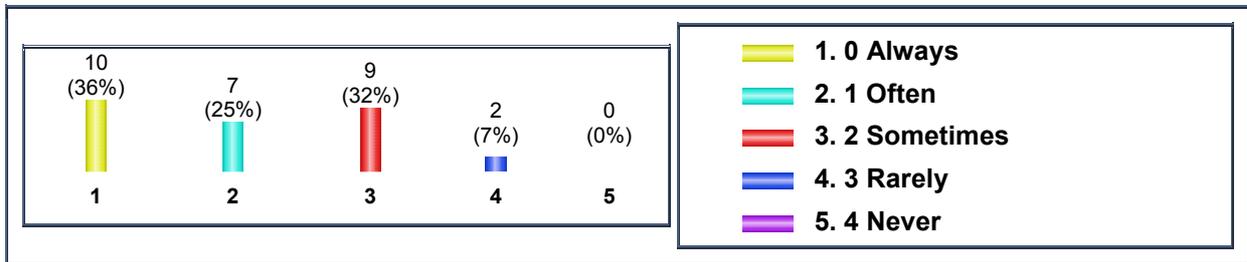
Indicate the length of time that your organisation has had an implemented Service Management strategy.



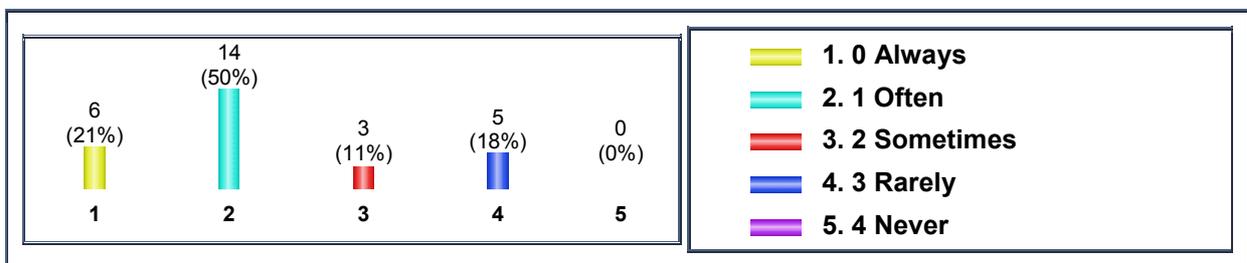
Indicate how satisfied you are with Service Management within your organisation.



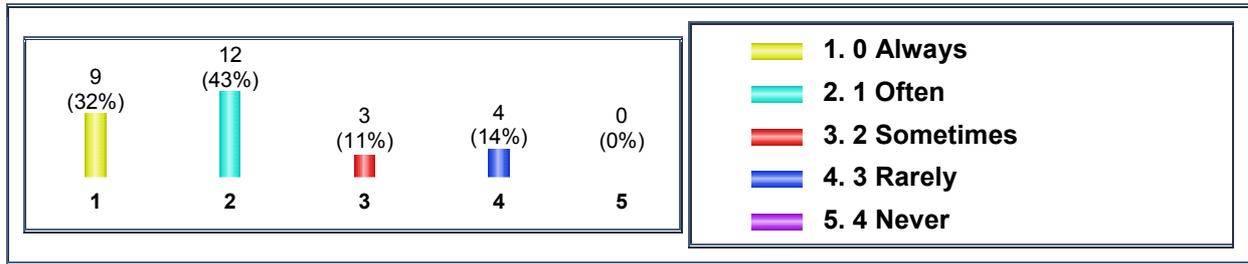
Indicate how frequently your organisation successfully maps services to the client's requirements.



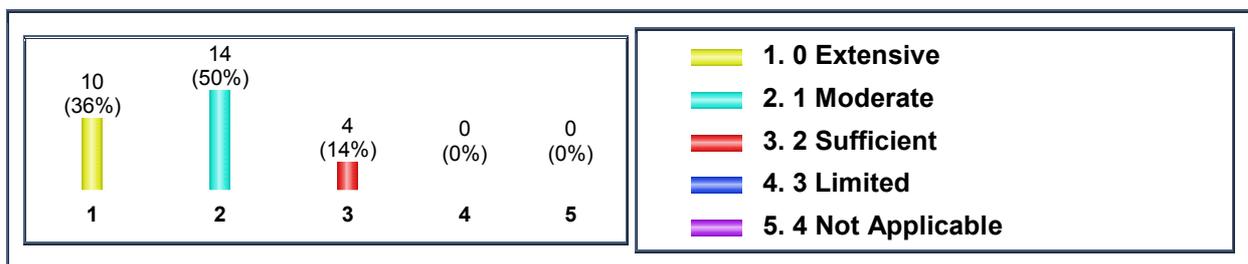
Indicate how often Service Management relationships between your organisation and your clients are terminated prematurely.



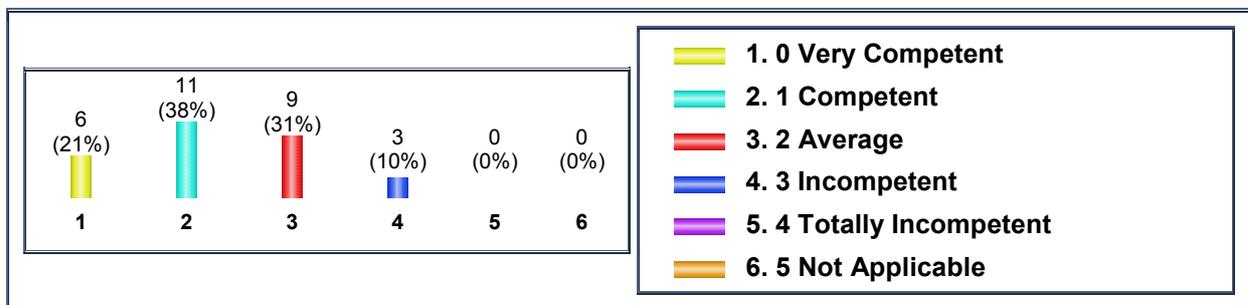
Indicate how frequently Service Management contracts, that can be extended, are in fact extended.



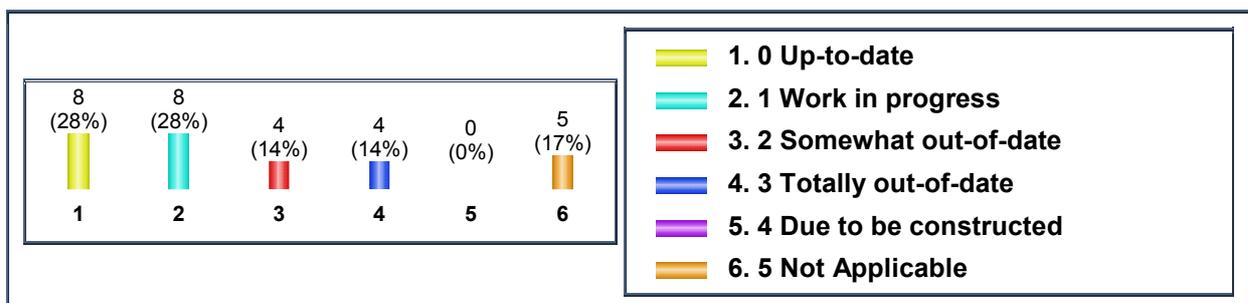
Indicate to which level your organisation's Service Manager reports.



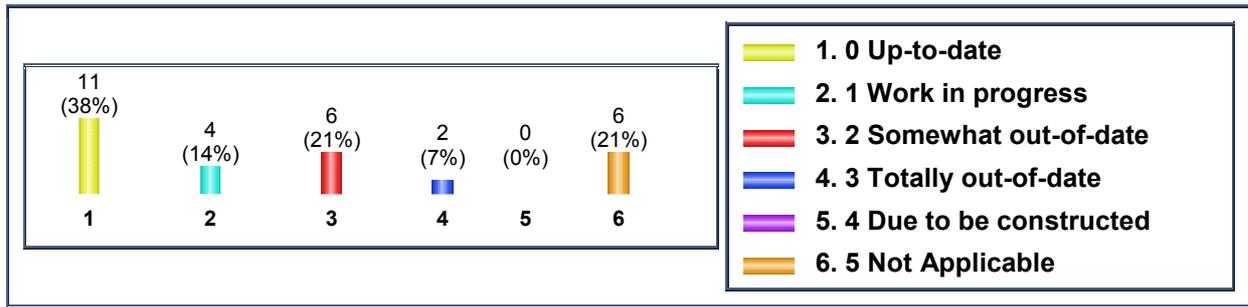
Indicate the level of competency (project, people and relationship management skills as well as communication, presentation and administrative skills) of the Service Managers employed by your organisation.



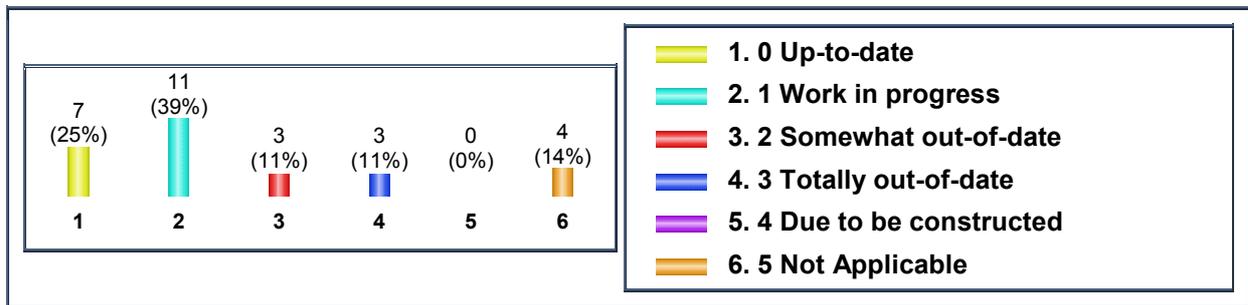
Indicate how up-to-date your organisation's Service Catalogue is.



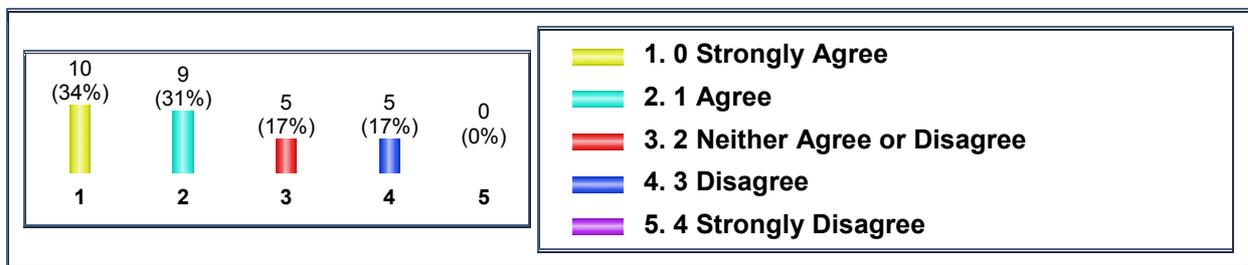
Indicate the extent of availability of your organisation's Service Catalogue.



Indicate how many of your organisation's services are contained in the Service Catalogue.



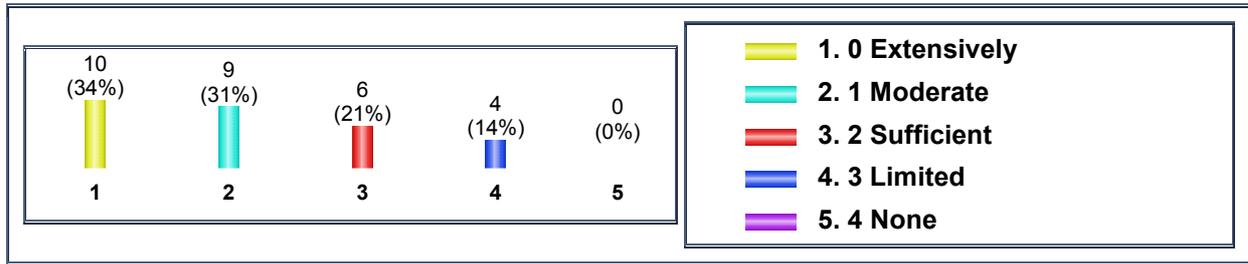
Indicate the frequency with which your organisation designates a Service Management team for individual Service Management projects.



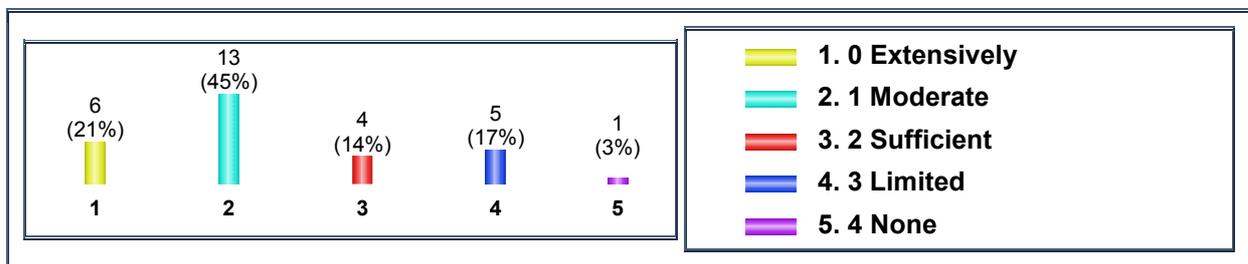
Indicate the frequency with which the Service Management team includes members from both the provider and the client organisations.



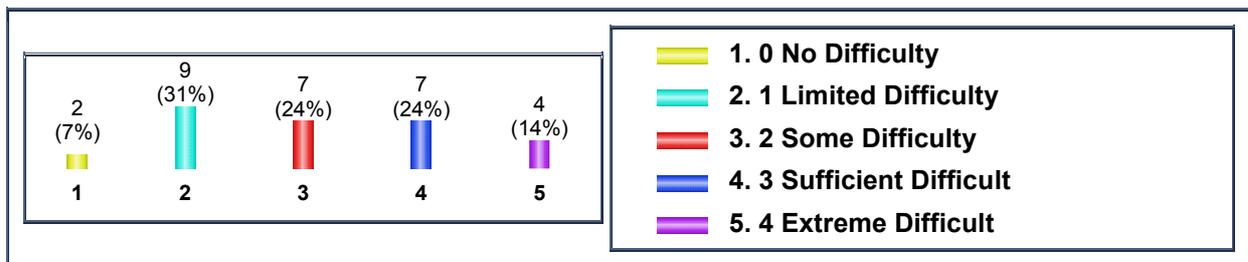
Indicate the extent to which your organisation understands the client's requirements before attempting to manage their services.



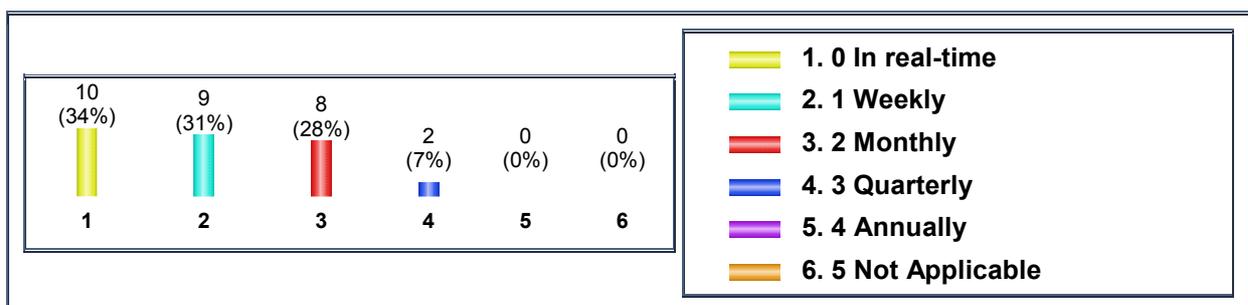
Indicate the extent to which your organisation documents the client's requirements before attempting to manage their services.



Indicate the extent to which the development of service agreements is viewed as an obstacle (taking up too much time, costing too much money, difficulty in reaching agreement or a drain on resources) to successful Service Management in your organisation.



Indicate which of the services, as provided for by your organisation, are monitored in real-time.



Indicate which of the service level reports, as provided by your organisation, are available to the client in real-time.

