Dimensions for evaluating Information Systems service quality expectations of e-Commerce SMMEs

by

Graham April

Dissertation submitted in partial fulfilment of the requirements for the degree

Magister Technologiae

in

Information Technology

in the

Faculty of Informatics and Design at the

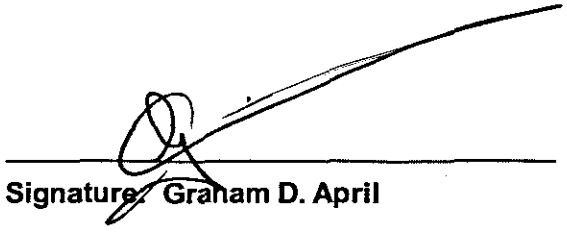
Cape Peninsula University of Technology

Supervisor: Dr. S. Pather

(e-Innovation Academy)

August 2007

I declare that **"Dimensions for evaluating Information Systems service quality expectations of e-Commerce SMMEs"** is my own work, that it has not been submitted before for any degree or assessment in any other university, and that all the sources I have used or quoted have been indicated and acknowledged by means of complete references.



Signature: Graham D. April

5 February 2008

Date

ACKNOWLEDGEMENTS

I wish to thank:

- My research supervisor, Dr. Shaun Pather, for his tremendous guidance, encouragement and continued support. In has been a long but rewarding journey.
- Corrie Strumpfer for her enthusiastic guidance and assistance in generating the statistical information for the research.
- My wife, Tania, for her loving support during my studies.
- The financial assistance of the National Research Foundation towards this research is hereby acknowledged. Opinions expressed in this dissertation and the conclusions arrived at, are those of the author and are not necessarily to be attributed to the National Research Foundation.

ABSTRACT

With growing investment in WWW technologies by e-Commerce businesses the measurement of Information Systems (IS) effectiveness in this area has become increasingly important over the last decade. As business users have become reliant on outsourced IS service providers for a wide range of services, the quality of service rendered by the latter is an important issue which impacts on IS effectiveness. Researchers have for many years recognised the importance of service quality as a measure of IS performance. Service quality measurement tools such as SERVQUAL from the marketing field, have been proven to be applicable to the IS domain. However, empirical studies in this regard are concentrated in the context of large, non- e-Commerce organisations only.

In South Africa, e-Commerce has been recognised as an important driver for growth in SMMEs. The literature suggests that IS service delivery to e-Commerce businesses needs to be evaluated differently to that of traditional brick-and-mortar businesses. There is however a paucity of research regarding IS evaluation in e-Commerce environments, including that of the application of service quality principles. It is thus difficult for managers of IS service providers in this context to develop a complete picture of the effectiveness of the IS they deliver. Furthermore, because e-Commerce SMMEs are almost wholly reliant on these service providers for the supply of IS and support, their service expectations could be different from those in traditional businesses.

The primary objective of this research was to investigate whether IS service quality criteria applied in large traditional businesses, are also applicable to SMME e-Commerce businesses. The applicability of a service quality measurement instrument, based on SERVQUAL, was tested in an e-

Commerce SMME context. Specifically, this instrument measures the service quality expectations that e-Commerce SMMEs have of IS service providers.

A SERVQUAL measurement scale from a recent MISQ paper was adapted and used to collect data concerning service quality expectations of e-Commerce SMMEs. Using a structured survey method, the research was delineated to e-Commerce enabled bed-and-breakfast and self-catering accommodation businesses in the Western Cape, South Africa.

The research results indicate that, although SERVQUAL principles were applicable to the e-Commerce SMME context, the service quality dimensionality was different. There are four derived dimensions for service quality expectations of e-Commerce SMMEs in this research, viz., Credibility, Expertise, Availability and Supportiveness. A fifth dimension is the Tangibles dimension, which is retained from SERVQUAL. Furthermore the results indicate that the Credibility was the most important dimension in this research context, while the Tangibles dimension was the least important.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

APPENDICES

GLOSSARY

Terms/Acronyms/Abbreviations	Definition/Explanation
ATM	Automatic Teller Machine
brick-and-mortar business	Traditional non- e-Commerce business
CFA	Confirmatory Factor Analysis
CRM	Customer Relationship Management
e-Commerce	Electronic Commerce
e-SQ	e-Commerce Service Quality
EFA	Exploratory Factor Analysis
EFT	Electronic Funds Transfer
EDI	Electronic Data Interchange
IOS	inter-organisational systems
IS	Information Systems
IT	Information Technology
PC	Personal Computer
PAF	Principal Axis Factoring
PCA	Principal Component Analysis
SME	Small and Medium Enterprises
SMME	Small, Micro and Medium Enterprises
SRM	Supplier Relationship Management
SQ	Service Quality
WWW	World Wide Web

CHAPTER 1
INTRODUCTION

> *"All research begins with a topic but a topic is only a starting point, that researchers must narrow into a focused research question."* (Neuman, 2003:142).

1.1 BACKGROUND TO THE RESEARCH PROBLEM

Organisations are investing in Information Systems (IS) to achieve specific objectives such as cost reduction and creating competitive advantage (Lomerson & Tuten, 2005). However, academic researchers have questioned the efficacy of IS management decisions and whether IS investments add value to organisations (DeLone & McLean, 2003; Lomerson & Tuten, 2005). IS investments result in substantial capital outlays (Seddon, Staples, Patnayakuni & Bowtell, 1999), and therefore research into IS effectiveness measurement has become critical to our understanding of the value of these investments (DeLone & McLean, 2002; Briggs, De Vreede, Nunamaker & Sprague, 2003; DeLone & McLean, 2003). In the current era this is especially important as substantial investments are being made especially in WWW technologies by e-Commerce businesses (Mahmood, Kohli & Devaraj, 2004).

Without reliable performance metrics, users and/or managers may overvalue IS investments, resulting in misguided decisions regarding acquisition, design and delivery of IS (Grover, Jeong & Segars, 1996a). This is further emphasised by Briggs *et al.* (2003), who assert that

> *"In order to succeed, managers need information so they can decide. They must decide so they can control. They must control so the organization can survive. A successful IS, therefore, must deliver timely, accurate, and complete information to decision-makers with a minimum of mental and economic cost."* (Briggs *et al.*, 2003:8).

Over the past 25 to 30 years researchers have developed several approaches to evaluating IS effectiveness, e.g. IS usage, user information

satisfaction (UIS), quality of decision making, productivity from cost/benefit analysis, and system quality (Grover *et. al.* 1996a). Another measure for evaluating IS effectiveness has been service quality, which was introduced to the IS literature in the 1990s, and is recognised as an important performance metric in the delivery of IS (e.g. Pitt, Watson & Kavan, 1995; DeLone & McLean, 2003; Kettinger & Lee, 2005). However, IS research in the area of service quality, has focused mainly on traditional brick-and-mortar businesses, and little empirical IS service quality research has been undertaken in an e-Commerce context (DeLone & McLean, 2004; Hong & Zhu, 2006).

In traditional brick-and-mortar businesses there is usually an IS department or IS function. Many authors have empirically researched IS service quality as a measure of the performance of the IS department within large businesses (e.g. Pitt *et al.*, 1995; Van Dyke, Kappelman & Prybutok, 1997; Pitt, Watson & Kavan, 1997; Kettinger & Lee, 1997; Watson, Pitt & Kavan, 1998; Kang & Bradley, 2002; Jiang, Klein & Carr, 2002; Bharati & Berg, 2003). However, an IS literature search revealed no empirical research which investigates the performance of IS service providers when servicing e-Commerce businesses as an outsourced function. The service quality research which does exist in an e-Commerce context focuses on the service link between the e-Commerce business and its end-customers i.e. the research has been based on the traditional Marketing perspective of service quality (refer to Figure 1.1 for a diagrammatic overview).

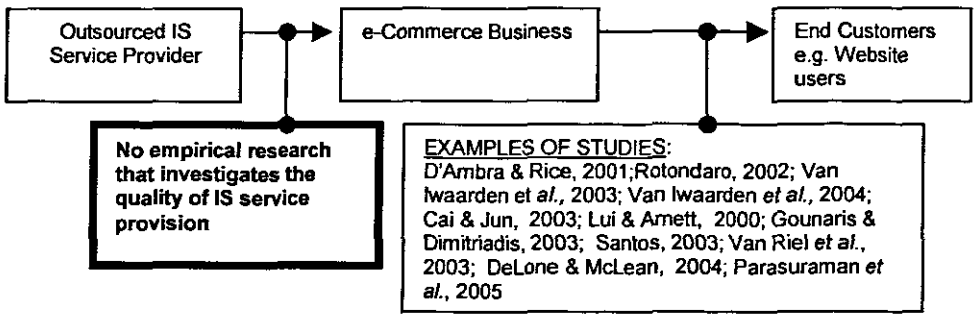


Figure 1.1: Service Quality empirical research in e-Commerce

The service configuration with external IS service providers, depicted in Figure 1.1, is particularly applicable to SMMEs, who generally outsource their IS functions to external service providers in order to access the necessary IS expertise (Al-Qirim & Bathula, 2002). The high reliance of these SMMEs on IS service providers implies that their service expectations could be different from that of user departments in large traditional businesses. Further understanding of these possible differences formed the basis of the research problem. Consequently, the context for this research is the service relationship between e-Commerce SMMEs and their external IS service providers.

1.2 SIGNIFICANCE OF THE RESEARCH

There are several authors who suggest that empirical service quality research in this specific context is required. Firstly, Molla and Licker (2001) suggest that further research is required to investigate whether IS effectiveness measurement in the e-Commerce context, should be approached differently to that of traditional IS. The literature also suggests that the application of e-Commerce in small businesses is different from that of large businesses (e.g. Lui & Arnett, 2000; Stansfield & Grant, 2003). SMMEs also generally outsource their IS functions to external IS service providers (Rohde, 2004), and the service quality delivered by these service

providers is considered to be a critical success factor for SMMEs (Kim *et. al.*, 2003). Together, all these factors suggest that empirical research of IS service quality in the context of e-Commerce SMMEs, would be a useful contribution to the IS effectiveness research field.

In South Africa the SMME sector has been identified as an area for sustainable economic growth (National Small Business Act, 1996). Also, the Electronic Communications and Transactions Act (Act No. 25 of 2002) specifically underscores the role of e-Commerce in the development of the South African economy and the SMME sector. The insights gained from this study into the improvement of IS service quality management, may contribute to the economic growth and sustainability of these sectors.

1.3 STATEMENT OF THE RESEARCH PROBLEM

It is critical that IS service providers provide quality service to e-Commerce SMMEs, so that these e-Commerce businesses are able to successfully achieve their business objectives. However, there is a lack of both research and practical guidelines for these IS service providers to evaluate the quality of service delivery to their clients.

1.4 RESEARCH QUESTIONS

What criteria can be used by IS service providers to evaluate the IS service quality expectations of their e-Commerce SMME clients?

Investigative questions:

1. Are the service quality dimensions for e-Commerce SMMEs different from those applied in large traditional organisations?
2. What is the ranking, in order of importance, of the service quality dimensions for the e-Commerce SMME context?
3. Are there any additional service quality criteria for this research context?
4. What recommendations can be made to IS service providers to improve delivery of service to e-Commerce SMMEs?

1.5 OBJECTIVES OF THE STUDY

a. To identify a set of service quality dimensions for the measurement of IS service quality expectations in the e-Commerce SMME sector.
b. To derive an instrument that measures service quality expectations in the e-Commerce SMME environment.
c. To provide recommendations to IS service providers regarding the improvement of service to their clients in the e-Commerce SMME sector.

1.6 DELINEATION OF THE STUDY

The research will be delineated to focus on businesses meeting the following criteria, viz., the study focuses on business that are

- e-Commerce enabled;
- operating within the tourism sector as a bed-and-breakfast or self-catering accommodation business;
- based in the Western Cape region of South Africa;
- in the SMME category.

1.7 OVERVIEW OF CHAPTERS

Chapter 1:
This chapter presents the background to the research problem and how the study fits into the IS effectiveness research field. It also introduces the significance of the research of IS service quality for the e-Commerce SMME sector. Finally, it describes the research questions, aims and objectives as well as how the research was delineated.

Chapter 2:
This chapter reports on the in-depth literature review for the study. The study is based on the IS effectiveness research field and therefore the base body of literature for this research is the IS effectiveness literature. Service quality as an IS effectiveness measure is the main focus of the study. This measure has

been recognised as an important performance measure of IS effectiveness. SERVQUAL, a service quality measuring instrument, developed in the marketing literature, was found to be applicable for the IS domain. The chapter reviews the SERVQUAL methodology, as well as issues concerning e-Commerce and SMMEs. The aim of this review is to support the empirical research in the subsequent chapters.

Chapter 3:
This chapter describes the research design and methodology used to attain the research objectives. The research methodology, viz., a survey research method, is described, entailing the process of designing and structuring a survey questionnaire, and its refinement through a process of piloting and reworking. The chapter also describes the process of deciding on the research population and sampling method. Finally, the main statistical methods used to answer the research questions are described.

Chapter 4:
This chapter describes the data analysis and its interpretation. This entails a report on the results of the statistical data analysis using in particular Exploratory and Confirmatory factor analytical techniques. The results are then interpreted particularly regarding the dimensionality of the service quality construct in the research context.

Chapter 5:
This chapter presents the conclusions and recommendations for the study. This entails a description of what conclusions can be made regarding the research problems, based on the data analysis and interpretations. It also presents a description of what recommendations can be made to the stakeholders, viz., e-Commerce SMMEs and their IS service providers. In addition, a description of what the limitations of the study were, and possible future research is presented?

1.8 DEFINITIONS AND CONCEPTS

Various definitions and concepts are used in this dissertation. In order to eliminate any discrepancy with regard to these concepts, the following definitions and descriptions of concepts apply:

1.8.1 SMMEs

Small, Medium and Micro Enterprises – as described in the National Small Business Act, 1996 (No. 102 of 1996), and the National Small Business Amendment Act, 2003 (No.26 of 2003). For example, SMMEs in the catering and accommodation sector satisfy the criteria as tabulated in Table 1.

Table 1.1: Excerpt from the National Small Business Amendment Act, 2003

Sector or sub- sectors in accordance with the Standard Industrial Classification	Size or class	Total full-time equivalent of paid employees	Total annual turnover	Total gross asset value (fixed property excluded)
Catering, Accommodation, and other trade	Medium Small Very small Micro	200 50 10 5	R13million R5million R1million R0.15million	R3million R1million R0.20million R0.10million

1.8.2 e-Commerce

For the purposes of this research, e-Commerce is defined as:

> *"An Internet based system, using e-mail and WWW applications, to perform business functions such as communications, advertising, payment-processing and customer service, between a business and its customers and/or business partners."*

1.8.3 IS service provider

A business that provides external IS services to other businesses, on an outsourcing basis.

1.8.4 Service Expectations

This is the measure of the service desires or wants of the customer.

1.8.5 Service Perceptions

This is the measure of the customers' perception of the actual service performance of the service provider.

1.8.6 Service Quality

This is the measure of the overall customer evaluations and judgments regarding the excellence and quality of service delivery by service providers. This is conceptualised in the marketing literature as the relative perceptual distance between customer expectations and evaluations of the service experiences.

1.8.7 IS service quality

The measure of the service quality delivered by IS service providers to its clients. Implicitly this offers a measure of the effectiveness of the IS delivered by the service provider.

1.8.8 e-Service quality

This is the measure of the service quality delivered by e-Commerce businesses to their clients. This is effectively the measure of the service quality on the interface between the e-Commerce website and the end-customer or user.

CHAPTER 2

LITERATURE REVIEW

"Reviewing the accumulated knowledge about a question is an essential early step in the research process... it is best to find out what is already known about a question before trying to answer it yourself." (Neuman, 2003:96).

2.1 INTRODUCTION

Neuman (2003) posits that the goals of a literature review are:

- To demonstrate a familiarity with a body of knowledge and establish credibility.
- To show the path of prior research and how a current project is linked to it.
- To integrate and summarise what is known in an area.
- To learn from others and stimulate new ideas.

(Neuman, 2003:96)

In this chapter, the extant literature that encompasses the central focus of the research, viz., service quality and its importance as a measure of IS effectiveness in an e-Commerce SMME context, is reviewed. Service quality however, has its roots in the marketing discipline. Therefore literature from both the IS and marketing domains are reviewed.

Firstly, the literature on general IS effectiveness measurement is reviewed, followed by the literature dealing with service quality measurement. The point of departure for this research will then be clarified with the review of the literature dealing with e-Commerce usage and adoption in SMMEs, as well as IS outsourcing in SMMEs.

2.2 IS EFFECTIVENESS RESEARCH

The measurement of IS effectiveness has been widely discussed in the IS literature, and has been a long standing concern for both academics and IS practitioners (Grover *et al.*, 1996a). IS effectiveness can be defined as the extent to which a system achieves the goals for which it was designed (Lui & Arnett, 2000). However, in today's competitive world, IS are also expected to contribute to achieving the organisation's mission, improve productivity and facilitate service delivery (Elpez & Fink, 2006). Thong and Yap (1996) offer the following theoretical, empirical and practical reasons for the importance of IS effectiveness research:

- Theoretically – "*all conceptualizations of the nature of IS have embedded in them notions of the nature of effective IS*";
- Empirically – "*IS effectiveness is the ultimate dependent variable in IS research*";
- Practically – "*practitioners are always faced with the need to evaluate effectiveness of IS in the organisation*".

(Thong & Yap, 1996:601)

Wilkin, Carr, and Hewett (2001:111) believe that effective organisations, in pursuance of organisational advancement, will try to evaluate IS effectiveness by linking performance measures to the following perspectives:

- Financial perspective;
- Internal business perspective;
- Customer perspective;
- Innovation and learning perspective.

However, researchers have had difficulty finding appropriate metrics to measure IS effectiveness (Pather, Remenyi & Erwin, 2004), and many researchers have resorted to surrogate measures (Elpez & Fink, 2006). From the multitude of IS effectiveness measures, Grover *et al.* (1996a:177) identified some of the more prominent measures used in the

literature, viz., IS usage, user information satisfaction, quality of decision making, productivity from cost-benefit analysis, and system quality. DeLone and McLean (1992) developed a framework for classifying the multitude of effectiveness measures into six categories. This research conducted by DeLone and McLean in 1992, is considered by some authors (e.g. Seddon & Kiew, 1996) to be groundbreaking work in IS effectiveness research.

DeLone and McLean's research brought about some structure to IS effectiveness research (Seddon & Kiew, 1996). They developed the DeLone and McLean (D&M) IS success model (depicted in Figure 2.1), which has been widely cited in the IS literature (e.g. Pitt *et al.*, 1995; Seddon *et al.*, 1999; Molla & Licker 2003). The model provides a comprehensive framework for measuring IS performance, and is regarded as "*a major breakthrough*" (Molla & Licker, 2001:133).

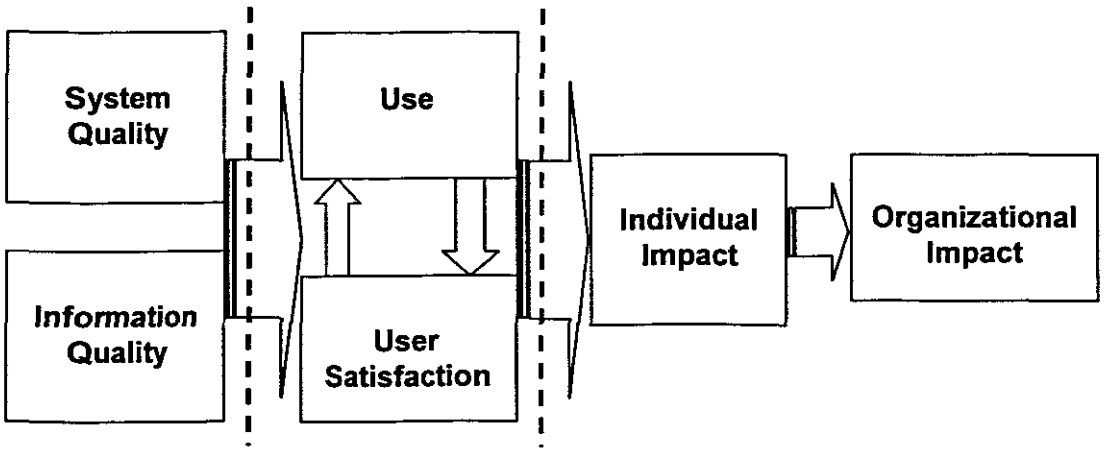


Figure 2.1: D&M IS Success Model (Source: DeLone & McLean, 1992)

DeLone and McLean (1992) recognised that much of the previous IS effectiveness research had focused on the independent variables of IS success. In their IS Success Model, DeLone and McLean (1992) qualified the dependant variable i.e. IS success or IS effectiveness. The model

does not only classify the multitude of IS effectiveness measures used in the literature, into six categories; but it also defines the interdependencies between these categories (Seddon & Kiew, 1996).

In a later paper the authors reviewed their model and described the primary goal of the D&M IS Success Model as the synthesis of previous IS effectiveness research "*into a more coherent body of knowledge and to provide guidance to future researchers*" (DeLone & McLean, 2003:10). The IS Success Model has been the subject of many studies that have attempted to validate, remodel or contextually re-specify it (e.g. Pitt *et al.*, 1995; Seddon *et al.*, 1999; Molla & Licker 2003). However, in a follow-up study DeLone and McLean found that many researchers overlooked the multidimensional nature of the model, and "*failed to study the interrelationship among, or control for, these dimensions*" (DeLone & McLean, 2002:3).

Ten years after the publication of their original IS Success Model, DeLone and McLean (2003) reviewed more than 100 journal articles dealing with IS success measurement. They subsequently revised their model, producing the "Updated DeLone and McLean IS Success Model" (DeLone & McLean, 2003, as depicted in Figure 2.2). Some of the revisions to the original model were based on suggestions and re-specifications from other researchers in the field.

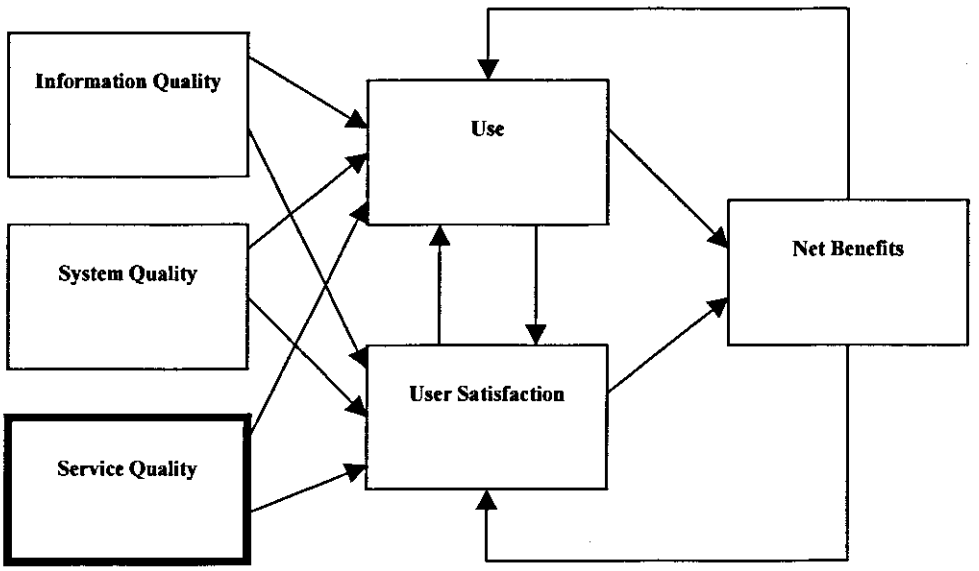


Figure 2.2: Updated D&M IS Success Model
(Source: DeLone & McLean, 2003)

The first important amendment to the IS success model concerned the service perspective. IS effectiveness researchers have shown bias towards a product perspective of evaluating effectiveness, while ignoring the service-base perspective (Whyte & Bytheway, 1996; Lomerson & Tuten, 2005). An exception has been Pitt *et al.* (1995), whose research was the basis for DeLone and McLean (2003) adding the "Service Quality" measure to their updated model (refer to the highlighted box in Figure 2.2). Pitt *et al.* (1995) believed that the prominence of the service based dimension had increased since the advent of the personal computer (PC). They assert that the PC had resulted in more IS users interacting with the IS department more often. Wilkin *et al.* (2001) offered two ways of interpreting how service applies to the IS function. Firstly, an IS can be seen to be more than just a technical product, it can also generate value from its "*capacity to serve the needs of its end-users/stakeholders*" (Wilkin *et al.*, 2001:113). Thus the whole system provides service to the stakeholders by serving their needs and providing pertinent information.

The second view of service deals with the service or support delivered by the IS department or external service providers. Pitt *et al.* (1995:173) give the following examples of support tasks that IS users expect the IS department to assist them with:

- Hardware and software selection;
- Installations;
- Problem resolution;
- Connection to LANs;
- Systems development;
- Software education.

Pitt *et al.* (1995) posit that service quality is a significant measure of IS effectiveness and as such proposed that the original D&M IS Success Model be augmented with the "Service Quality" measure. They asserted that:

> *"there is a danger that IS researchers will mismeasure IS effectiveness if they do not include in their assessment package a measure of IS service quality"* (Pitt *et al.* 1995:173).

DeLone and McLean (2003) added the service quality measure to their updated model as recommended by Pitt *et al.* (1995). They argued that although "Service Quality" could be seen to be a subset of the "System Quality" measure, that *"the changes in the role of IS over the last decade argue for a separate variable"* (DeLone & McLean, 2003:18). They also emphasise that this is true particularly for the e-Commerce environment where customer service is crucial (DeLone & McLean, 2003).

A second important amendment to the IS success model was based on research conducted by Seddon *et al.* (1999). They emphasised the need to consider the stakeholder when measuring IS effectiveness. They criticised the original D&M IS Success Model for not recognising that

> *"different stakeholders in an organization may validly come to different conclusions about the success of the same information system"* (Seddon *et al.*, 1999:4).

This stakeholder perspective has also been emphasised by other authors in the literature e.g. Grover *et al.* (1996a); Wilkin *et al.* (2001); Briggs *et al.* (2003); Elpez and Fink (2006). Examples of how different stakeholders could view IS success are:

- **Developers** – System completed on time, under budget and with a complete set of features that are consistent with specifications and that function correctly.
- **Innovators** – System that attracts a large, loyal and growing community of users.
- **Management** – System that reduces uncertainty of outcomes to lower risk, and leverages scarce resources.
- **User** – System that improves job performance without inflicting undue annoyance. (Briggs *et al.*, 2003)

DeLone and McLean (2003) partially incorporated the stakeholder perspective into their updated model. They did this by collapsing the "Individual Impacts" and "Organisational Impacts" into a single variable "Net Benefits" (compare Figure 2.1 and Figure 2.2). This is in keeping with the parsimonious nature of the model. The authors emphasise that the researcher needs to specify the level of analysis and the stakeholder of the "Net Benefit" when using the updated model.

Seddon *et al.* (1999) however, were more explicit in their differentiation across different stakeholders. They defined a stakeholder as a

> *"person or group in whose interest the evaluation of IS success is being performed"* (Seddon *et al.*, 1999:5).

They described the following stakeholders or interest group:

- The **independent observer** who is not involved as a stakeholder.
- The **individual** who wants to be better off

- The **group**, which also wants to be better off
- The **managers/owners** who want the organisation to be better off
- The **country** which wants the society as a whole to be better off.

(Seddon *et al.*, 1999:6)

Seddon *et al.* (1999) developed a two dimensional matrix of the main IS success measures with the first dimension being the stakeholder, and the second dimension the type of system being used. The matrix was tested by using it to classify IS effectiveness measures from 186 empirical papers in three major IS journals over a nine year period (Seddon *et al.*, 1999).

Seddon *et al.* (1999) supported the findings of Pitt *et al.* (1995) that "Service Quality" was an important IS effectiveness measure. Seddon *et al.* (1999) however took it a step further by suggesting that when an Individual is the stakeholder of an IS function, that "Service Quality" is the most important IS effectiveness measure.

2.3 SERVICE QUALITY AS AN IS PERFORMANCE MEASURE

Whyte and Bytheway (1996:75) assert that the service perspective of IS effectiveness measurement, considers the "*softer issues*" in dealing with user problems and concerns, as well as addressing the users' emotional and aspiration needs. These issues are particularly appropriate to the Marketing field. Thus service quality research from the Marketing literature has been used as a point of departure for most IS service quality research. In the Marketing literature the authors Parasuraman, Zeithaml and Berry (1985, 1988, 1991, 1993, 1994a, 1994b) have been influential in this regard.

Parasuraman *et al.* (1985) developed a conceptual Gap model of service quality in which they describe four service gaps on the marketers' side

and one gap (Gap 5) on the customer side (depicted in Figure 2.3). Subsequently they developed a survey measuring instrument for Gap 5 which they called "SERVQUAL" (Parasuraman *et al.*, 1988; 1991; 1993; 1994a; 1994b). This instrument measured service quality from the customers' perspective, measuring the gap (G) between the customers' expected service (E) and perceived service (P) levels i.e. G = P – E. If G is positive then the service exceeds the customers' expectations (generally desirable). But if G is negative then the service falls short of what the customer expected (undesirable).

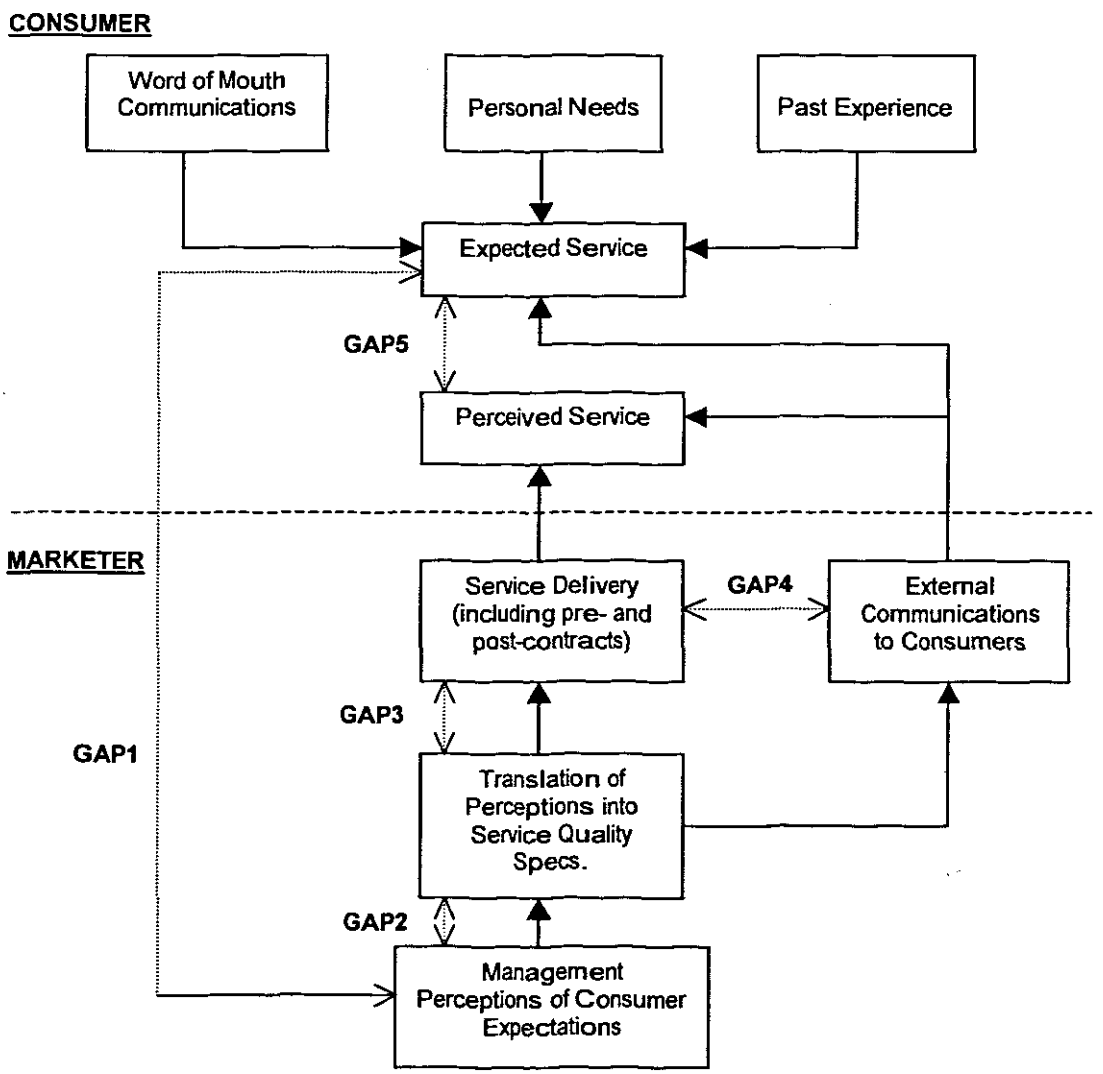


Figure 2.3: Service Quality Model [GAP model]
(Source: Parasuraman *et al.*, 1985)

The SERVQUAL survey scale comprises of five service quality dimensions, viz., Reliability, Responsiveness, Assurance, Empathy and Tangibles, for which there is a total of twenty-two items. Table 2.1 describes these service quality dimensions. SERVQUAL, according to Parasuraman *et al.* (1991:445), is a

> "*diagnostic methodology for uncovering broad areas of a company's service quality shortfalls and strengths*" (Parasuraman *et al.*, 1991:445).

Table 2.1: Description of the SERVQUAL Dimensions (Source: Parasuraman *et al.*, 1988)

Dimension	Dimension Meaning and Attributes
Reliability	Ability to perform the promised service dependably and accurately
Responsiveness	Willingness to help customers and provide prompt service.
Assurance	Knowledge and courtesy of employees and their ability to inspire trust and confidence.
Empathy	Caring, individualised attention the firm provides its customers.
Tangibles	Physical facilities, equipment, and appearance of personnel.

However, SERVQUAL has had its detractors in the marketing literature. Notably Cronin and Taylor (1994), who critiqued the use of the "*perception-minus-expectations*" (P-E) measure in favour of a "*perception-only*" measure. They called their perception-only measuring instrument SERVPERF. Parasuraman *et al.* (1994a) refuted many of these concerns, and defended the managerial diagnostic capability of SERVQUAL over SERVPERF.

Parasuraman *et al.* (1988:31) believed that the SERVQUAL instrument could be "*adapted or supplemented to fit the characteristics or specific research needs of a particular organisation*". Pather *et al.* (2004) having conducted an extensive literature review in this area, found that Kim

(1990) was one of the first IS researchers to introduce the service quality perspective to IS user satisfaction research. The appropriateness of the SERVQUAL instrument, for the IS domain, was subsequently researched in the IS literature by authors interested in measuring user satisfaction of the IS department.

These authors included Watson, Pitt, Cunningham and Nel (1993) who proposed a Gap model (depicted in Figure 2.4) for the measurement of service quality in the IS domain. This model is based on the Parasuraman *et al.* (1985) gap model (depicted in Figure2.3). Watson *et al.* (1993) also proposed that the SERVQUAL scale could be adapted to measure IS service quality, as a surrogate measure for user satisfaction. Pitt *et al.* (1995) empirically tested the use of the SERVQUAL scale across three IS organisational types. They concluded that the

> "*study provides evidence that practitioners can, with considerable confidence, use SERVQUAL as a measure of IS success*" (Pitt *et al.*, 1995:182).

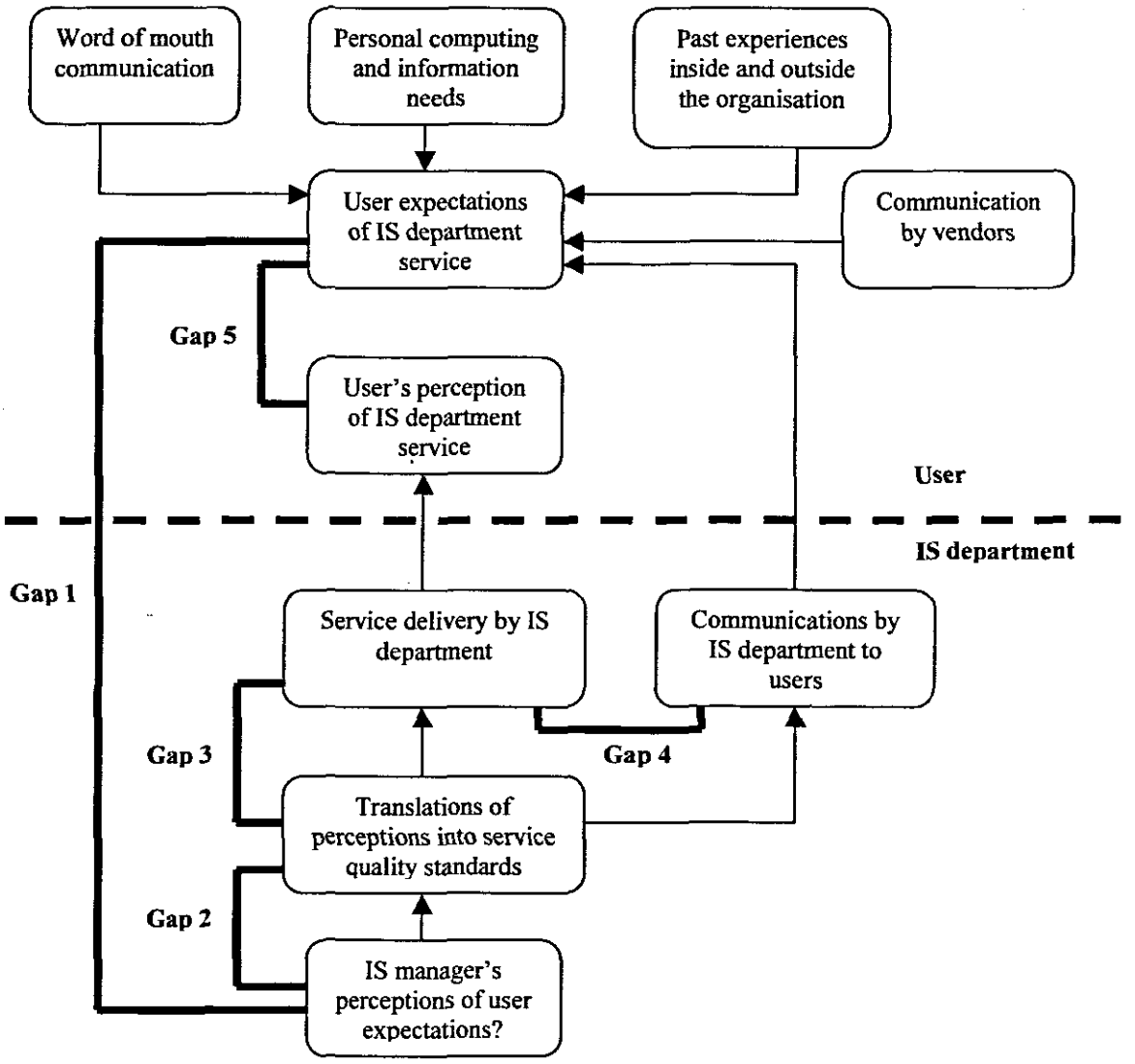


Figure 2.4: The Gaps model and the IS department-user interface. (Source: Watson *et al.*, 1993)

However, van Dyke *et al.* (1997) challenged the assessment of Pitt *et al.* (1995), and questioned the validity and usefulness of SERVQUAL in the IS domain. In particular they raised the debate (as in the marketing literature) about the (P-E) approach as opposed to the "perception-only" approach, as advocated by Cronin and Taylor (1994). In response to this critique, Pitt *et al.* (1997) criticised van Dyke *et al.* (1997) for using arguments without empirical backing and for not offering viable alternatives. They re-iterated that the developers of SERVQUAL used rigorous empirical research in their development of the model. However,

they did concede, as did Parasuraman *et al.* (1994a), that the *"perception-only"* measurement has marginally better predictive and convergent validity. In spite of this, they still advocated the use of (P-E), because it provided better managerial diagnostics.

Kettinger and Lee (1997) in extending the debate agreed with the counter-arguments of Pitt *et al.* (1997). Kettinger and Lee (1997) adapted the twenty-two-item SERVQUAL instrument for the IS environment, which they condensed to a thirteen item scale after empirically testing it in the IS domain. They called this derived thirteen item scale IS-SERVQUAL, which had nine of the original SERVQUAL items omitted and only four dimensions (the Tangibles dimension was omitted). This derived scale was subsequently used in IS empirical studies by Kang and Bradley (2002), and Park and Kim (2005).

Kettinger and Lee (1997) added to the discourse concerning (P-E) by pointing out that Parasuraman *et al.* (1994b), in their refinement of the SERVQUAL scale, introduced the concept of the "zone of tolerance" (ZOT). This allows for the multi-level nature of the user expectation measure. The ZOT is the difference in user expectation between what the user considers an adequate level and that of a desired level of service. In a recent paper Kettinger and Lee (2005) again used the IS adapted twenty-two-item SERVQUAL scale to empirically test the ZOT concept in the IS domain. They derived an 18 Item scale across four dimensions. Unlike in the previous IS-SERVQUAL scale, the Tangibles dimension was retained, however the Assurance and Empathy dimensions merged to form a new dimension which the authors relabelled "Rapport". The rationale for the label name was that

> *"the construct items focus on an IS service provider's ability to convey a rapport of knowledgeable, caring, and courteous support"* (Kettinger & Lee, 2005:612).

Thus the dimensions for the eighteen item scale, which the authors called IS-ZOT-SERVQUAL, are Reliability, Responsiveness, Rapport and Tangibles. Both the Kettinger and Lee (1997, 2005) studies were conducted within large brick-and-mortar businesses, with in-house IS departments.

Kang and Bradley (2002) also considered the multi-level nature of user expectation to be an important consideration. They proposed a conceptual Gap model (based on the Gap model of Parasuraman *et al.*, 1985), which incorporated the acceptable and ideal levels of user expectation (depicted in Figure 2.5). The authors assert that the major difference from the original Gap model is the acknowledgement in the new model that IS customers are aware of limitations imposed on IS suppliers due to the personnel, technology and other organisational factors. Kang and Bradley (2002) then empirically tested SERVQUAL in a university IS department. They concluded that

> *"when used with caution, the SERVQUAL measures, especially the three-column-format SERVQUAL, can be an effective measure of IT service quality"* (Kang & Bradley, 2002:161).

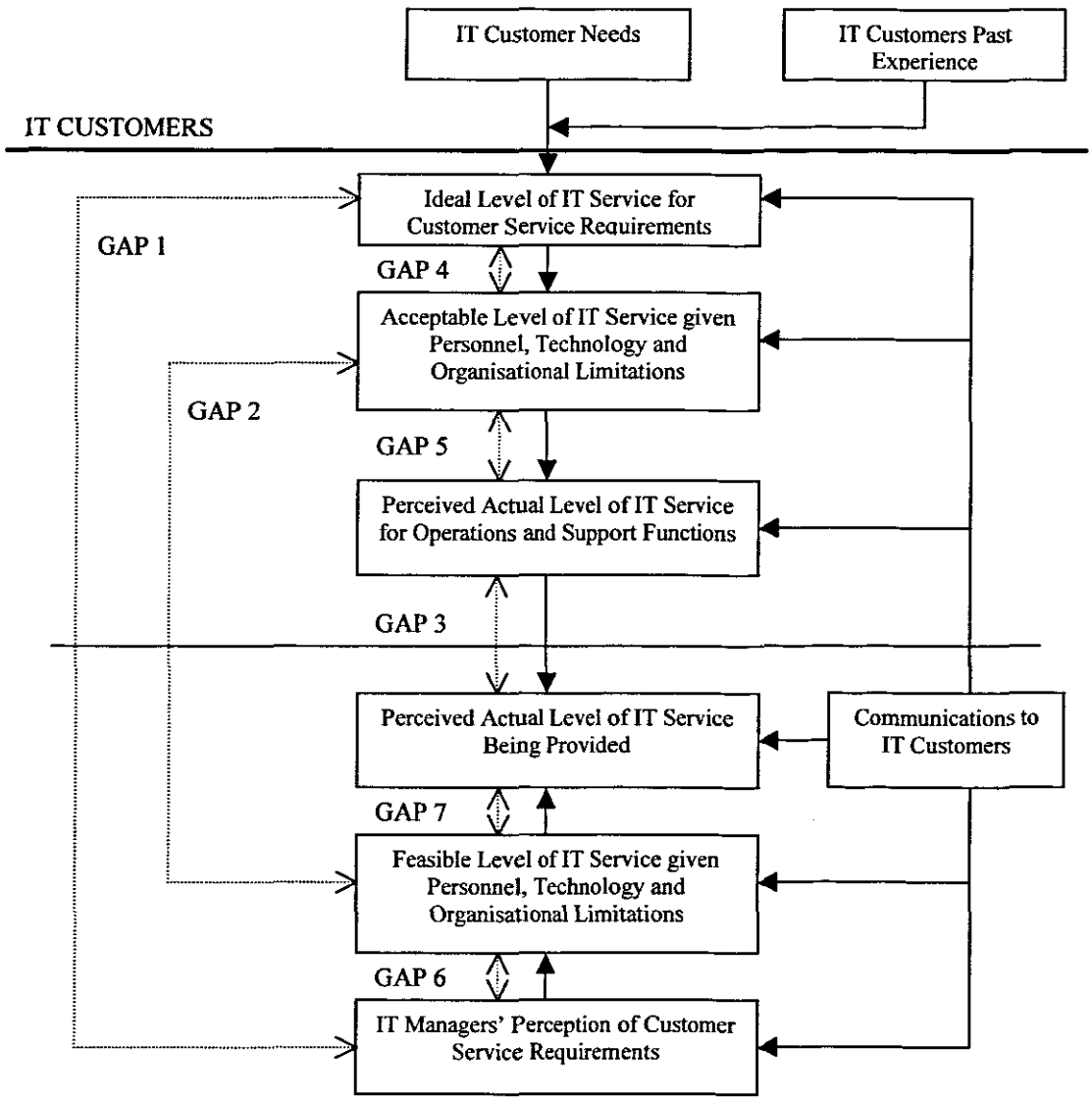


Figure 2.5: The Conceptual model of IT service quality (Source: Kang & Bradley, 2002)

Jiang *et al.* (2002) also provided further empirical support for the validity and reliability of SERVQUAL in the measurement of IS service quality. They researched SERVQUAL from the IS professionals point of view. Bharati and Berg (2003) also researched service quality from the IS professionals viewpoint. They proposed and empirically validated a model to test the effect of the IS system on service quality. They use the SERVQUAL scale items, but conducted a perception-only-measurement.

Another empirical study of IS service quality, was conducted by Watson *et al.* (1998). These authors conducted a longitudinal study of two different companies. They conducted three measurements of service quality, using SERVQUAL, between 1992 and 1995. They found that there was an improvement between the first and second measurements in both companies, but that the service quality decreased in the third measurement. They offered managerial insights and advice, and concluded that

> "*IS units need to examine how they can increase the quality of their service so that through better service they increase their clients' productivity and consequently that of the organisation*" (Watson *et al.*, 1998:62).

This assertion is shared by Wilkin and Castleman (2003), who view quality as the main determinant of IS effectiveness. The authors re-specified the D&M IS Success model, in which quality was the key element to the effectiveness of the delivered IS (this is depicted in Figure 2.6).

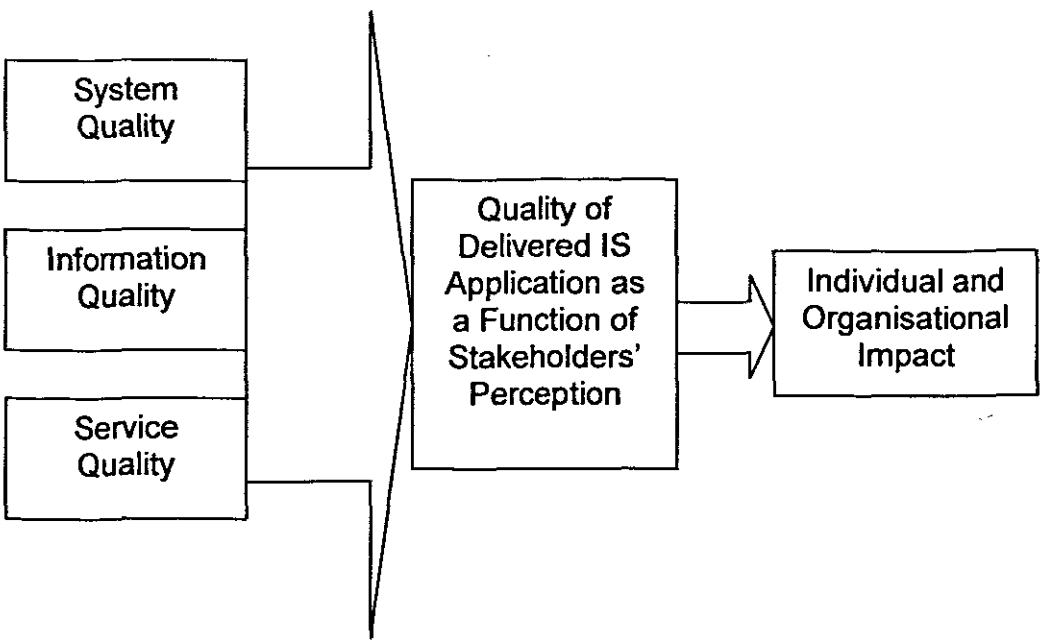


Figure 2.6: Wilkin and Castleman re-specification of D&M IS Success Model (Source: Wilkin & Castleman, 2003)

Wilkin & Castleman (2003), in their five year study, developed an IS-quality measurement instrument based on the re-specified IS Success model, calling it QUALIT. They used the five dimensions of SERVQUAL (Reliability, Responsiveness, Assurance, Empathy and Tangibles) as a starting point for their measurement instrument. The authors empirically tested these dimensions for system, information and service quality for user-stakeholders. Using an iterative series of three IS focus groups, interviews and judgment panels; they developed the final version of QUALIT that had different dimensions from the original SERVQUAL dimensions for all three quality elements. This iterative development is depicted in Table 2.2.

Table 2.2: Wilkin and Castleman QUALIT dimensions
(Source: Wilkin & Castleman, 2003)

Component	QUALIT Version One	QUALIT Version Two	QUALIT Version Three
System Quality	Tangibles		Functionality
	Reliability	Reliability	Integration
	Responsiveness	Responsiveness	Usability
	Assurance	Assurance	Reliability
	Empathy	Empathy	Security
Information Quality	Tangibles		Accuracy
	Reliability	Reliability	Availability
	Responsiveness	Responsiveness	Relevance
	Assurance	Assurance	Presentation
	Empathy	Empathy	Promptness
Service Quality	**Tangibles**		**Expertise**
	Reliability	Reliability	**Credibility**
	Responsiveness	Responsiveness	**Availability**
	Assurance	Assurance	**Responsiveness**
	Empathy	Empathy	**Supportiveness**

QUALIT is thus a multi-item instrument for measuring the quality (System, Information and Service) of the delivered IS. The important aspect that the Wilkin and Castleman (2003) study raises for this research concerns the dimensions for the "Service Quality" component in QUALIT. Except for the responsiveness dimension, the new dimensions (expertise, credibility, availability, responsiveness, supportiveness) are different from the original SERVQUAL dimensions. This further motivates for the empirical testing of the SERVQUAL dimensions in the research context for this study.

2.4 THE IMPORTANCE OF CUSTOMER EXPECTATIONS IN SERVICE QUALITY EVALUATION

Before concluding the service quality literature review it may be useful to re-examine the concept of "Expectation" as this is the focus of the research in this dissertation.

Parasuraman *et al.* (1985) in their original SERVQUAL model described service quality as the gap measurement between the customers' expected and perceived service levels. They thus defined service quality as the customers' subjective assessment of whether the service received is as they expected (Parasuraman *et al.*, 1985). For this they were heavily criticised by Cronin and Taylor (1994) who argued that the expectation measure was not needed, and that measuring the customers' perceptions of service was a sufficient measure of service quality.

However, according to the disconfirmation theory in the marketing literature, satisfaction is determined by the discrepancy between perceived performance and cognitive standards such as expectations and desires (Khalifa & Liu, 2003). Wilkin *et al.* (2001) articulate this differently by stating that expectations occur at two levels i.e. predictive expectations, and desires. The authors make the following distinction; predictive expectations "*relate to something that will happen and hence are linked to satisfaction*", while desires relate to expectations of an ideal or "*something*

that should happen and hence are linked to evaluation of quality" (Wilkin *et al.*, 2001:118).

From the literature it is not clear whether expectations or desires provide a better explanation of satisfaction. Khalifa and Liu (2003) argue that the relative importance of these two determinants varies across different stages of adoption. They believe that the role of desires diminishes as the customer becomes more familiar with the object of evaluation. In a later paper, they argue that this is especially applicable to Internet-based services, which are characterised by novelty elements that hinder the formation of accurate expectations at the initial stage of adoption (Khalifa & Liu, 2004).

Gupta, McDaniel and Herath (2005) believe that SERVQUAL is superior to many other perception-only based tools, because it focuses on an understanding of customer expectations. But Gupta *et al.* (2005), assert that understanding customer expectations is not easy, because customers often do not really know what they want, or do not say directly what they want. Gupta *et al.* (2005) advocate the use of an instrument such as SERVQUAL to capture the functional aspects of service quality.

The SERVQUAL scale has also been used in expectation-only measurement of service quality. Khan (2003) developed an expectation-only instrument, based on SERVQUAL, to measure the service expectations of customers in the eco-tourism sector. She called this instrument ECOSERV, which was subsequently used in a study by Khan and Su (2003) to empirically measure the customer expectations of eco-tourism in Korea.

Staples, Wonga and Seddon (2002) suggests that users should be involved in the IS development process so that they may form realistic expectations. They assert that

> *"managing expectations is an important consideration for successfully implementing a new information system"* (Staples *et al.*, 2002:126).

Individuals with a higher level of prior experience, and greater familiarity with the subject of evaluation may be more confident about the realisation of their expectations (Khalifa & Liu, 2003). However, users who hold unrealistically high pre-implementation expectations about a system are less likely to be satisfied (Staples *et al.*, 2002).

Lastly, meeting or exceeding customer expectations is considered to be a critical success factor for the e-Commerce environment (Lee, Chi-wai Kwok & Huynh, 2003).

2.5 E-COMMERCE

The literature review thus far has highlighted that IS service quality research has focused mainly on large traditional brick-and-mortar businesses. However, the focus of this study is e-Commerce. Thus it is prudent at this point to review the literature detailing the history and characteristics of e-Commerce businesses. Additionally the literature dealing with the service quality in e-Commerce and the adoption of e-Commerce in SMMEs are reviewed.

2.5.1 Definition of e-Commerce

There are a wide variety of e-Commerce definitions and conceptualizations in the literature. For example:

> *"any application of Web technologies that enable revenue generating business activities over the internet"* (Hong & Zhu 2006:205).

> *"the buying and selling of goods and services on the Internet"* and which *"provides the ability to perform transactions involving the*

> *exchange of goods or services between two or more parties using electronic tools and techniques*" (Simpson & Docherty, 2004:315).
>
> "*any form of business transaction in which the parties interact electronically rather than by physical exchanges or direct physical contact*" (Aldin, Brehmer & Johansson, 2004:45).

Molla and Licker (2001) assert that in any definition of e-Commerce, it is necessary to identify four basic dimensions:

- **the nature of the network archetype** *(e.g. Internet, Intranet and Extranet)*
- **the application solutions** *(e.g. e-mail, WWW, CRM, SRM, EDI, e-wallet, Auction and EFT)*
- **the business functions performed or supported** *(e.g. Communications, Production, Advertising, Distribution, Selling, Buying, Payment Processing, Delivery, Customer Service and Human Resource)*
- **the parties involved in the electronic relationships** *(e.g. supplier, producer, intermediary, consumer and government)*

(Molla & Licker, 2001:132)

Based on these four dimensions the most appropriate definition of an e-Commerce system for this research is:

An Internet based system, using e-mail and WWW applications, to perform business functions such as communications, advertising, payment-processing and customer service, between a business and its customers and/or business partners.

2.5.2 History of e-Commerce

E-Commerce has been in existence since 1965, when consumers could withdraw money from Automatic Teller Machines (ATMs), and make purchases using point of sale terminals and credit cards (Molla & Licker, 2001). This was followed by systems which allowed the transfer of information across organisational boundaries. These systems were called inter-organisational systems (IOS), and were acclaimed as a means by which technology could improve business processes (Hughes, Golden & Powell, 2003). Before the deployment of Internet-based technologies in the early 1990s, enterprises that conducted e-Commerce used "*almost exclusively a closed and standardized form of computer-to-computer communication known as "electronic data interchange*" (EDI) (Molla & Licker, 2001:131). However, despite its business advantages many organisations, especially small businesses, did not adopt EDI (Hughes *et al.*, 2003). The World Wide Web has only been in existence since 1995, but within two years of its introduction to business, "*more SMEs had adopted it than had adopted EDI in the previous 20 years*" (Hughes *et al.*, 2003:277).

During the 1990s there was a major shift in focus regarding the sources of competitive advantage, and the Internet became an area of high priority (Aldin *et al.*, 2004). E-Commerce attracted the interest of many after the commercialisation of the Internet and especially the advancement of the World Wide Web (WWW) and its business applications (Molla & Licker, 2001). Therefore in the evolution of e-Commerce, it is possible to differentiate between "*traditional e-Commerce*" and "*Internet based e-Commerce*" (Molla & Licker, 2001:132). The advent of Internet e-Commerce resulted in the formation of thousands of companies that sold goods and services over the Internet (Van Iwaarden, Van der Wiele, Ball & Millen, 2003). Some authors called this period of growth "*the new economy*" (Aldin *et al.*, 2004:44).

2.5.3 Characteristics of e-Commerce

An e-Commerce system can be viewed as an IS that enables organisations to capture, process and present information, to support customer and business decision making (Molla & Licker, 2001). Its value is not derived from the Internet technologies, but rather from how the technology allows the organisation to better understand its clients, the needs of the supply chain, and the costs and benefits of its activities (Schlenker & Crocker, 2003). The e-Commerce system also enables organisations to market their products and services online and provide services which their customers can perform themselves without direct human assistance (Lee *et al.*, 2003). Thus, e-Commerce has not only transformed the business operation but also the relationship between the business and its customers (Lee *et al.*, 2003).

Van Iwaarden *et al.* (2003:920) also believe that e-Commerce offers more than just another marketing channel, and give the following advantages compared to brick-and-mortar businesses:

- Customer retention is easier online than in traditional bricks-and-mortar companies and costs three to five times less;
- The Internet can play an important role in enhancing brand relationships and corporate reputations.

Briggs *et al.* (2003:8) posit that the Internet is *"perhaps the most successful IS since the advent of the written word"*. However, there has been little empirical research of IS effectiveness in an e-Commerce context (Hong & Zhu, 2006). Molla and Licker (2001) suggest that further investigation is required into whether traditional IS effectiveness models could be extended to investigating e-Commerce effectiveness. They attempted to re-specify the DeLone and McLean model of IS Success for the e-Commerce context. DeLone and McLean (2004) however, argued that although e-Commerce has introduced new business models, the fundamental role of the IS has not changed. Thus they suggest that the

methodology for measuring the success of e-Commerce should be the same as in traditional IS. They assert that the Updated DeLone and McLean IS Success Model (depicted in Figure 2.2) is as applicable to e-Commerce as it is to traditional IS. DeLone & McLean (2004) attempted to demonstrate how the updated model could be applied to e-Commerce. However, they do not provide any empirical evidence to support the claims in their study.

E-Commerce companies, like any business, still have to offer excellent service on the Web as a means of garnering customer satisfaction (Van Iwaarden *et al.*, 2003). DeLone and McLean (2003) considered the service quality measure of IS effectiveness to be especially important in the e-Commerce environment. However, in a later paper DeLone and McLean (2004) noted that there was a lack of IS research addressing service quality in the e-Commerce context.

2.5.4 e-Service quality

Despite the lack of empirical service quality research of e-Commerce in the IS domain, e-Commerce service quality has been extensively researched in the marketing and quality domain. This research has focused on the service interaction between the end customer and the e-Commerce website (Zeithaml, 2002).

Zeithaml (2002) defines e-Commerce service quality (e-SQ)

> *"as the extent to which a website facilitates efficient and effective shopping, purchasing and delivery"* (Zeithaml, 2002:135).

Quality service is something that customer's expect and value (Shim, Shin & Nottingham, 2002). In e-Commerce, as in traditional business, providing high quality service enhances customer loyalty, thereby heightening the customers' intention to do more business with the

company and to recommend the company to other customers (Gefen, 2002).

Zeithaml (2002) reports that the authors Parasuraman, Zeithaml and Malhotra, who had conducted extensive service quality research in the area of traditional business, have also conducted research in the e-Commerce environment. They found that customer evaluative criteria for e-SQ existed at various levels. These ranged from

> *"concrete cues (e.g. one-click ordering) to perceptual attributes (e.g. perceived checkout speed) to broader dimensions (e.g. efficiency) to higher-order abstractions (e.g. convenience and control)"* (Zeithaml, 2002:136).

Parasuraman, Zeithaml and Malhotra (2005) used the same rigorous methodology, used in the development of the SERVQUAL instrument for brick-and-mortar business, to develop a multi-item scale for measuring the service quality delivered by online shopping websites. Their research revealed that two different scales were necessary for measuring e-SQ, viz., a core scale and a recovery scale. The core scale is used to measure e-SQ under normal conditions, and they termed this the E-S-QUAL scale. The recovery scale is only used for customers who have had *"nonroutine encounters"* or problems with the website, and the authors termed this the E-RecS-QUAL scale.

The core E-S-QUAL scale is a twenty-two-item scale of four dimensions:

- Efficiency
- Fulfilment
- System availability
- Privacy

The recovery E-RecS-QUAL scale is a eleven item scale of three dimensions:

- Responsiveness
- Compensation
- Contact

(Parasuraman *et al.*, 2005)

Other authors had different approaches to e-SQ measurement. Barnes and Vidgen (2002) for example focused more on website quality measurement. They developed WebQual which is an instrument for measuring and assessing the quality of websites. WebQual was developed iteratively through applications in various business models, including Internet bookstores and Internet auction sites. Barnes and Vidgen (2002) identified three dimensions of e-Commerce website quality: website usability, information quality and service interaction quality. They drew from studies that focused on each of these three dimensions, to develop WebQual as a "*rounded framework for assessing e-Commerce offerings*" (Barnes & Vidgen, 2002:114).

Madu and Madu (2002) also investigated the dimensionality of e-SQ. They synthesised the product quality and service quality literature to identify fifteen e-SQ dimensions: Performance, Features, Structure, Aesthetics, Reliability, Storage capability, Serviceability, Security and System Integrity, Trust, Responsiveness, Product/Service differentiation and customization, Web store policies, Reputation, Assurance and Empathy.

Lee and Lin (2005) modified the SERVQUAL model for the online shopping context, and empirically tested it in Taiwan. They identified five e-SQ dimensions that affect overall website service quality and customer satisfaction: Website design, Reliability, Responsiveness, Trust and Personalisation. They concluded that online stores could "*devote valuable corporate resources to the important e-service quality attributes*" which they identified in their study (Lee & Lin, 2005:172).

Van Iwaarden, Van der Wiele, Ball and Millen (2004) undertook a survey to identify the quality aspects perceived to be most important in the design and use of websites. They then compared their results with the

SERVQUAL dimensions used in the service sector for brick-and-mortar environments. They concluded that the

> *"quality dimensions found applicable in the service sector are also applicable to websites"* (Van Iwaarden *et al.*, 2004:947).

In the IS literature DeLone and McLean (2004) attempted to demonstrate how the Updated D&M IS Success Model (depicted in Figure 2.2) can be used in an e-Commerce context. They re-iterate the fact that this model is context and stakeholder dependant. The authors use two examples to demonstrate, that for a specific context/stakeholder for which the desired "Net Benefits" can be determined; that the dimensionality of the other measures can also be determined. DeLone and McLean (2004) emphasise that it is necessary to examine the service-quality research in the marketing literature, for success measures that make sense in the e-Commerce environment. As examples they offer "Responsiveness" and "Technical Competence" as possible service quality dimensions

Cao, Zhang and Seydel (2005) developed a framework for the evaluation of e-Commerce website quality. This framework is based on the Technology Acceptance Model (TAM), SERVQUAL, and the D&M IS success model. The framework regarded the service quality measure as the overall support delivered by the website. The main service quality dimensions identified in the Cao *et al.* (2005) framework are Trust and Empathy, implying that websites need to be secure and personalised.

In one of the few empirical studies in the IS literature on e-SQ, Lui and Arnett (2000) researched e-Commerce effectiveness factors in large businesses. They found that website effectiveness in e-Commerce was related to four dimensions: information and service quality, system use, playfulness, and system design quality. However, they suggest that e-Commerce usage in small businesses is different from that of large businesses, and cautioned against the use of their findings for SMMEs.

2.5.5 e-Commerce adoption in SMMEs

The suggestion by Lui and Arnett (2000) that e-Commerce usage is different between small and large businesses is reiterated by Jones, Hecker and Holland (2003). These authors assert that despite the potential benefits of e-Commerce to small businesses, there is not enough research dealing with the effective implementation of e-Commerce in SMMEs. This is despite the fact that with e-Commerce, SMMEs have access to the same global market places as large companies (Stansfield & Grant, 2003).

Jeffcoate, Chappell and Feindt (2002) also believe that SMMEs are failing to exploit e-Commerce, because they are given little guidance in relation to their particular circumstances and characteristics.

Some of the distinctive characteristics of the SMME sector, as viewed by Schlenker and Crocker (2003), are:

- The primary purpose of SMMEs is not to maximise revenues, but rather to generate an income for the owner.
- The vast majority of SMMEs are not a source of economic growth in terms of the employment or turnover.
- Most SMMEs do not possess several of the core businesses processes associated with large companies.
- Many SMMEs are characterised by rigid hierarchical forms of leadership, and decisions are often based on the owner's intuition rather than on the basis of market data gathered by the organisation.

(Schlenker & Crocker, 2003:10)

The authors assert that the reason for the failure of e-Commerce to provide small companies with business value, has to do with the nature of SMMEs. This is because SMMEs are

> "*more at ease with developing new products or new services than changing the way they conduct business*" (Schlenker & Crocker, 2003:15).

However, in contrast to this Subba Rao and Metts (2003) report that SMMEs around the world are embracing e-Commerce and are investing increasing amounts in this area. But they also emphasise that SMMEs are not using e-Commerce to its full potential due to certain barriers. The authors propose a Stage-Model for e-Commerce development which addresses the facilitators and barriers for SMMEs at the different stages of development (depicted in Figure 2.7).

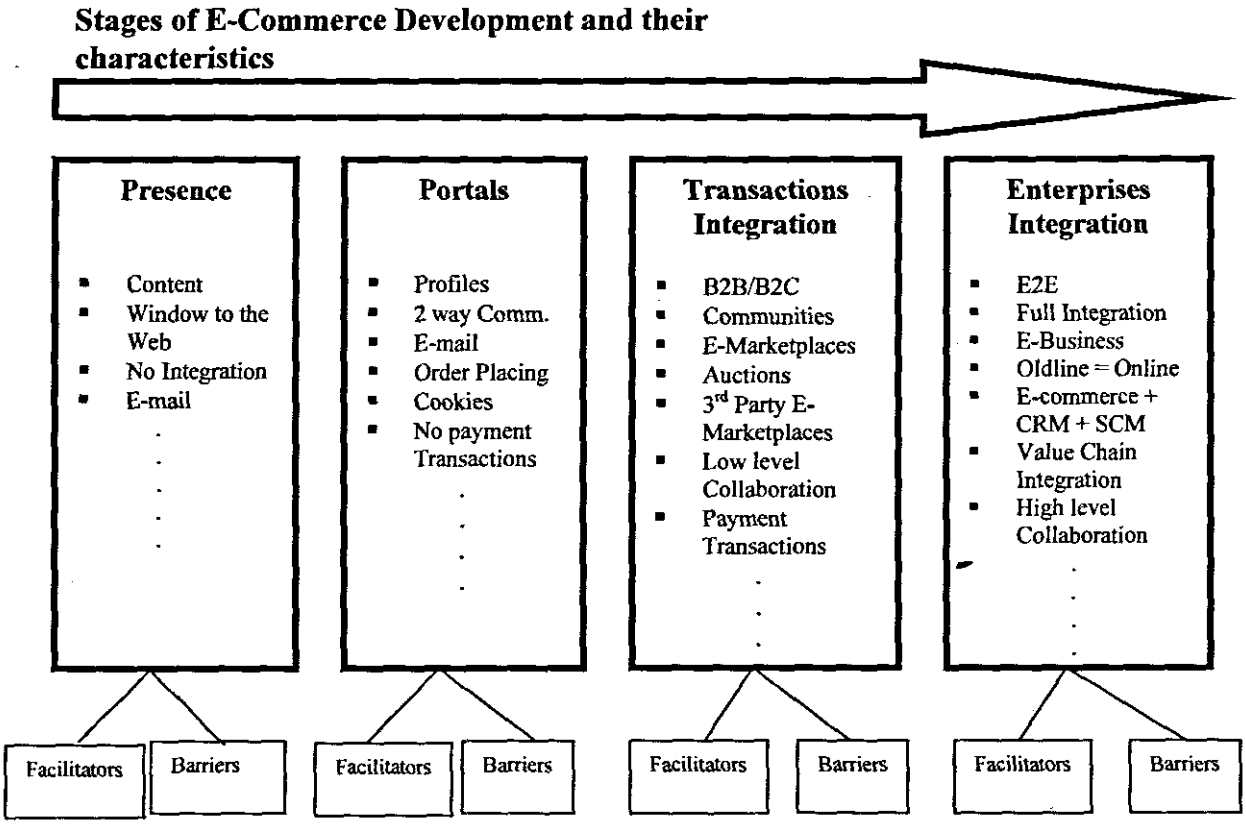


Figure 2.7: Stages of e-Commerce Development (Source: Subba Rao & Metts, 2003)

Table 2.3 summarises the facilitators and barriers at the different development stages, as viewed by Subba Rao and Metts (2003). Most of the barriers are external threats to development such as government policies, legal environment and telecommunication technology. While the facilitator factors are more within the control of the company and will depend on the company's strategic planning process (Subba Rao and Metts, 2003).

Table 2.3: Summary of Barriers and Facilitators for the Subba Rao & Metts (2003) e-Commerce Stage model

FACILITATORS	BARRIERS
Presence Stage	
Management Commitment, content, price flexibility and competitive access costs for users.	Internal technological resistance, lack of management acceptance, lack of financial investment, inhibitive telecommunications.
Portals Stage	
Internal organisational changes, investment and usability	Development of B2B interfaces, cultural and/or language issues.
Transactions Integration	
Ability to extend IT technology, acquiring internal IT competencies, B2B partnerships, e-Commerce community development, competitive payment systems	Financial systems, government tax & trade policies, security & privacy, government contractual and legal environments, treatment of intellectual property.
Enterprises Integration	
Internal staff competencies, business process integration and control, back office integration	Technology availability, technology diffusion regionally and globally, international standards for trade and transaction processing, development of e-Markets, and network complexity.

Not all researchers of SMME e-Commerce adoption agree with a stage model approach as proposed by Subba Rao & Metts (2003). Mendo and Fitzgerald (2005) for example, suggest that such an approach is inadequate as a model to describe the actual adoption of Internet technologies by SMMEs. They studied the evolution of websites over time to gain insight into the actual evolving strategies and motivations behind Internet investments. Their conclusion was that there was no predetermined end point, as described in the staged models. Instead their study revealed that change is a reaction to external demands, institutional variables, and the particular environment faced by the firm.

Jones *et al.* (2003) also introduced a stage model, but viewed SMME e-Commerce adoption more from a marketing perspective. The authors believe that market orientation is the main driver for e-Commerce adoption in SMMEs. This entails, collecting and analysing information on customers and competitors in order to understand and create and appropriate e-Commerce strategy (Jones *et al.*, 2003).

Despite the limitations of a stage model approach to e-Commerce adoption, Davis and Vladica (2006) posit, that because the approach introduces concepts of evolution, technological trajectories, and technology packages

> "*stage models provide a potentially valuable framework for understanding the dynamics of technological change*" (Davis & Vladica, 2006:2).

2.6 INFORMATION SYSTEMS OUTSOURCING

Another distinctive characteristic of SMMEs, is that many of them do not have designated IS departments and are less likely to have internal IS skills (Rohde, 2004). Many SMMEs therefore outsource the IS functions to external IS vendors in order to access the necessary IS expertise (Al-Qirim & Bathula, 2002).

Dahlberg and Nyrhinen (2006) define IS outsourcing as

> *"a conscious decision to contract out to an external service provider IS activities, processes and/or related services, which are necessary to the operation of the organization. Outsourcing has specified objectives and the goal of the outsourcing transaction(s) is to achieve these objectives"* (Dahlberg & Nyrhinen, 2006:2).

According to Rohde (2004), SMMEs outsource many of the IS related functions through necessity, and the outsourcing decisions are made on an ad-hoc basis rather than as part of a longer term strategic plan.

An empirical study by Park and Kim (2005) found that IS

> *"outsourcing seems to provide better service with lower costs in the early stages, but that, over the long-term, service quality was degraded and management disregarded"* (Park & Kim, 2005:271).

It is thus important for managers of IS service providers to consistently monitor their performance against the expectations of their clients.

Kim, Cheon, Beugre and Coverdale (2003) as well as Kim, Choen and Aiken (2005) conducted studies to explore the relationship between the service quality of service providers and the effect of IS outsourcing on the outsourcing company. They found that

> *"service quality of an outsourcing vendor is one of the essential elements that an outsourcing company should consider for its contract"* (Kim *et al.*, 2003:528).

They used the SERVQUAL survey instrument, and found that "Tangibles" was the most important service quality dimension that an IS outsourcing service provider should provide in service delivery. Items in the "Tangibles" dimension include the IS service provider having the latest hardware and software and the best equipment for the service. The IS service provider should also have clean and visually appealing offices, and their staff should look professional and be knowledgeable (Kim *et al.*, 2005).

These studies by Kim *et al.* (2003; 2005) contradict the findings of Kettinger and Lee (1997) who found that the SERVQUAL tangibles dimension should be dropped for the IS SERVQUAL scale. However Kettinger and Lee (1997) empirically tested SERVQUAL using an IS department inside an organisation. They concluded that in such a context the users were less concerned about the appearance of the IT staff within their own organisation. But Kim *et al.* (2003; 2005) found that when it came to an outsourcing relationship that the "Tangibles" criteria was critical.

Dahlberg and Nyrhinen (2006) in their research of IS outsourcing, developed an instrument to measure the success of IS outsourcing. Their study was based on the work of Grover, Choen and Teng (1996b), but provided an updated and recent measuring instrument. The instrument measures the strategic, economic, technological and social benefits of IS outsourcing. However they assert that

> *"more detailed instruments should be used for more detailed analysis. For example, the SERVQUAL instrument modified to the IS context could be used to analyze service quality at a more detailed level"* (Dahlberg and Nyrhinen, 2006:9).

However the above empirical studies do not consider SMMEs. De Guinea, Kelley and Hunter (2005:58) found that

> *"there is a lack of recent empirical studies investigating consultant and vendor support among small businesses and, therefore, there is a need for current research on the topic"* (De Guinea *et al.*, 2005:58).

This is one of the issues that this study will address with empirical research in the SMME sector.

2.7 CONCLUSION

This chapter reviewed the extant literature dealing with IS effectiveness, service quality, e-Commerce, SMMEs, and IS outsourcing. Figure 2.8 illustrates the framework for the literature review.

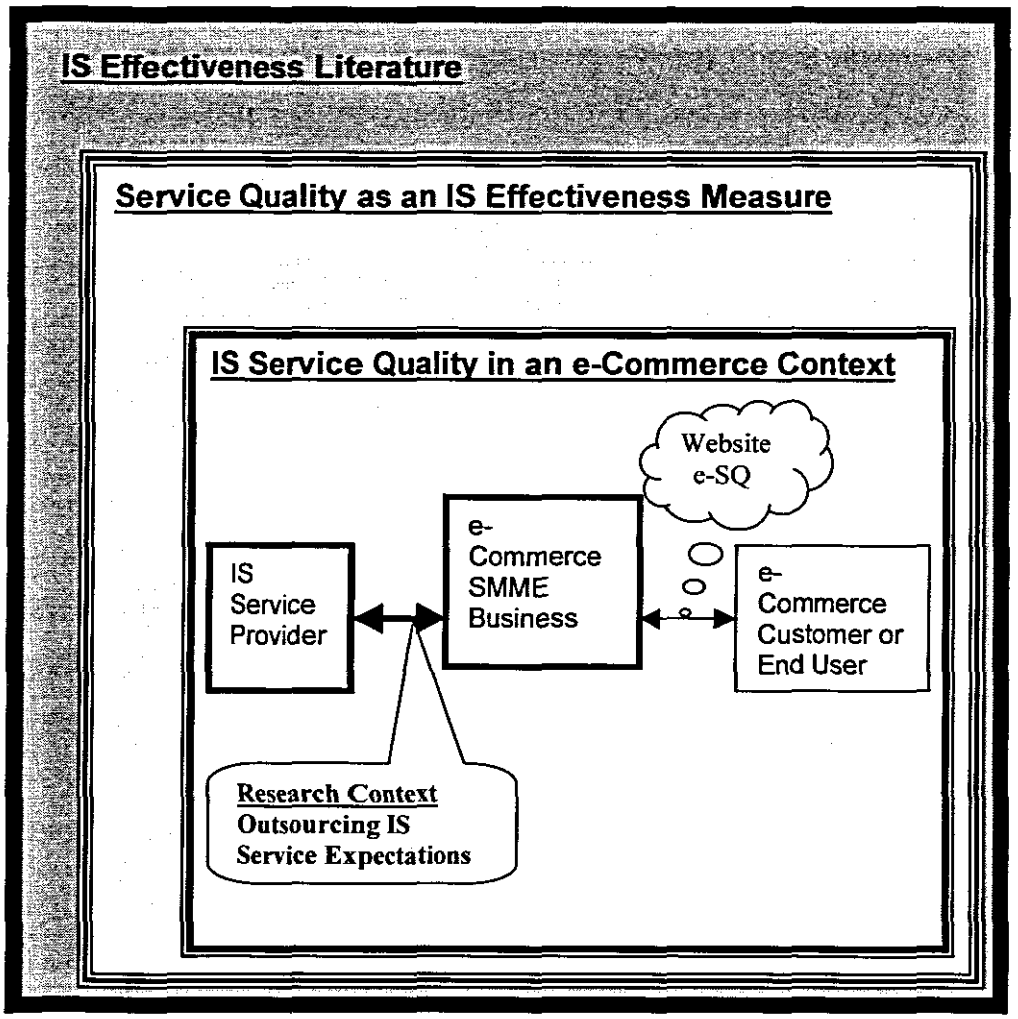


Figure 2.8: Framework for Literature Review

The research is based on the IS effectiveness research field and therefore the base body of literature for this research has been the IS effectiveness literature. In this literature, researchers have tried to define methods, tools and models; to measure and understand the concept of IS effectiveness (e.g. DeLone & McLean, 1992; Seddon *et al.*, 1999; DeLone & McLean, 2003; Molla & Licker 2003). The literature

emphasises the importance of these types of studies because of the large investments that businesses are making in IS (e.g. Briggs *et al.*, 2003; DeLone & McLean, 2003; Lomerson & Tuten, 2005). In order for business managers to better understand the value of these investments, the measurement of the effectiveness of the IS has become critical (DeLone & McLean, 2003). Researchers in the field have researched many different methods of measuring IS effectiveness e.g. IS usage, user information satisfaction, quality of decision making, productivity from cost-benefit analysis, system quality and service quality (Grover *et al.* 1996a; DeLone & McLean, 2003).

Service quality as an IS effectiveness measure is the main focus of this study. This measure has been recognised to be an important performance measure of IS effectiveness. The measurement of service quality has been extensively researched in the marketing literature (e.g. Parasuraman *et al.*, 1985; 1988; 1991; 1993; 1994a; 1994b). In the IS effectiveness literature, SERVQUAL, a service quality tool developed in the marketing literature, has been tested and found to be applicable to the IS domain. SERVQUAL has been tested mainly in large traditional brick-and-mortar businesses by IS researchers. This has provided IS managers of such businesses, with tools and criteria for assessing the service quality of the IS that they deliver to their end-users. However, there is a lack of this type of research in the context of e-Commerce businesses (DeLone and McLean, 2004). This type of research is also lacking for smaller SMME type businesses (De Guinea *et al.*, 2005).

The SERVQUAL instrument, developed in the marketing literature by Parasuraman *et al.* (1985), has five dimensions (Reliability, Responsiveness, Assurance, Empathy and Tangibles) and twenty-two items. SERVQUAL has been tested for applicability in the IS domain by e.g. Pitt *et al.* (1995), Kettinger and Lee (1997), Watson (1998), Jiang *et al.* (2002), Kang and Bradley (2002), Kettinger and Lee (2005). These

authors concluded that SERVQUAL was indeed applicable and useful in the IS domain.

Kettinger and Lee (1997) adapted the twenty-two-item SERVQUAL scale for the IS environment and subsequently tested the adapted scale in traditional businesses. They derived the thirteen-item, four dimensional IS-SERVQUAL instrument. In a later paper Kettinger and Lee (2005) again used the IS adapted 22-item SERVQUAL scale, and derived an eighteen-item IS-ZOT-SERVQUAL scale across four dimensions i.e. Reliability, Responsiveness, Rapport and Tangibles.

Kettinger and Lee (1997, 2005) thus derived the service quality criteria i.e. dimensions and items, that were appropriate for their research context i.e. large traditional businesses. However, such a study is lacking in the e-Commerce SMME context, which could give service guidance to IS managers in these business areas, viz., which of the 22 items of the IS adapted SERVQUAL are applicable to the e-Commerce SMME context. This is the research problem that this research will address. The service quality expectations, rather than the service quality perceptions are what the research aims to investigate.

Lee *et al.* (2003) considers meeting or exceeding customer expectations as a critical success factor for the e-Commerce environment. An understanding of the client service quality expectations would enable IS managers to better respond to their client service requirements; thereby contributing to more effective IS delivery in this context.

The foregoing discussion highlights important issues from the literature which support the empirical investigation described in the following chapters.

CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

> *"The ultimate purpose of research is scientific explanation – to discover and document universal laws of human behaviour."* (Neuman, 2003:71).

3.1 INTRODUCTION

The knowledge gained from scientific research facilitates the learning of how the world works so that people can control or predict events (Neuman, 2003). Thus it is important that the practice of scientific research rests on well-planned research design and research methodology (Babbie & Mouton, 2002). The purpose of this chapter is to present the detailed planning underpinning the research design and methodology used in this research.

Babbie and Mouton (2002:74) define a research design as the

> *"blueprint of how you intend conducting the research"*

and a research methodology as

> *"the systematic, methodical, and accurate execution of the design"* (Babbie & Mouton, 2002:74).

Table 3.1 summarises how Babbie and Mouton (2002) view the differences between research design and research methodology.

Table 3.1: Differences between research design and research methodology (Source: Babbie & Mouton, 2002:75)

Research Design	Research Methodology
Focuses on the end-product: What kind of study is being planned and what kind of results are aimed at.	Focuses on the research process and the kind of tools and procedures to be used.
Point of departure = Research problem or question	Point of departure = Specific tasks (data – collection or sampling) at hand
Focuses on the logic of research: What kind of evidence is required to address the research question adequately	Focuses on the individual (not linear) steps in the research process and the most "objective" (unbiased) procedures to be employed.

Using Table 3.1 as a guide, the following sections describe the research design and the research methodology for this study. Firstly, this study required a research design that would facilitate the objective of investigating whether the IS service quality dimensions identified in the IS literature for large traditional brick-and-mortar businesses, are the same for small e-Commerce businesses. In order to collect the evidence required to address this question, the methodologies of similar studies investigating IS service quality in large brick-and-mortar businesses, were examined. Consequently this study used other similar studies as resources for its research design and methods, and applied these to an e-Commerce SMME context.

3.2 EVOLVEMENT OF THE RESEARCH PROBLEM AND QUESTION

The researchers interest in the effectiveness of IS in business started at his work-place. The researcher questioned the efficacy of IS used, and whether the appropriate systems were being used for the functions that they were performing. The body of knowledge in the IS effectiveness literature provided the initial basis for these questions, offering frameworks and models for IS effectiveness research. The literature emphasised the practical business importance for the academic research of IS effectiveness and emphasised that because businesses are investing vast amounts of money in IS, the measurement of the IS effectiveness is important to business managers. Furthermore, small businesses are also impacted by the need for IS effectiveness measurement, and possibly more so because of their comparatively limited resources. The researcher also ascertained that the study was important in the South African context; since SMMEs are important for the development of the South African economy, and their ability to successfully harness the Internet through e-Commerce is vital to their survival (Warden & Williams, 2003).

Furthermore, recent IS effectiveness literature pointed out that service quality is one of the important performance measures of IS effectiveness.

The problems highlighted in the literature were the lack of empirical research of IS effectiveness in the e-Commerce context, as well as the lack of empirical service quality research in SMMEs (e.g. DeLone & McLean, 2004; De Guinea *et al.*, 2005).

The researcher discussed concepts related to this problem with IS academics and practitioners to gain clarity on the viability of conducting research in the area of service quality in an e-Commerce SMME context. The researcher then conducted an in-depth literature review, which lead to the eventual refinement of the research problem and research questions. Figure 3.1 presents a trail of the main issues found in the literature, and from which the research problem evolved.

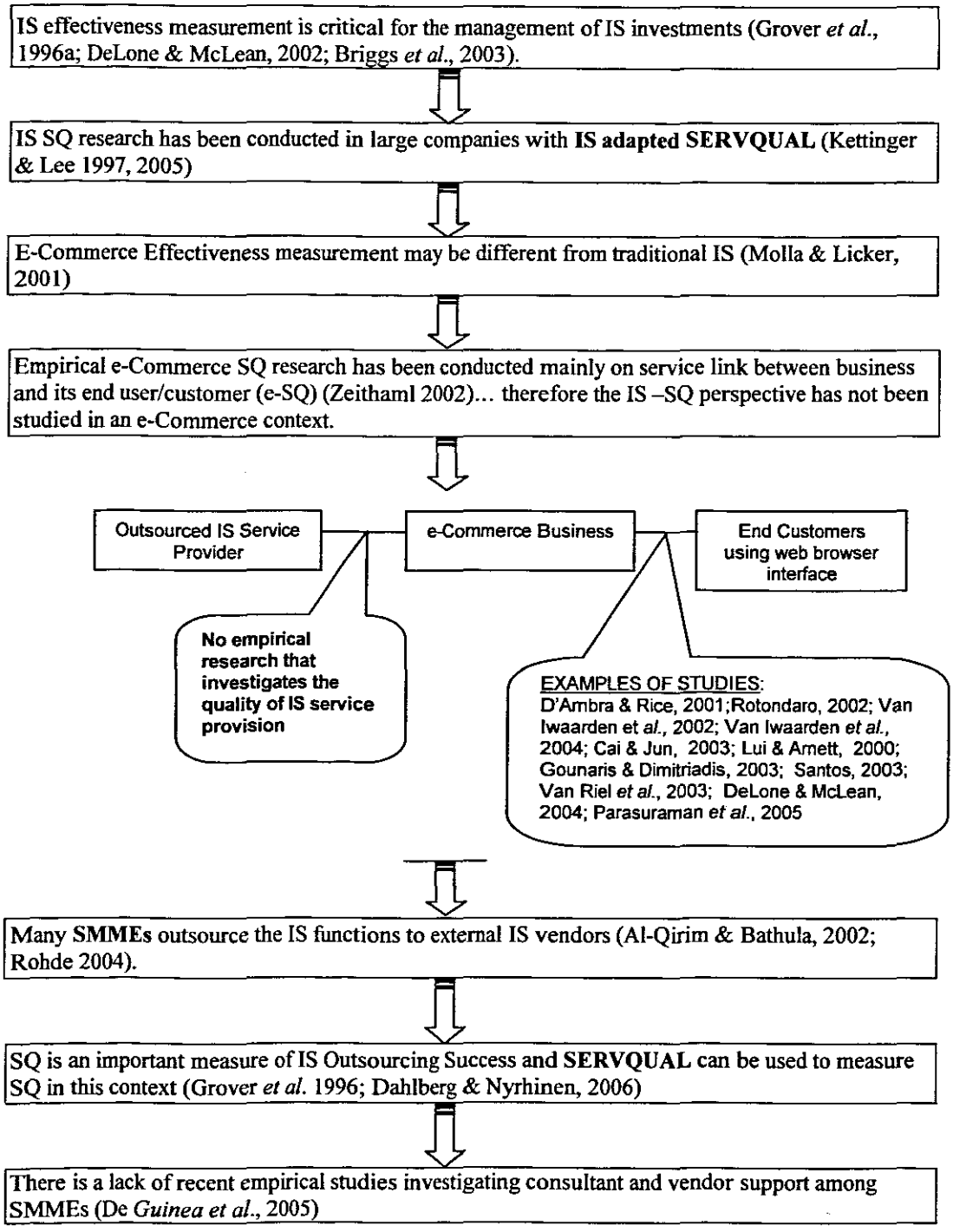


Figure 3.1: Evolvement of the research problem from the literature review

It was clear from the literature that academic guidance regarding IS service quality issues was lacking for SMMEs. With e-Commerce being an important driver for the growth of SMMEs, the research context focused on

e-Commerce SMMEs. It was not clear in the literature whether service quality measurement criteria used for large businesses, were applicable to SMMEs. The literature also indicated that the IS effectiveness measurement models used in traditional businesses, may be different for e-Commerce businesses (e.g. Seddon *et al.*, 1999; Molla & Licker, 2001). Based on the foregoing, an empirical investigation to establish whether IS service quality dimensions for e-Commerce SMME are the same as for large traditional businesses was considered a viable study.

3.3 RESEARCH PHILOSOPHY

Before reporting on the research design and the implementation of the research methodology, it would be prudent to describe the underlying philosophical approach used in this research.

After identifying the requirements for the research project, it was clear that quantitative data was required for this research. This was especially apparent after the resercher had conducted a detailed literature review and found that similar studies also used quantitative data. According to Myers (1997), all research is based on some underlying philosophical assumptions about what constitutes valid research and which research methods are appropriate. The researcher identified three dominant philosophical approaches in IS research i.e. Positivism, Interpretivism and Critical research (Neuman, 2003; Pather & Remenyi, 2005).

Foxall (1995) describes **Positivism** as a philosophy that tends towards an objective viewpoint. The researcher employing this philosophy is usually outside the subject matter, and attempts to conceptualise and quantify the research information (Foxall, 1995). The Positivist strives to ensure that the research process is rational and logical, and in so doing believes that all elements of subjectivity and idiosyncrasy are eliminated from the research (Mouton & Marais, 1990:30). According to Pather and Remenyi (2005:78) the exponents of positivist research utilise mainly quantitative

techniques. Examples of quantitative methods in the social sciences include survey methods, laboratory experiments, formal methods (e.g. econometrics) and numerical methods such as mathematical modelling (Myers, 1997).

Interpretivism is an approach that assumes that "*reality and our knowledge thereof are social constructions*" (Khazanchi & Munkvold, 2000:34), and its outputs are the "*subjective constructions*" of the researcher (Wyssusek, Schwartz & Kremberg, 2002). It also assumes that access to reality can only be achieved through social constructions such as language, consciousness and shared meanings (Myers, 1997).

Myers (1997:4) defines the **Critical** approach to research as one that assumes "*that social reality is historically constituted and that it is produced and reproduced by people*". Critical researchers recognize that change to their social and economic circumstances is constrained by various forms of social, cultural and political domination (Myers, 1997).

However, Wyssusek *et al.* (2002) report that IS research lacks philosophical foundation. They go on to suggest that Positivism is the dominant philosophy influencing contemporary IS research. In the IS success literature, studies have mainly been positivistic (Lycett, Kanellis & Paul, 1997).

Having considered the positivist, interpretive and critical approaches; this research adopts a positivist position for the following reasons:

- The achievement of the research aims would be better supported by a positivist position because the research aims to conceptualise and quantify, rather than subjectively analyse the research information in order to answer the research questions.
- Other similar studies in the IS effectiveness literature which either developed or tested service quality instruments have mainly been positivistic.

- The emphasis on objectivity of a positivistic approach will give credence to recommendations made to the relevant stakeholders.

3.4 RESEARCH DESIGN

A number of research design options are available in the positivistic paradigm e.g. inferential statistics, hypothesis testing, mathematical analysis, and experimental and quasi-experimental design (Foxall, 1995:11). After careful consideration of various options, a survey design was chosen for this research. One of the influential factors in making this decision was that similar studies such as Kang and Bradley (2002), Kettinger and Lee (1997, 2005), Pitt *et al.* (1995) and Watson *et al.* (1998), also used survey designs.

Pinsonneault and Kraemer (1993:80) define survey research as:

> *"the gathering of information to advance scientific knowledge about the characteristics, actions, or opinions of a large group of people, referred to as a population"*

These authors assert that survey research has three distinct characteristics:

a. Survey research is used to quantitatively describe specific aspects of the research population.
b. The main method of collecting information is by asking respondents structured and predefined questions.
c. Data is collected from only a fraction of the research population, called a sample, but it is collected in such a way as to be able to generalise the findings to the population.

(Pinsonneault & Kraemer, 1993)

Lastly, survey research implies that quantitative research methods are used to study natural phenomena (Myer, 1997).

3.4.1 Survey instrument design

Straub, Geffen and Boudreau (2004b) posit that a survey instrument enables the researcher to obtain verbal or written responses to questions or statements. The authors describe survey instruments as being a very effective means of gathering data about individual preferences, expectations, past events, and private behaviours. They go on to assert that the versatility of this method is its greatest strength.

The survey instrument used for the data collection in this research was a questionnaire, which was distributed via e-mail. Pinsonneault and Kraemer (1993) posit that although mailed questionnaires are less effective in gathering sensitive data, they are very effective for gathering factual data. The authors also assert that mailed questionnaires are cost effective. As this study had a limited budget cost effectiveness was an important consideration.

The questionnaire used in this research consisted of two sections, viz., the main section, which had the IS adapted SERVQUAL questions from Kettinger and Lee (2005), and a section with questions to facilitate respondent filtering[1] and open-ended questions to elicit any additional information.

3.4.1.1 The Design of the SERVQUAL section of the Instrument

The main section of the questionnaire, asks respondents to rate the importance of each of the twenty-two items of the IS adapted SERVQUAL. This rating provided an indication of how important or relevant respondents perceived each service quality item to be. The objective of this section was to measure the service expectations of the research population.

[1] To ensure that the respondents fulfil the sample selection criteria.

Various options were considered in the design of this section of the instrument, viz., adapting new SERVQUAL items for the IS domain, or using existing IS adapted SERVQUAL items from the IS literature. The latter option was preferred, because the IS adapted SERVQUAL items in the IS literature had been used in similar studies (e.g. Pitt *et al.*, 1995; Kettinger & Lee, 1997; Kang & Bradley, 2002; Park & Kim, 2005). After careful consideration of a number of different options, the IS adapted SERVQUAL items, designed and used by Kettinger and Lee (2005), were chosen. The reasons for choosing this instrument were:

- The recentness of the journal article;
- The article was published in the top ranked, highly respected and peer reviewed MIS Quarterly journal[2]; and
- The credibility of the authors as authorities in the field. A previous derived IS-SERVQUAL instrument by Kettinger and Lee (1997) had been used by other authors, such as Kang and Bradley (2002) and Park and Kim (2005), in their studies.

Kettinger and Lee (2005) adapted the SERVQUAL instrument, which was originally developed by Parasuraman *et al.* (1988, 1991, 1994b), for the IS environment. This entailed the rewording of the twenty-two items to reflect the IS environment. Table 3.2 shows the exact wording of the Kettinger and Lee (2005) scale-items, as it was used in this research.

[2] Saunders (2005) rated Management Information Systems (MIS) journals, and MISQ was the top rated journal.

Table 3.2: Kettinger and Lee (2005) IS-adapted SERVQUAL scale items

IS adapted SERVQUAL Scale Items	Dimension
When it comes to...	
1...Providing services as promised...	Reliability
2...Dependability in handling customer's service problems...	Reliability
3...Performing service right the first time...	Reliability
4...Providing services at the promised time...	Reliability
5...Maintaining the reliable technology and system...	Reliability
6...Keeping customers informed about when service will be made...	Responsiveness
7...Prompt service to customers...	Responsiveness
8...Willingness to help customers...	Responsiveness
9...Readiness to respond to customer's requests...	Responsiveness
10...IS employees who instill confidence in customers...	Assurance
11...Making customers feel safer in computer transactions...	Assurance
12...IS employees who are consistently courteous...	Assurance
13...IS employees who have the knowledge to answer customers' questions...	Assurance
14...Giving customers individual attention...	Empathy
15...IS employees who deal with customers in a caring fashion...	Empathy
16...Having the customer's best interest at heart...	Empathy
17...IS employees who understand the needs of customers...	Empathy
18...Convenient business hours...	Empathy
19...Up-to-date technology...	Tangibles
20...Visually appealing facilities...	Tangibles
21...IS employees who appear professional...	Tangibles
22...Useful support materials (such as documentation, training, videos, etc.)...	Tangibles

3.4.1.2 Respondent Filtering and Open-ended question section

In addition to the SERVQUAL section, the survey instrument also included a section to gather data about types of services used and level of e-Commerce adoption of businesses, these questions are listed in Figure 3.2. The questions in this section also facilitated the filtering of the respondents i.e. it provided the means to verify if the respondent fulfilled the research context requirements viz. that the buisness:

1. falls into the SMME category.
2. used the services of an e-Commerce service provider.
3. is actively engaged in e-Commerce activities.

Name of Company :
Number of Employees :

1. Please indicate, by ticking the adjacent box, which e-Commerce services your business out sources to an e-Commerce service provider.
   - **Website development** ☐
   - **Website Hosting** ☐
   - **Listing on Secondary Website** ☐
   - **E-Commerce Consultancy** ☐
   - **Internet Service Provider** ☐
   - **Other (please list)** .....

2. Please indicate, by ticking the adjacent box, which e-Commerce activities your business actively engages in.
   - **E-mail** ☐
   - **Business information on a Website** ☐
   - **Customer feedback or enquiries via a Website** ☐
   - **Bookings or order placement via a Website** ☐
   - **Payment via a Website** ☐
   - **Collaboration with suppliers or business partners** ☐
   - **Other (please list)** .....

3. How can the Internet and e-Commerce benefit your business?
.....

4. How can your e-Commerce service providers better assist or support your business to benefit from e-Commerce?
.....

Figure 3.2: Respondent Filtering and Open-Ended Survey Questions

An overview of the rationale for each of the questions in Figure 3.2 was:

- The number of employees in the business was requested to confirm the SMME status of the business, in terms of the National Small Business Act, 1996 (No. 102 of 1996), and the National Small Business Amendment Act, 2003 (No.26 of 2003).

- The purpose of **Question 1** in Figure 3.2 was to gather data about the type of e-Commerce services used in the research population. The question also served to orientate the person completing the questionnaire about the type of services the survey was interested in.

- The purpose of **Question 2** in Figure 3.2 was to ascertain the e-Commerce adoption level of the respondent business, and to ensure that the respondent was actively engaging in e-Commerce activities. The Subba Rao and Metts (2003) e-Commerce adoption stage model[3] provided the basis for the wording of this question. If the respondent only ticked "*E-mail*" and/or "*Business information on a Website*" it would indicate a Level 1 adoption i.e. the Presence Stage. If a respondent ticked "*Bookings or order placement via a Website*" as well, it would indicate Level 2 adoption i.e. the Portals Stage, etc. The respondents were filtered for a minimum of Level 2 adoption, to ensure at least an active level of e-Commerce activities i.e. not simply "Presence" activities. This minimum activity level would imply that the respondents would regularly require the services of an e-Commerce service provider, and would thus be in a better position to comment on related service quality issues. It would also imply that the respondent would have a clearer understanding of the service expectations in the research context.

- **Question 3 and 4** were open-ended questions to gather any additional data about service quality issues i.e. to facilitate gathering data for research question 3: "Are there any additional service quality criteria for this research context?"

[3] Refer to Figure 2.7 in the previous chapter

3.4.1.3 Mapping of Research Questions to the Survey Instrument

Table 3.3 below shows the mapping of how the research questions for this study were related to the survey instrument questions. This indicates how the data was gathered in order to answers the research questions.

Table 3.3: Mapping of Research Questions to the Survey Instrument

Research Question	How the question was answered
1 Are the service quality dimensions for e-Commerce SMMEs different from those applied in large traditional organisations?	This question was answered by using the SERVQUAL data collected from the sample in the research context, to test the dimensionality using Factor Analysis techniques
2 What is the ranking, in order of importance, of the service quality dimensions for the e-Commerce SMME context?	This question was answered using data from the questionnaire in which the respondent rated the importance of each of the SERVQUAL items in the research context. This data was then used to identify which service quality dimensions were most important in the research context.
3 Are there any additional service quality criteria for this research context	This research question was addressed by the open-ended questions in the questionnaire. ▪ How can your e-Commerce service providers better assist or support your business to benefit from e-Commerce? The data was used to assess whether there were additional service quality criteria, other than those covered in SERVQUAL, for the research context.
4 What recommendations can be made to IS service providers to improve delivery of service to e-Commerce SMMEs?	This question was answered on the basis of the analysis and interpretation of the questionnaire data.

3.4.1.4 Piloting the Questionnaire

A pilot survey was conducted in July 2006, using the exact wording from the Kettinger and Lee (2005) instrument. During this exercise, the researcher visited eight businesses, and then questioned the respondents

after they had completed the questionnaire (see Appendix E for a list of these businesses). Two problems were identified during the pilot.

The first problem was that it was not clear to the respondent that question 1 and 2 allowed for multiple tick selections. These questions were consequently reworded to reflect this.

The second problem was that the respondents found the SERVQUAL questions to be cryptic in its design. This was because the formatting ellipses (...) used in the Kettinger and Lee (2005) instrument gave the impression that the question was incomplete (as shown in Table 3.2). The researcher therefore enquired from the authors, Kettinger and Lee, via e-mail, whether the item questions in their paper were complete and identical to the ones used in their fieldwork. The response from the authors was that the item questions were indeed complete (refer to Appendix A for this correspondence).

Based on the findings of the pilot, the researcher thus decided to modify the format of the questions in order to make them more readable and understandable for the respondents. Each item was treated as a complete question, ending in a question mark and not an ellipse. (Refer to Appendix C for the final wording of this section)

Based on the feedback from the respondents, suggesting that the question was superfluous, Question 3 (refer to Figure 3.2) was removed i.e. "How can the Internet and e-Commerce benefit your business?".

3.4.2 The Research Population

The first consideration in choosing my research population was that I needed to gather homogeneous data from the same sector, so that data from different respondents would be comparable, and it would not be problematic to aggregate the data and conduct statistical analysis.

The researcher chose the tourism sector because of the vast number of SMMEs in the sector (Warden & Williams, 2003). The tourism sector is also well suited to the application of e-Commerce and were early adopters of e-Commerce in South Africa (Wynne & Berthon, 2001). Tourism is the term given to the activity that occurs when tourists travel. This includes planning a trip, travel to the place, the stay itself, return and the reminiscence about it afterwards (Warden & Williams, 2003:3). The researcher chose the accommodation activity in this sector, because of the large number of SMMEs involved in the activity, particularly bed-and-breakfast and self-catering establishments. The Western Cape is a popular tourism destination with many bed-and-breakfast and self-catering establishments. As the researcher was also based in the Western Cape, it was geographically convenient for the collection of data from this region. For these reasons the research was delimited to the Western Cape region.

As this research focused on the service requirements of e-Commerce enabled businesses, the research population chosen for this study was thus e-Commerce enabled[4] bed-and-breakfast and self-catering accommodation businesses in the Western Cape.

In summary, the criteria for eligibility to participate in the survey were that the business had to be:

- A bed-and-breakfast or self-catering accommodation business;
- Based in Western.Cape;
- SMME; and
- Minimum level 2 on the adoption model of Subba Rao and Metts, (2003).

[4] The definition for "e-Commerce enable" used in this study is an adoption level of 2 or higher on the Subba Rao and Metts, (2003) e-Commerce adoption stage model (depicted in Figure 2.7).

3.4.3 Sampling

Fink (1995:27) defines a sample as a "*miniature version*" of the population which is representative, or a model of the population. The author further identifies two types of sampling methods viz., probability sampling and non-probability sampling as follows:

> "*In probability sampling, every member of the target population has a known, non-zero probability of being included in the sample. Probability sampling implies the use of random selection. Random sampling eliminates subjectivity in choosing a sample.*" (Fink, 1995:29).

> "*Non-probability samples are chosen based on judgment regarding characteristics of the target population and the needs of the survey. With non-probability sampling, some members of the eligible target population have a chance of being chosen and others do not.*" (Fink, 1995:29).

The *Capestay* website (http://www.capestay.co.za) which is a comprehensive directory for all types of accommodation in the Western Cape was used as a basis for sampling. This website featured category listings which allowed for the separate listings of the bed-and-breakfast and self catering businesses. The website hosts a dedicated homepage for each listing, which provides detailed information about the establishment, as well as an online booking facility. This implied that the businesses listed would be at least Level 2 (Portals Stage) on the Subba Rao and Metts, (2003) e-Commerce adoption stage model. The listings on this directory website thus provide representative lists from which to select a sample for the research.

The total number of listings on this website for bed-and-breakfast and self-catering establishments was 1360 for which there were 1177 unique email addresses. The survey was mailed to all 1177 addresses. Thus, since the *Capestay* directory was deemed to be representative of the majority of the population, no specific sampling technique was required.

3.4.4 Implementation of the Survey

The updated and final survey instrument is attached in Appendix C. This instrument was used to conduct the survey via email, to the addresses acquired from the www.capestay.co.za directory website. This updated instrument incorporated the changes from the pilot survey. As the questionnaire was distributed electronically, it was designed to facilitate mouse clicks instead of written ticks.

3.4.5 Instrument Validation

The importance of validating instruments used in IS positivist research is underscored by Straub, Boudreau and Gefen (2004a). They assert that

> *"without solid validation of the instruments that are used to gather data on which findings and interpretations are based, the very scientific basis of the profession is threatened"* (Straub *et al.*, 2004a:380).

The authors identify three important validity components viz., Content Validity, Construct Validity and Reliability.

Straub *et al.* (2004a) defines Content Validity as a test of whether all possible ways of measuring the content of a construct, are represented in the instrument. The researcher needs to ask himself whether the measures used, captures the essence of the construct. The authors assert that this can be established through literature reviews and expert judges or panels. Content validity was established through a literature review in this research.

Straub *et al.* (2004a:388) defines Construct Validity as *"an issue of operationalization or measurement between constructs"* validating that the instrument items selected for a given construct are a *"reasonable operationalization of the construct"*. The constituents of Construct Validity include nomological, discriminant, convergent, factorial, predictive and concurrent validity. Straub *et al.* (2004a) report that many IS authors

establish construct validity based on one or more of these constituents. These authors assert that Factorial Validity, using a technique such as Confirmatory Factor Analysis (CFA), can be used to assess both Convergent and Discriminant validity. They define Convergent Validity as

> "*evidenced when items thought to reflect a construct converge, or show significant, high correlations with one another*" (Straub *et al.*, 2004a:391).

They also posit that Discriminant Validity is evident when there is little or no crossloading on constructs i.e. they can be discriminated from one another (Straub *et al.*, 2004a). Factorial Validity, using CFA, was the constituent used to establish Construct Validity in this research.

Straub *et al.* (2004a:399) defines Reliability as "*an issue of measurement within a construct*" as opposed to Construct Validity which is "*an issue of measurement between constructs*". Reliability of an instrument concerns whether the instrument items selected for a given construct could be "*error-prone operationalizations of that construct*". In an earlier paper Straub (1989:154) defines Reliability as "*the extent to which the respondent can answer the same questions or close approximations the same way each time*". A Cronbach Alpha measurement, as recommended by Straub *et al.* (2004a), was used to calculate the Reliability of the instrument used in this research[5].

[5] The results of the Cronbach Alpha and other statistical measurements are supplied in Chapter 4.

3.4.6 Analysis of Data

The survey data was analysed and used to answer the research questions as follows:

Research Question .1

Are the service quality dimensions for e-Commerce SMMEs different from those applied in large traditional organisations?

The survey instrument used in this research was based on the IS adapted SERVQUAL instrument developed by Kettinger and Lee (2005). This entailed the use of the same dimensions and items which had been applied in the context of large traditional businesses. The validity of these dimensions and items, for the research context (e-Commerce SMMEs), however, was statistically tested using Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA). A factor can be defined as "*a dimension or construct which is a condensed statement of the relationship between a set of variables*" (Kline, 1994:5).

Suhr (2006:2) defines EFA as

> "*a variable reduction technique which identifies the number of latent constructs and the underlying factor structure of a set of variables*".

Suhr (2006:1) posits that a CFA

> "*allows the researcher to test the hypothesis that a relationship between the observed variables and their underlying latent construct(s) exists.*"
> "*...the researcher uses knowledge of the theory, empirical research, or both, postulates the relationship pattern a priori and then tests the hypothesis statistically.*" (Suhr, 2006:1).

Research Question .2

What is the ranking, in order of importance, of the service quality dimensions for the e-Commerce SMME context?

The survey respondents were asked to rate how important they felt the individual service quality items were in their relationship with their service

providers. The mean values of all the item answers per dimension were used to rank the service quality dimensions for the research context.

Research Question .3

Are there any additional service quality criteria for this research context?

The EFA was used to statistically conclude if any additional dimension were indicated by the research data. Also the open-ended question in the survey instrument concerning additional comments or issues was used to draw conclusions about any additional service quality criteria.

3.5 CONCLUSION

This chapter has described the research design to address the research problem and questions in this study. The research methodology, viz., a survey research method, was also described. This involved the process of designing and structuring a survey questionnaire, and its refinement through a process of piloting and reworking.

The process of deciding on the research population was also described. The research population for this study was e-Commerce enabled bed-and-breakfast and self-catering accommodation establishments in the Western Cape.

A population sample was described using a website www.capestay.co.za to get listings of bed-and-breakfast and self-catering businesses in the Western Cape.

The methods for testing the validity of the survey instrument was then described viz., Content Validity, Construct Validity and Reliability. Finally, the analysis methods for answering the research questions were presented. The main statistical methods used in answering the research

questions were Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA), and calculating the mean values to determine the service quality dimension-weighting in the research context.

The results of the survey and its data analysis are reported in Chapter 4.

CHAPTER 4

DATA ANALYSIS AND INTERPRETATION

> *"Social measures provide information about social reality... Measurement extends human senses. It lets us observe things that were once unseen and unknown but were predicted by theory"* (Neuman, 2003:171).

4.1 INTRODUCTION

This chapter presents the results of the analysis of the empirical data, and the interpretation thereof. This involves statistical analysis of the collected survey data. The computation of the statistical data was executed using the statistical computer application SPSS for Windows (Release 15.0.0. 2006).

The chapter starts with a report on the response rate of the survey conducted. It then reports on how Exploratory Factor Analysis was used to eliminate items and to regroup the remaining items into derived dimensions. A subsequent description of how these derived dimensions were used to formulate a new instrument is given. The Confirmatory Factor Analysis results for the derived instrument are then discussed. The Validity and Reliability of the derived instrument is then reported on. The data analysis section is concluded with an analysis of the relative importance of the service quality dimensions based on the data for the derived survey instrument.

Finally the chapter interprets the collected data in preparation for conclusions and recommendations in chapter 5.

4.2 RESPONSE RATE

As discussed in chapter 3, a random sample of the research population was selected from the listings of the www.capestay.co.za website. This directory website had 1360 listings for bed-and-breakfast and self-catering

accommodation establishments in the Western Cape region. Of these listings, 1177 had unique contact email addresses i.e. some listings had the same contact email address.

The survey questionnaire accompanied by a cover letter (included in Appendix D) was emailed to the listed 1177 email addresses. Only 48 responses were received. This is a response rate of only 4%, which was lower than expected.

This lower-than-expected response rate is consistent with the trend reported by Sheehan (2001) regarding the declining response rates to email surveys. Sheehan (2001) asserts that there are a number of potential influences on response rates in email surveys viz., survey length, respondent contacts, design issues, research affiliation and compensation. The study by Sheehan (2001) also concluded that some of the techniques (e.g. compensation) used to increase response rates do not seem to affect response rates to email surveys significantly.

4.3 DATA ANALYSIS

The statistical data analysis for this research followed an approach similar to the approach used by Kettinger and Lee (2005). The basic analysis steps followed by Kettinger and Lee (2005), which were also used in this research, are as follows:

1. Perform an Exploratory Factor Analysis (EFA), using Principal Component Analysis, to ascertain if there are new or different service quality dimensions in this research context. This essentially entails eliminating low-scoring instrument items and regrouping others.
2. Perform a Confirmatory Factor Analysis (CFA) on the adapted survey instrument to confirm the results of the EFA .
3. Assess the validity and reliability of the adapted instrument, using Cronbach alpha and the results of the CFA.

The two-step method of using an EFA followed by a CFA is consistent with the results of a study by Gerbing and Hamilton (1996). These authors investigated the relationship between EFA and CFA models, using a simulation to generate test data known to exhibit specific factor loading patterns and sample sizes. They concluded that

> *"EFA is a useful tool to aid the researcher in recovering an underlying measurement model that can then be evaluated with CFA. CFA of a model developed in part with EFA is a viable strategy for theory development and analysis"* (Gerbing & Hamilton, 1996:71).

The results of these steps are reported on in the following sections.

4.3.1 Exploratory Factor Analysis

Exploratory Factor Analysis (EFA) using a Principal Component Analysis (PCA) extraction method is used *"to derive the minimum number of factors that account for the maximum portion of the total variance in an exploratory manner"* (Kettinger & Lee, 2005:612). EFA was used by Kettinger and Lee (2005) because they had made many changes to the original SERVQUAL scale in order to bring it into the IS context. The Kettinger and Lee (2005) IS adapted SERVQUAL scale was then further modified for this study, as was previously discussed in chapter 3. This modified scale was then applied to a previously untested research context. Thus an exploratory approach, similar to the approach used by Kettinger and Lee (2005), was also appropriate for this research. Kettinger and Lee (2005:613) used the following factor selection criteria in their EFA:

1. The use of Oblique rotation i.e. using Oblimin Rotation Method in SPSS (2006);
2. Factor loading should be greater than or equal to 0.5;
3. No multiple loadings were allowed i.e. no items (rows) with multiple factor loadings greater or equal to 0.5; and
4. No single loadings i.e. no factors (columns) having only one high loading item.

These selection criteria were also used in the exploratory factor analysis for this research. These results are presented in Table 4.1. As in Kettinger and Lee (2005), items not fulfilling the selection criteria were omitted, as indicated by a strikethrough line in Table 4.1. A bold font with shading indicates the highest factor loading for each of the remaining items in Table 4.1.

Table 4.1: Exploratory Factor Analysis

		Component				
		1	2	3	4	5
RELIABILITY	Relia1 provides you with services as promised?	.426	**.743**	-.055	.156	-.453
	Relia2 is dependable in handling your service problems?	.028	**.639**	.141	.175	-.116
	~~Relia3 performs services right the first time?~~	~~.223~~	~~.500~~	~~.194~~	~~.304~~	~~-.732~~
	~~Relia4 provides you with services at the promised time?~~	~~.280~~	~~.582~~	~~.028~~	~~.656~~	~~-.616~~
	Relia5 provides you with reliable technology and systems?	.276	.161	.229	**.647**	-.134
RESPONSIVENESS	Resp1 keeps you informed about when service will be made?	.377	.136	.224	.182	**.719**
	Resp2 delivers prompt service to you?	.312	.037	.290	.123	**.838**
	~~Resp3 has the willingness to help you?~~	~~.429~~	~~.661~~	~~.137~~	~~.397~~	~~-.595~~
	Resp4 has the readiness to respond to your requests?	**.796**	.134	.273	.290	-.342
ASSURANCE	~~A1 has staff that instils confidence in you?~~	~~.870~~	~~.112~~	~~.319~~	~~.650~~	~~-.222~~
	~~A2 makes you feel safer in computer transactions?~~	~~.673~~	~~-.032~~	~~.301~~	~~.728~~	~~-.479~~
	A3 has staff that is consistently courteous?	**.842**	.148	.452	.440	-.366
	~~A4 has staff that has the knowledge to answer your questions?~~	~~.549~~	~~.674~~	~~.155~~	~~.349~~	~~-.164~~
EMPATHY	E1 gives you individual attention?	**.882**	.179	.191	.235	-.200
	E2 has staff that deal with you in a caring fashion?	**.873**	.043	.406	.458	-.421
	~~E3 has your best interest at heart?~~	~~.719~~	~~-.278~~	~~.288~~	~~.640~~	~~-.261~~
	E4 has staff that understands your service needs?	.286	.115	.154	**.912**	-.220
	E5 has convenient business hours?	.039	.053	.216	.253	**.650**
TANGIBLES	~~T1 has up to date technology?~~	~~.426~~	~~-.336~~	~~.248~~	~~.312~~	~~-.327~~
	T2 has visually appealing premises and facilities?	.220	.022	**.894**	.116	-.237
	T3 has staff who appear professional?	.426	-.036	**.832**	.192	-.150
	T4 has useful support materials (such as documentation, training, videos, etc.)?	.140	.151	**.794**	.415	-.471

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.

The SERVQUAL dimensions in Table 4.1 have the following attributes:

- **Reliability** is the ability to perform the promised service dependably and accurately;
- **Responsiveness** is the willingness to help customers and provide prompt service;
- **Assurance** is the knowledge and courtesy of employees and their ability to inspire trust and confidence;
- **Empathy** is the caring, individualised attention the firm provides its customers; and
- **Tangibles** is the physical facilities, equipment, and appearance of personnel.

4.3.2 Regrouping of Instrument Items

As indicated in Table 4.1, eight items were omitted, with all five dimensions being affected. After regrouping the remaining 14 items according to the highest factor loading, only one of the original SERVQUAL dimensions emerged from the Principal Component Analysis i.e. Tangibles as Component 3 in Table 4.1. Components 1, 4 and 5 had a mixture of items while Component 2 had only two of the original Reliability items. Table 4.2 summarises these item groupings

Table 4.2: Item regrouping with new Labels for Dimensions

COMPONENT 1 = Supportiveness	
Resp4	has the readiness to respond to your requests?
A3	has staff that is consistently courteous?
E1	gives you individual attention?
E2	has staff that deal with you in a caring fashion?
COMPONENT 2 = Credibility	
Relia1	provides you with services as promised?
Relia2	is dependable in handling your service problems?
COMPONENT 3 = Tangibles	
T2	has visually appealing premises and facilities?
T3	has staff who appear professional?
T4	has useful support materials (such as documentation, training, videos, etc.)?
COMPONENT 4 = Expertise	
Relia5	provides you with reliable technology and systems?
E4	has staff that understands your service needs?
COMPONENT 5 = Availability	
Resp1	keeps you informed about when service will be made?
Resp2	delivers prompt service to you?
E5	has convenient business hours?

The derived dimensions had a mixture of items from the original SERVQUAL five-dimensions i.e Tangibles, Reliability, Responsiveness, Empathy and Assurance. These derived dimensions were then relabelled. The labels were intuitively chosen based on the criteria which the grouped items represented. A researcher should be able to allocate labels to groups of data based on *"the imagery of meaning they evoke when examined comparatively and in context"* (Strauss & Corbin, 1998:105). A similar approach was followed by Kettinger and Lee (2005). One of the derived dimensions in their research had a mixture of Empathy and Assurance items. This derived dimension was then relabelled "Rapport" by the authors because *"the construct items focus on an IS service provider's ability to convey a rapport of knowledgeable, caring, and courteous support"* (Kettinger & Lee, 2005:612).

A paper by Wilkin and Castleman (2003) was found to have labels that were appropriate for the derived dimensions in this research. In their paper the authors had studied the dimensionality of the service quality construct in an IS context. They used the original SERVQUAL dimensions as a starting point for their study, but through an iterative process derived new dimensions for service quality in an IS context, viz., Expertise, Credibility, Availability, Responsiveness and Supportiveness. The new derived dimension labels are discussed below.

Component 1 had a mixture of Responsiveness, Assurance and Empathy items. These items related to the supportive interaction and communication between the service provider and its customer. An appropriate dimension label was **Supportiveness** to frame the supportive service quality aspects of the service provider towards its customers.

Component 2 contained only items from the original Reliability dimension. However, one other Reliability item had moved to Component 4. The remaining two items dealt with issues of service provider credibility regarding keeping service promises and handling service problems. An appropriate dimension label to frame these items was **Credibility**.

Component 3 contained only items from the original Tangibles dimension. Although one of the original Tangibles items was omitted, the remaining items were still best framed by the **Tangibles** dimension label, which focused on appearances and support materials. Thus this dimension label was retained.

Component 4 had a mixture of Reliability and Empathy items. These items related to the capability of the service provider to deliver reliable technology and systems that fulfil the customer needs. An appropriate dimension label for these items was **Expertise,** framing the ability of the service provider to provide the required systems.

Component 5 had a mixture of Responsiveness and Empathy items. These items related to the timely delivery of service. An appropriate dimension label was **Availability** to frame issues dealing with duration and promptness of service.

4.3.3 Confirmatory Factor Analysis

The next step in the data analysis, as in Kettinger and Lee (2005), was to perform a Confirmatory Factor Analysis on the data. A Confirmatory Factor Analysis using a Principal Axis Factoring extraction method was performed on the derived instrument i.e. the 14 item instrument. This was performed to confirm the dimensionality of the derived instrument as described in Table 4.2. However, unlike Kettinger and Lee (2005), who used a second set of sample data (holdout sample) to confirm the dimensionality, this research used the same set of collected research data since the collected sample size was relatively small. The process followed in this research was therefore not as refined as the approach used by Kettinger and Lee (2005) and is noted as a limitation. The results of the Confirmatory Factor Analysis are presented in Table 4.3.

Table 4.3: Confirmatory Factor Analysis

		Factor				
		1	2	3	4	5
SUPPORTIVENESS	Resp4 has the readiness to respond to your requests?	.797	.291	.138	-.272	.300
	A3 has staff that is consistently courteous?	.871	.456	.095	-.413	.486
	E1 gives you individual attention?	.826	.176	.150	-.303	.248
	E2 has staff that deal with you in a caring fashion?	.839	.405	.063	-.512	.491
TANGIBLES	T2 has visually appealing premises and facilities?	.240	.608	.038	-.328	.197
	T3 has staff who appear professional?	.400	.779	-.037	-.176	.237
	T4 has useful support materials (such as documentation, training, videos, etc.)?	.161	.746	.282	-.513	.448
CREDIBILITY	Relia1 provides you with services as promised?	.445	-.032	.469	-.419	.134
	Relia2 is dependable in handling your service problems?	.091	.056	.875	-.122	.094
AVAILABILITY	Resp1 keeps you informed about when service will be made?	.344	.204	.159	.835	.203
	Resp2 delivers prompt service to you?	.331	.314	.102	.645	.156
	E5 has convenient business hours?	.122	.195	.138	.499	.273
EXPERTISE	*Relia5 provides you with reliable technology and* systems?	.263	.201	.010	-.192	.485
	E4 has staff that understands your service needs?	.247	.159	.144	-.205	.826

Extraction Method: Principal Axis Factoring.
Rotation Method: Oblimin with Kaiser Normalization.

Garson (2007) defines a rule-of-thumb for factor loading values to be "weak" if the value is less than 0.4, "strong" if it is more than 0.6, otherwise it is "moderate." Applying this rule-of-thumb to Table 4.3, three of the factor loadings were "moderate" and 11 were "strong". The results of the Confirmatory Factor Analysis thus appear to confirm the derived dimensions of the Exploratory Factor Analysis in Table 4.2.

4.3.4 Validity and Reliability of the Derived Instrument

Instrument validity entails verifying that the constructs measured by the instrument are real and reliable, and that the instrument is measuring the right content (Straub *et al.*, 2004). **Content validity** is defined by Straub *et al.* (2004) as the indication of whether the instrument is a true representation of all the ways that could be used to measure the content of the given construct. These authors assert that content validity is established through literature reviews and expert judges or panels. Pitt *et al.* (1995) were one of the first authors to empirically test SERVQUAL in the IS domain. They asserted that SERVQUAL does measure the concept of service quality in the IS domain. Pitt *et al.* (1995) concluded that there were no unique features in IS which would make SERVQUAL inappropriate for measuring IS service quality. They thus asserted that Content Validity was ensured. The IS adapted SERVQUAL scale used in this study, is also based on the original SERVQUAL scale. Therefore the rationalization used by Pitt *et al.* (1995) to argue the Content Validity of the measuring instrument also applies to this research.

Straub *et al.* (2004) posit that the two main components of **Construct Validity**, viz., Convergent Validity and Discriminant Validity, can be deduced from the CFA results. The "strong" factor loadings indicate good **Convergent Validity**, because the items converge strongly to the derived dimensions. Also **Discriminant Validity** can be deduced because the factor loadings indicate that the items do not overlap across different dimensions.

Reliability is an evaluation of the measurement accuracy of the instrument and can be viewed as

> *"the extent to which the respondent can answer the same questions or close approximations the same way each time"* (Straub, 1989:7).

A Cronbach alpha measurement can be used to determine reliability of a measurement instrument (Straub, 1989). A Cronbach alpha measurement

of 0.7 and greater is considered reliable (1 is the maximum measurement value) (Straub *et al.* 2004).

Using the data collected during the survey, the Cronbach alpha measurement for the items remaining after the EFA was calculated at **0.837**. This was above the required minimum of 0.7, and thus this *indicated good reliability of the instrument.*

4.3.5 Relative Importance of the Derived Dimensions

For the derived factor structure of Table 4.2 the average score for each item, as per the survey data, is tabulated in Table 4.4. The mean of these item scores in each of the factors was then calculated. These mean values are indicated by a bold shaded font in Table 4.4.

Table 4.4: Mean Values for Regrouped Items

		Individual Item Score	Mean Dimension Score
FACTOR 1 = Supportiveness			
Resp4	has the readiness to respond to your requests?	4.69	4.25
A3	has staff that is consistently courteous?	4.00	
E1	gives you individual attention?	4.35	
E2	has staff that deal with you in a caring fashion?	3.96	
FACTOR 2 = Credibility			
Relia1	provides you with services as promised?	4.92	4.86
Relia2	is dependable in handling your service problems?	4.79	
FACTOR 3 = Tangibles			
T2	has visually appealing premises and facilities?	2.15	2.83
T3	has staff who appear professional?	3.29	
T4	has useful support materials (such as documentation, training, videos, etc.)?	3.04	
FACTOR 4 = Expertise			
Relia5	provides you with reliable technology and systems?	4.81	4.74
E4	has staff that understands your service needs?	4.67	
FACTOR 5 = Availability			
Resp1	keeps you informed about when service will be made?	4.56	4.58
Resp2	delivers prompt service to you?	4.75	
E5	has convenient business hours?	4.42	

The results in Table 4.4 were used to deduce the relative importance of the derived dimensions in the research context. The ranking of the service quality dimensions in the research context was as follows:

1st – Credibility

2nd – Expertise

3rd – Availability

4th – Supportiveness

5th – Tangibles

4.3.6 Results of the Open-Ended Question

In this the last part of the Data Analysis section, the responses to the open-end question in the survey instrument are analysed i.e.

> *How can your e-Commerce service providers better assist or support your business to benefit from e-Commerce?*

The verbatim responses are included in Appendix F.

In taking an interpretive approach (Klein & Myers, 1999) the text was analysed for both literal and underlying meaning. However, no conclusions from the responses could be made on whether additional service quality dimensions are applicable to the research context. However, the responses seem to support the derived dimensions of service quality in the e-Commerce SMME context, viz., Credibility, Expertise, Availability, Supportiveness and Tangibles. The impacted dimensions for each of the verbatim responses are also included in Appendix F. A summary of the results of the number of responses impacting on these dimensions are displayed in Table 4.5.

Table 4.5: SQ dimension impacts of the responses to open-ended question

SQ Dimension	**No responses impacting on the SQ dimensions**
Credibility	11
Expertise	11
Availability	5
Supportiveness	4
Tangibles	2

The results in Table 4.5 thus appear to confirm the results of the *importance ranking of the derived dimensions in the previous section.*

4.4 DATA INTERPRETATION

The EFA results indicate that all the SERVQUAL items are not needed in the research context i.e. e-Commerce SMMEs. Eight items were omitted. These items are not necessarily unimportant, but the results suggest that these are not required in the measurement of service quality expectations in the business environment studied. The remaining items are sufficient for gathering data about the relative importance of the derived service quality dimensions. The derived dimensions, viz., Credibility, Expertise, Availability, Supportiveness and Tangibles, indicate the expected service quality focus in the research context. An explanation of the meaning and attributes of these dimensions are tabulated in Table 4.6.

Table 4.6: Meaning and Attributes of the Derived Service Quality Dimensions

Derived Dimension	Meaning and Attributes of the Derived Dimension
Credibility	The service provider should be credible in maintaining its service promises and delivering the exact system requirements as agreed with the client. The service provider should also be dependable when handling service problems after system installation.
Expertise	The service provider should have the expertise to deliver reliable systems and know-how to its clients. The service provider should also have the ability to understand the service needs of the client, and how to fulfil those needs.
Availability	The service provider should be available when service is required, and should respond promptly to service requests. The service provider should also be able to inform the client about time, duration and status of service requests.
Supportiveness	The service provider should have the readiness to help clients in a caring and supportive manner.
Tangibles	The service provider should have visually appealing premises, staff that appear professional, and supply useful support materials.

Figure 4.1 illustrates the change of service quality dimensionality for the research context. The Tangibles dimension label was retained from SERVQUAL, although one of its original items was omitted. The remaining items were still best framed by this label. The other SERVQUAL dimension labels, viz., Reliability, Responsiveness, Assurance and Empathy, were replaced by Credibility, Availability, Expertise and Supportiveness.

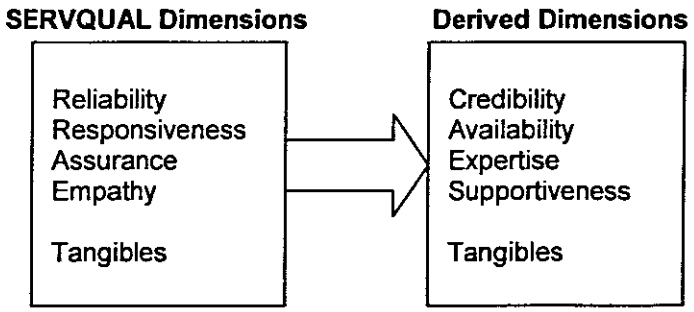


Figure 4.1: Change of Service Quality Dimensions for Research Context

The clients of the IS service providers in the research context were e-Commerce SMMEs. During the pilot survey interviews for this research, it was found these types of clients generally have little direct interaction with their service providers. The exception is when there are technical problems with the system and service is required. According to the results, Credibility is the most important dimension in the research context. This can be interpreted as an indication that the clients' most important expectation is that the service provider is a credible provider of reliable systems that meet the specified user requirements of the client. The service provider is expected to be dependable when handling service problems. However, if there are problems with the system, the clients' expect the service provider to firstly have the Expertise and Availability to solve the problems. When dealing with the clients problems the service provider is then expected to be Supportive and caring.

Table 4.7 presents the new survey instrument that may be used to evaluate the IS service expectations of e-Commerce SMMEs.

Table 4.7: New Survey Instrument for e-Commerce SMME service expectations

Dimension	Item Code	Instrument Item
SUPPORTIVENESS	S1	...has the readiness to respond to your requests?
	S2	...has staff that is consistently courteous?
	S3	...gives you individual attention?
	S4	...has staff that deal with you in a caring fashion?
TANGIBLES	T1	...has visually appealing premises and facilities?
	T2	...has staff who appear professional?
	T3	...has useful support materials (such as documentation, training, videos, etc.)?
CREDIBILITY	C1	...provides you with services as promised?
	C2	...is dependable in handling your service problems?
AVAILABILITY	A1	...keeps you informed about when service will be made?
	A2	...delivers prompt service to you?
	A3	...has convenient business hours?
EXPERTISE	E1	...provides you with reliable technology and systems?
	E2	...has staff that understands your service needs?

4.5 CONCLUSION

This chapter has described the results of the analysis of the empirical data collected for this study and its interpretation.

The results of the statistical analysis of the data, using EFA and CFA, indicate that the dimensionality of the service quality expectations of e-Commerce SMMEs differs from the original SERVQUAL dimensions. After eliminating some of the service quality items and regrouping others, the

derived dimensions in order of importance are Credibility, Expertise, Availability, Supportiveness and Tangibles. This result was also supported by the results of the open-ended survey question where the respondents were asked:

> *How can your e-Commerce service providers better assist or support your business to benefit from e-Commerce?*

In summary, the expectations of the e-Commerce SMMEs are that the service provider is *credible*, having technical *expertise* and being *available* to deal with their system problems in a *supportive* manner. Because there are limited personal meetings between clients and service providers, the clients are less concerned about the appearance of the service providers' premises and staff, or about *tangible* support materials provided by the service provider.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

"Science, according to positivism, is about solving problems. It is not about fitting theory to observations. Central to understanding this principle is the recognition that there is no such thing as a pure observation. Every observation is based on some preexisting theory or understanding." (Straub *et al.*, 2004b)

5.1 INTRODUCTION

This chapter summarises the preceding chapters, and draws conclusions based on the findings presented in Chapter 4.

It firstly presents an audit trail of the most important research process steps followed in this study. This is followed by an overview of how the research questions were answered.

A number of recommendations are subsequently presented, which are especially relevant to the business managers of e-Commerce SMMEs as well as the IS managers of businesses delivering outsourcing IS services to these e-Commerce SMMEs. These recommendations are based on the research findings represented in chapter 4 as well as some of the insights gained from the in-depth literature review of chapter 2.

Lastly the limitations of the study are discussed, as well as possibilities for future research.

5.2 AUDIT TRAIL

Figure 5.1 presents a review of the important steps in the research process for this study. It represents an audit trail of the research presented in chapters 1 to 4.

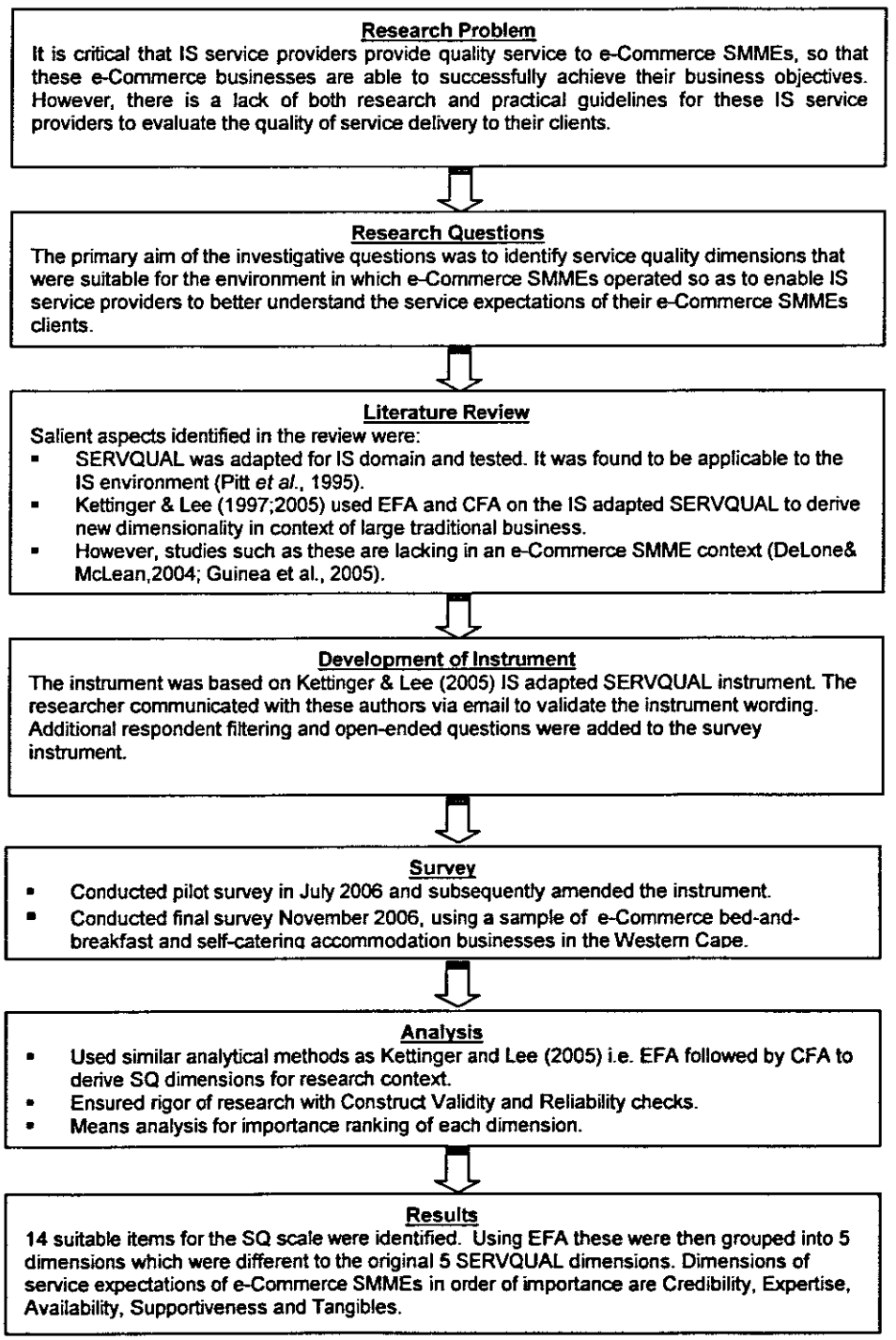


Figure 5.1: Audit Trail of the Research

5.3 ASSESSING THE FINDINGS IN RESPECT OF THE RESEARCH QUESTIONS

Research Question .1
Are the service quality dimensions for e-Commerce SMMEs different from those applied in large traditional organisations?

This question has been answered through the results of the EFA. The findings of this analysis indicated that some of the SERVQUAL items needed to be omitted and others needed to be regrouped. The result was a 14-item instrument across five dimensions. Because of the regrouping of the original SERVQUAL items, the dimensionality of the instrument needed to be changed. This entailed giving appropriate dimension label names to the regrouped items. The final service quality dimensions for the service expectations of e-Commerce SMMEs were Credibility, Expertise, Availability, Supportiveness and Tangibles. Except for the Tangibles dimension, this is thus different from the service quality dimensions found to be applicable to large traditional organisations, viz., Reliability, Responsiveness, Assurance, Empathy and Tangibles.

Research Question .2
What is the ranking, in order of importance, of the service quality dimensions for the e-Commerce SMME context?

The survey respondents were asked to rate the importance of each of the SERVQUAL items. The mean importance rating per item was then calculated. These values in turn were then used to calculate the mean importance rating for the derived dimension that contained the item. Based on this analysis the importance rating for the derived dimensions are:

1st – Credibility
2nd – Expertise
3rd – Availability
4th – Supportiveness
5th – Tangibles

Research Question .3
Are there any additional service quality criteria for this research context?

No additional service quality criteria could be deduced from the survey data i.e. the open-ended question section. The survey data however appeared to confirm the service quality dimensions derived in the study.

Research Question .4
What recommendations can be made to IS service providers to improve delivery of service to e-Commerce SMMEs?

This research question is answered in the next section of this chapter.

5.4 RECOMMENDATIONS

The findings in chapter 4 have relevance to how we approach IS effectiveness measurement within e-Commerce SMMEs using a Service Quality approach. The updated DeLone and McLean (2003) IS Success Model[1] indicates that Service Quality has an influence on the use of the IS as well as user satisfaction with the IS. The findings in chapter 4 allow the stakeholders of the IS to better understand and measure the service quality aspects of the IS, and thereby enable them to manage the effectiveness of the IS. The following sections present a number of recommendations, based on the research findings, for the stakeholders to manage the service quality effectiveness within an e-Commerce SMME context.

5.4.1 Application of the instrument by IS service providers

In chapter 4 it was reported how a survey instrument was derived for the measurement of service expectations of e-Commerce SMMEs. The derived 14-item instrument could be used by IS service providers to gauge the changing focus of the service expectations of their e-Commerce

[1] Refer to figure 2.2 in chapter 2.

SMME clients. Gupta *et al.* (2005) assert that understanding customer expectations is not easy, because customers often do not really know what they want, or do not say directly what they want. This instrument could alleviate this problem by providing a structured means of eliciting the customer's service expectations.

Meeting or exceeding customer expectations is considered to be a critical success factor for the e-Commerce environment (Lee *et al.*, 2003). Therefore the instrument allows the measurement as well as the management of this critical success factor.

5.4.2 Applying the new service quality dimensions

The importance of maintaining service quality standards is one of the essential elements that an outsourcing company should consider when contracting an outsourcing service provider (Kim *et al.*, 2003). This study has found that there are five service quality dimensions for service expectations of e-Commerce SMMEs. These are, in order of importance, Credibility, Expertise, Availability, Supportiveness, and Tangibles. IS service providers need to be cognisant of how these dimensions impact on them.

5.4.2.1 Credibility

Credibility was found to be the most important service quality dimension. The criteria for this dimension suggests that the IS service provider is required to be credible in maintaining its service promises and delivering the exact system requirements as agreed with the client. The service provider should also be dependable when handling service problems after system installation. This could be as a result of the technical dependence that the SMMEs have on their IS service providers. The high ranking of this dimension could also be related to uncertainty of the security and reliability of the online environment, especially after the "dot-com" crash (Razi, Tarn & Siddiqui, 2004). Thus IS service providers need to instil

confidence in their e-Commerce SMME clients. One of the implications of this is that they should refrain from making service promises that they know will be difficult to honour. This also has a bearing on the extent to which SMMES successfully adopt e-Commerce, since they can only be expected to embrace the technology if service providers are perceived to be credible.

5.4.2.2 Expertise

Expertise was found to be the second most important service quality dimension. The criteria for this dimension suggests that the IS service provider should have the expertise to deliver reliable systems and technical know-how to its clients. This dimension also incorporates the service provider's ability to understand the service needs of the client, and how to go about fulfilling those needs. This could also be related to the SMMEs technical dependence on IS service providers. Barnes, Hinton and Mieczkowska (2004) report that outsourcing IS expertise was one of the problems during the "dot-com" crash. They assert that this was a weakness in e-Commerce businesses with respect to initial technology choices and on-going management and development. The lack of technical expertise by the SMMEs could place additional requirements on the service provider in solving service problems. The service provider would need to have the expertise to also get to the root cause of service problems without technical advice from the client. It is very important that the IS service providers consistently provide a high level of expertise, and in so doing allow the e-Commerce SMMEs to concentrate on their core business activities.

5.4.2.3 Availability

The third important service quality dimension is Availability. The criteria for this dimension suggests that the IS service provider should be available when service is required, and should respond promptly to service requests. The service provider should also be able to inform the client

about time, duration and status of service requests. The online environment places importance on the availability of Internet technologies. System downtime could mean revenue loss for the e-Commerce SMME. These businesses firstly require reliable systems that seldom fail. But if the systems do fail, they expect prompt service and reparations. The businesses expect the service providers to be available when there are system failures, and to have the processes and infrastructure in place to keep them updated on reparation progress.

5.4.2.4 Supportiveness

The fourth important service quality dimension is Supportiveness. The criteria for this dimension suggests that the IS service provider should have the willingnesss to help clients in a caring and supportive manner. It is important to e-Commerce SMME businesses that their IS service providers have their best interests at heart, and that the service providers care about the well being and success on the SMMEs. This dimension underscores the need for service providers to be able to empathise with the IS related problems that underlie business problems confronting managers. IS service providers are evaluated by clients based on mutual interests, shared approaches to problem solving, and a compatible management culture and style (Dibbern, Goles, Hirschheim & Jayatilaka, 2004). This is the foundation on which the service relationship is structured. It is thus important for IS service providers to provide such supportiveness in order to foster goodwill and trust in their clients.

5.4.2.5 Tangibles

The last dimension, and lowest in terms of importance is Tangibles. The criteria for this dimension suggests that the IS service provider should have visually appealing premises, staff that appear professional, and supply useful support materials. The finding that Tangibles is the least important service dimension in the outsourcing relationship between IS service providers and their e-Commerce SMME clients contradicts the

findings of Kim *et al.* (2003; 2005). These authors studied service quality in IS outsourcing and found the Tangibles service dimension to be critical to the IS outsourcing relationship. Kettinger and Lee (1997), however found the Tangibles dimension to be unimportant in the context of IS departments in large businesses. The finding that Tangibles is the least important dimension in the research context is not surprising considering the nature of the "online" outsourcing relationship. The e-Commerce environment is less dependant on visual contact with the service provider. IS service providers in this environment are able to manage technical and other problems remotely. There is less physical interaction required. Thus the emphasis for IS service providers should be less on offering attractive and professional visual appearances in staff and premises, and rather to focus on delivering reliable systems.

5.4.2.6 Application for business managers

An understanding of these service quality dimensions are not only useful to the IS service providers, but to the e-Commerce SMME business managers themselves. Business managers with a higher level of prior experience, and greater familiarity with the subject of evaluation may be more confident about the realisation of their expectations (Khalifa & Liu, 2003). These dimensions and their criteria serve to highlight to the business mangers what are reasonable service quality expectations in this business environment.

5.5 LIMITATIONS OF THE RESEARCH

Results and conclusions are made with acknowledgement of the following limitations.

A CFA was used to confirm the dimensionality of the derived instrument as described in chapter 4. However, unlike Kettinger and Lee (2005), who used a second set of sample data (holdout sample) to confirm the dimensionality, this research used the same set of collected research data

since the collected sample size was relatively small. The process followed in this research was therefore not as refined as the approached used by Kettinger and Lee (2005), however the CFA still served its purpose of confirming the results of the EFA.

The small sample size, as discussed in chapter 4, is also noted as a limitation. A larger sample size would have allowed for more rigorous statistical analysis.

5.6 FUTURE RESEARCH

This study has highlighted the need for further empirical research in the field of IS effectiveness measurement in the context of e-Commerce and SMMEs. In particular this study has focused on service quality as an IS effectiveness measure, but was delimited to the Western Cape region. Future research could expand this type of study to the national population.

Another research possibility is to qualitatively investigate service expectations and compare with the results of this study. The section of the questionnaire with open-ended questions revealed some interesting insights into the service expectations of e-Commerce SMMEs, and appeared to confirmed the results of the derived service dimensions for the research context. However, more extensive qualitative research could be performed in this area, to further verify the results of this study.

Kettinger and Lee (2005) derived a Responsiveness dimension with only two items. The authors recognised that such a two dimensional construct has potential validity problems. They thus encouraged future researchers to improve around this dimension. Similarly two of the derived dimensions in this study have two items i.e. Credibility and Expertise. Future research could consider improving these dimensions with additional items.

Most IS service quality research, including this study, has relied on SERVQUAL to be the starting point for the research. Although this measurement tool has been found to be applicable to the IS domain, it was developed in the Marketing domain. Future research in the IS domain could use the same rigorous processes followed by Parasuraman *et al.* (1985, 1988, 1991, 1993, 1994a, 1994b) e.g. using focus groups, to develop a similar tool for the IS domain from first principles.

5.7 CONCLUSION

This study has described the research process followed to investigate IS effectiveness measurement, and in particular service quality measurement, in an e-Commerce and SMME context.

The study has presented answers to research questions which could benefit the stakeholders, viz., IS service providers and their e-Commerce SMME clients. These benefits include guidance and understanding related to service quality expectations in the service relationship between these stakeholders.

The study has implications for both practitioners and the academic communities. For the academic community, this study contributes to our understanding of the complex issue of IS evaluation. In particular it provides an initial insight into measurement of IS service quality expectations in an e-Commerce SMME context. It also gives insight into the differences in evaluation and measurement criteria of different research contexts i.e. e-Commerce versus brick-and-mortar businesses, and large versus SMME businesses.

For the practitioners, viz, IS service providers, and e-Commerce managers, this study provides IS service quality measurement and evaluation criteria enabling these stakeholders to manage the effectiveness of the delivered IS. Effective IS in this context will enable the

business managers to better fulfil their business objectives. The measurement and evaluation criteria will also enable the IS service providers to improve its service delivery, thereby improving the business relationship with its clients.

This study has also paved the way for future research in this area and context. Further research in this area and context is still needed, as its contribution could give academic guidance to affect economic growth of both the e-Commerce industry as well as the SMME sector.

LIST OF REFERENCES

Aldin, N., Brehmer, P. & Johansson, A. 2004. Business development with electronic commerce: refinement and repositioning. *Business Process Management Journal*, 10(1):44-62.

Al-Qirim, N.A.Y & Bathula, H. 2002. IT and eCommerce Outsourcing in Small to Medium-Size Enterprises in New Zealand: An Exploratory Research. *Proceedings of the 15th Bled Electronic Commerce Conference eReality: Constructing the eEconomy,* Bled, Slovenia, 17-19 June 2002.

Babbie, E. & Mouton, J. 2002. *The practice of social research.* Cape Town: Oxford University Press Southern Africa.

Barnes, D., Hinton, M. & Mieczkowska, S. 2004. Avoiding the fate of the dotbombs: lessons from three surviving dotcom start-ups. *Journal of Small Business and Enterprise Development*, 11(3):329-337.

Barnes, S.J. & Vidgen, R.T. 2002. An integrative approach to the assessment of e-commerce quality. *Journal of Electronic Commerce Research*, 3(3):114-127.

Bharati, P. & Berg, D. 2003. Managing information systems for service quality: a study from the other side. *Information Technology & People*, 16(2):183-202.

Briggs, R. O., De Vreede, G., Nunamaker, J. & Sprague, R. 2003. Special Issue: Information Systems Success. *Journal of Management Information Systems,* 19(4):5-8.

Cai, S. & Jun, M. 2003. Internet users' perceptions of online service quality: a comparison of online buyers and information searchers. *Managing Service Quality*, 13(6):504-519.

Cao, M., Zhang, O. & Seydel, J. 2005. B2C e-commerce web site quality: an empirical examination. *Industrial Management & Data Systems*, 105(5):645-661.

Cronin, J.J., Jr. & Taylor, S.A. 1994. SERVPERF versus SERVQUAL: reconciling performance-based and perception-minus-expectations measurement of service quality. *Journal of Marketing*, 58(1):125-131.

Dahlberg, T. & Nyrhinen, M. 2006. A New Instrument to Measure the Success of IT Outsourcing. *Proceedings of the 39th Hawaii International Conference on System Sciences*, Hyatt Regency Kauai, 4-7 January 2006.

D'Ambra, J. & Rice, R.E. 2001. Emerging factors in user evaluation of the world wide web. *Information & Management*, 38(1):373-384.

Davis, C.H. & Vladica, F. 2006. Use of Internet technologies and e-Business solutions: a structural model of sources of business value among Canadian micro-enterprises. *Proceedings of the 39th Hawaii International Conference on System Sciences,* Hyatt Regency, Kauai, 4-7 January 2006.

DeLone, W.H. & McLean, E.R. 1992. Information systems success: the quest for the dependant variable. *Information Systems Research*, 3(1):60-95.

DeLone, W.H. & McLean, E.R. 2002. Information systems success revisited. *Proceedings of the 35th Hawaii International Conference on System Sciences*, Big Island, HI, USA, 7-10 January 2002.

DeLone, W.H. & McLean, E.R. 2003. The DeLone and McLean model of information systems success: a ten-year update. *Journal of Management Information Systems*, 19(4):9-30.

DeLone, W.H. & McLean, E.R. 2004. Measuring e-Commerce success: applying the DeLone & McLean information systems success model. *International Journal of Electronic Commerce,* 9(1):31-47.

De Guinea, A.O., Kelley, H. & Hunter, M.G. 2005. Information systems effectiveness in small businesses: extending a Singaporean model in Canada. *Journal of Global Information Management*, 13(3):55-79.

Dibbern, J., Goles, T., Hirschheim, R. & Jayatilaka, B. 2004. Information systems outsourcing: a survey and analysis of the literature. *The DATA BASE for Advances in Information Systems*, 35(4):6-102.

Electronic Communications and Transactions Act No. 25 of 2002.

Elpez, I. & Fink, D. 2006. Information systems success in the public sector: stakeholders' perspectives and emerging alignment model. *Issues in Informing Science and Information Technology*, 3:219-231.

Fink, A. 1995. *The survey handbook.* Thousand Oaks, California: Sage Publications.

Foxall, G.R. 1995. Science and interpretation in consumer research: a radical behaviourist perspective. *European Journal of Marketing*, 29(9): 3-99.

Garson, G.D. 2007. Factor analysis.
http://www2.chass.ncsu.edu/garson/pa765/factor.htm
[24 July 2007].

Gefen, D. 2002. Customer loyalty in e-commerce. *Journal of the Association for Information Systems,* 3:27-51.

Gerbing, D.W. & Hamilton, J.G. 1996. Viability of exploratory factor analysis as a precursor to confirmatory factor analysis. *Structural Equation Modeling,* 3(1):62-72.

Gounaris, S. & Dimitriadis, S. 2003. Assessing service quality on the web: evidence from business-to-consumer portals. *Journal of Services Marketing,* 17(5):529-548.

Grover, V., Jeong, S.R. & Segars, A.H. 1996a. Information systems effectiveness: The construct space and patterns of application. *Information & Management,* 31:177-191.

Grover, V., Cheon, M.J. & Teng, J.T.C. 1996b. The effect of service quality and partnership on the outsourcing of information systems functions. *Journal of Management Information Systems,* 12(4):89-116.

Gupta, A., McDaniel, J.C. & Herath, S.K. 2005. Quality management in service firms: sustaining structures of total quality service. *Managing Service Quality,* 15(4):389-402.

Hong, W. & Zhu, K. 2006. Migrating to internet-based e-commerce: factors affecting e-commerce adoption and migration at the firm level. *Information & Management,* 43(2):204-221.

Hughes, M., Golden, W. & Powell, P. 2003. Inter-organisational ICT systems: the way to innovative practice for SMEs?. *Journal of Small Business and Enterprise Development,* 10(3):277-286.

Jeffcoate, J., Chappell, C. & Feindt, S. 2002. Best practice in SME adoption of e-commerce. *Benchmarking: An International Journal,* 9(2):122-132.

Jiang, J.J., Klein, G. & Carr, C.L. 2002. Measuring information system service quality: SERVQUAL from the other side. *MIS Quarterly,* 26(2):145-166.

Jones, C., Hecker, R. & Holland, P. 2003. Small firm internet adoption: opportunities forgone, a journey not begun. *Journal of Small Business and Enterprise development,* 10(3):287-297.

Kang, H. & Bradley, G. 2002. Measuring the performance of IT services: an assessment of SERVQUAL. *International Journal of Accounting Information Systems,* 3(1):151-164.

Kettinger, W.J. & Lee, C.C. 1997. Pragmatic perspectives on the measuring of information systems service quality. *MIS Quarterly*, 21(2):223-241.

Kettinger, W.J. & Lee, C.C. 2005. Zones of tolerance: alternative scales for measuring information systems service quality. *MIS Quarterly*, 29(4):607-623.

Khalifa, M. & Liu, V. 2003. Determinants of Satisfaction at Different Adoption Stages of Internet-Based Services. *Journal of the Association for Information Systems*, 4(5):206-232.

Khalifa, M. & Liu, V. 2004. The State of Research on Information System Satisfaction. *Journal of Information Technology Theory & Application*, 5(4):37-50.

Khan, M. 2003. ECOSERV ecotourists' quality expectations. *Annals of Tourism Research*, 30(1):109–124.

Khan, M. & Su, K. 2003. Service quality expectations of travellers visiting Cheju Island in Korea. *Journal of Ecotourism*, 2(2):114-125.

Khazanchi, D. & Munkvold, B.E. 2000. Is information systems a science?: an inquiry into the nature of the information systems discipline. *The Data Base for Advances in Information System*, 31(3).

Kim, K.K. 1990. User Information Satisfaction: Toward Conceptual Clarity. *Proceedings of the International Conference on Information Systems (ICIS)*, Copenhagen.

Kim, D.R., Cheon, M.J., Beugre, C.D. & Coverdale, T.K. 2003. Information systems outsourcing: exploration on the impact of outsourcing service providers' service quality. *Issues in Information Systems (IIS)*, 4(2):528-534.

Kim, D.R., Choen, M.J, & Aiken, M. 2005. Towards an understanding of the relationship between IS outsourcing vendors' service quality and outsourcing effects. *International Journal of Information Technology and Management*, 4(1):12-24.

Klein, H. K. & Myers, M. 1999. A set of principles for conducting and evaluating interpretive field studies in information systems. *MIS Quarterly*, 23(1):67-94.

Kline, P. 1994. *An easy guide to factor analysis*. London: Routledge.

Lee, J., Pi, S., Chi-wai Kwok, R. & Huynh M.Q. 2003. The contribution of commitment value in Internet commerce: an empirical investigation. *Journal of the Association for Information Systems,* 4:39-64.

Lee, G. & Lin, H. 2005. Customer perceptions of e-service quality in online shopping. *International Journal of Retail & Distribution Management*, 33(2):161-176.

Lomerson, W.L. & Tuten, P.M. 2005. Examining evaluation across the IT value chain. *Proceedings of the 2005 Southern Association of Information Systems Conference*, Savannah, Georgia, USA, 25–26 February 2005:124-129.

Lui, C. & Arnett, K.P. 2000. Exploring the factors associated with Web site success in the context of electronic commerce. *Information & Management*, 38(1):23-33.

Lycett, M., Kanellis, P. & Paul, R.J. 1997. Philosophical directions for information systems development. *Proceedings of the 3rd Americas Conference on Information Systems*, Indianapolis, Indiana, 15-17 August 1997: 309-311.

Madu, C.N. & Madu, A.A. 2002. Dimensions of equality. *International Journal of Quality & Reliability Management*, 19(3):246-258.

Mendo, F.A. & Fitzgerald, G. 2005. A multidimensional framework for SME e-business progression. *Journal of Enterprise Information Management*, 18(6):678-696.

Mahmood, M.A., Kohli, R. & Devaraj, S. 2004. Measuring Business Value of Information Technology in E-Business Environments. *Journal of Management Information Systems,* 21(1):11-16.

Molla, A. & Licker, P. 2001. E-Commerce systems success: an attempt to extend and respecify the DeLone and McLean model of IS success. *Journal of Electronic Commerce Research*, 2(4):131-141.

Mouton, J. and Marais, H.C. 1990. *Basic Concepts in the Methodology of the Social Sciences.* Pretoria: HSRC Press.

Myers, M. D. 1997. Qualitative research in information systems. *MISQ Discovery.* http://www.misq.org/discovery/MISQD_isworld/ [24 July 2007].

National Small Business Act. 1996. (No. 102 of 1996).

National Small Business Amendment Act. 2003. (No.26 of 2003).

Neuman, W.L. 2003. *Social research methods: qualitative and quantitative approaches – 5th edition.* Boston: Allyn and Bacon.

Parasuraman, A., Berry, L.L. & Zeithaml, V.A. 1993. Research note: more on improving quality measurement. *Journal of Retailing*, 69(1):140-147.

Parasuraman, A., Berry, L.L. & Zeithaml, V.A. 1994b. Alternative scales for measuring service quality: a comparative assessment based on psychometric and diagnostic criteria. *Journal of Retailing*, 70(3):201-230.

Parasuraman, A., Zeithaml, V.A. & Berry, L.L. 1985. A conceptual model of service quality and its implications for future research. *Journal of Marketing*, 49(4):41-50.

Parasuraman, A., Zeithaml, V.A. & Berry, L.L. 1988. SERVQUAL: a multiple-item scale for measuring consumer perceptions of service quality. *Journal of Retailing*, 64(1):12-40.

Parasuraman, A., Zeithaml, V.A. & Berry, L.L. 1991. Refinement and reassessment of the SERVQUAL scale. *Journal of Retailing*, 67(4):420-450.

Parasuraman, A., Zeithaml, V.A. & Berry, L.L. 1994a. Reassessment of expectations as a comparison standard in measuring service quality: implications for further research. *Journal of Marketing*, 58(1):111-124.

Parasuraman, A., Zeithaml, V.A., Malhotra, A. 2005. E-S-QUAL: a multiple-item scale for assessing electronic service quality. *Journal of Service Research*, 7(3):213-233.

Park, J. & Kim, J.S. 2005. The impact of IS sourcing type on service quality and maintenance efforts. *Information & Management*, 42(1):261-274.

Pather, S., Remenyi, D. & Erwin, G. 2004. E-commerce success: the quest for IS effectiveness measurement: a conceptual framework for the e-commerce environment. *South African Computer Journal*, 32:34-43.

Pather, S. & Remenyi, D. 2005. Some of the philosophical issues underpinning research in information systems - from positivism to critical realism. *South African Computer Journal,* 35:76-83.

Pinsonneault, A. & Kraemer, K.L. 1993. Survey research methodology in management information systems: an assessment. *Journal of Management Information Systems*, 10(2):75-106.

Pitt, L.F., Watson, R.T. & Kavan, C.B. 1995. Service quality: a measure of information systems effectiveness. *MIS Quarterly*, 19(2):173-188.

Pitt, L.F., Watson, R.T. & Kavan, C.B. 1997. Measuring information systems service quality: concerns for a complete canvas. *MIS Quarterly*, 21(2):209-223.

Razi, M.A., Tam, J.M. & Siddiqui, F.A. 2004. Exploring the failure and success of DotComs. *Information Management & Computer Security*, 12(3):228-244.

Rohde, F.H. 2004. IS/IT outsourcing practices of small- and medium-sized manufacturers. *International Journal of Accounting Information Systems*, 5:429-451.

Rotondaro, R.G. 2002. Defining the customer's expectations in e-business. *Industrial Management & Data Systems,* 102(9):476-482.

Santos, J. 2003. E-service quality: a model of virtual service quality dimensions. *Managing Service Quality*, 13(3):233-246.

Saunders, C. 2005. MIS journal rankings. *ISWorld.* http://www.isworld.org/csaunders/rankings-0517.htm [24 July 2007].

Schlenker, L. & Crocker, N. 2003. Building an e-business scenario for small business: the IBM SME Gateway project. *Qualitative Market Research: An International Journal,* 6(1):7-17.

Seddon, P.B. & Kiew, M-Y. 1996. A Partial Test and Development of DeLone and McLean's Model of IS Success. *Australian Journal of Information Systems*, 4(1):90-110.

Seddon, P.B., Staples, S., Patnayakuni, R. & Bowtell, M. 1999. Dimensions of information systems success. *Communications of the Association for Information Systems*, 2:1-61.

Sheehan, K. 2001. E-mail survey response rates: a review. *Journal of Computer-Mediated Communication*, 6(2) http://jcmc.indiana.edu/vol6/issue2/sheehan.html [24 July 2007].

Shim, J. P., Shin, Y.B. & Nottingham, L. 2002. Retailer Web site influence on customer shopping: an exploratory study on key factors of customer satisfaction. *Journal of the Association for Information Systems,* 3:53-76.

Simpson, M. & Docherty, A.J. 2004. E-commerce adoption support and advice for UK SMEs. *Journal of Small Business and Enterprise Development*, 11(3):315-328.

Stansfield, M. & Grant, K. 2003. An investigation into issues influencing the use of the internet and electronic commerce among small-medium sized enterprises. *Journal of Electronic Commerce Research*, 4(1):15-33.

Staples, D.S., Wonga, I., Seddon, P.B. 2002. Having expectations of information systems benefits that match received benefits: does it really matter? *Information & Management*, 40:115–131.

Straub, D.W. 1989. Validating instruments in MIS research. *MIS Quarterly*, 13(2):147-169.

Straub, D., Boudreau, M. & Gefen, D. 2004a. Validation guidelines for IS positivist research. *Communications of the Association for Information Systems*, 13:380-427.

Straub, D., Geffen, D. & Boudreau, M. 2004b. The ISWorld Quantitative, Positivist Research Methods Website. *ISWorld*.
http://dstraub.cis.gsu.edu:88/quant/
[24 July 2007].

Strauss, A.L. & Corbin, J. 1998. *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory, 2nd ed.* London: Sage.

Subba Rao, S. & Metts, G. 2003. Electronic commerce development in small and medium sized enterprises: a stage model and its implications. *Business Process Management Journal*, 9(1):11-32.

Suhr, D.D. 2006. Exploratory of confirmatory factor analysis? *Proceedings of the Thirty-first Annual SAS® Users Group International Conference*, San Francisco, California 26-29 March 2006.

Thong, J.Y.L. & Yap, C. 1996. Information systems effectiveness: a user satisfaction approach. *Information Processing & Management*, 32(5):601-610.

Van Dyke, T.P., Kappelman, L.A. & Prybutok, V.R. 1997. Measuring information systems service quality: concerns on the use of the SERVQUAL questionnaire. *MIS Quarterly*, 21(2):195-208.

Van Iwaarden, J., Van der Wiele, T., Ball, L. & Millen, R. 2003. Applying SERVQUAL to websites: an exploratory study. *International Journal of Quality & Reliability Management*, 20(8):919-935.

Van Iwaarden, J., Van der Wiele, T, Ball, L. & Millen, R. 2004. Perceptions about the quality of web sites: a survey amongst students at Northeastern University and Erasmus University. *Information & Management*, 41:947-959.

Van Riel, A.C.R., Semeijn, J. & Janssen, W. 2003. E-service quality expectations: a case study. *Total Quality Management*, 14(4):437-450.

Warden, S. & Williams, R. 2003. Benefit's for small medium and micro enterprises (SMMEs) in the Western Cape in the tourism industry for adopting electronic commerce. *Proceedings of the 5th Annual Conference on World Wide Web Applications*, Rand Afrikaans University, 10-12 September 2003.

Watson, W.T., Pitt, L.F., Cunningham, C.J. & Nel, D. 1993. User satisfaction and service quality of the IS department: closing the gaps. *Journal of Information Technology*, 8:257-265.

Watson, W.T., Pitt, L.F. & Kavan, C.B. 1998. Measuring information systems' service quality: lessons from two longitudinal case studies. *MIS Quarterly*, 22(1):61-79.

Whyte, G. & Bytheway, A. 1996. Factors affecting information systems' success. *International Journal of Service Industry Management*, 7(1):74-93.

Wilkin, C., Carr, R. & Hewett, W. 2001. Evaluating IS quality: exploration of the role of expectations on stakeholders' evaluation. In Van Grembergen, W. (ed). *Information Technology Evaulation: Methods and Management.* Hershey PA: Idea Group Publishing: 111-129.

Wilkin, C. & Castleman, T. 2003. Development of an Instrument to Evaluate the Quality of Delivered Information Systems. *Proceedings of the 36th Hawaii International Conference on System Sciences,* Big Island, HI, USA, 6-9 January 2003.

Wynne, C. & Berthon, P. 2001. The impact of the Internet on the distribution value chain: the case of the South African tourism industry. *International Marketing Review*, 18(4):420-431.

Wyssusek, B., Schwartz, M. & Kremberg, B. 2002. Targeting the social: a sociopragmatic approach towards design and use of information systems. *Proceedings of the Information Resources Management Association International Conference (IRMA 2002).* 19-22 May 2002, Seattle, Washington, USA: 832-835.

Zeithaml, V.A. 2002. Service excellence in electronic channels. *Managing Service Quality*, 12(3):135-138.

APPENDIX A: Correspondence with Kettinger and Lee

From: <cclee@yonsei.ac.kr>
Date: Aug 2, 2006 6:25 AM

Subject: Re: MISQ Article 2005

To: Graham April <gdapril@gmail.com>
Cc: Bill Kettinger <fxabillk@moore.sc.edu>, Bill Kettinger <
billkett@bellsouth.net>

Mr. April,

As for your question on the items in p.615, I'd like to address a couple of things as below.

1. yes, the same items and the format have been used in our study.

2. While you didn't tell me how the respondents got confused or feel vague on the items, I guess that they may have a trouble distinguising the minimum vs. desired level. In that case, I'd like to recommended that you can rephrase and reinforce the explantion of these level above or provide an example to explain the difference between two different level.
Since I don't have enough information on how you conduct the pilot test, such as sample profile, size.., I just can provide an general advice. I hope it helps you conducting your study further.

Thanks for your interest!

Choong C. Lee, Professor, Associate Dean
Yonsei University, Graduate School of Information

--- Original Message ---
From : "Graham April"<gdapril@gmail.com >
To : <bill@sc.edu>, < cclee@yonsei.ac.kr>
Date : 2006/07/31 ??? ?? 5:45:47
Subject : MISQ Article 2005

Goodday Profs Kettinger and Lee,

I am a masters student from Cape Town, South Africa and I'm doing a study on the quality of the service relationship between SME businesses and the IT Vendors providing them with e-Commerce services.

Citing your paper in MISQ 2005 on the alternative ZOT IS SERVQUAL scale, I have run a pilot survey using the survey instrument described in your article on page 615 of the MISQ issue. One of the findings of the pilot run has been that the respondence found the questions to be unclear or vague.

Are the questions on page 615 complete and as used in your study? If not, I would greatly appreciate it if you could forward me the complete questions used in your study.

If the questions on page 615 are complete, what advice could you give me to make the instrument clearer for my respondents?

Thank you greatly.
Graham April

APPENDIX B: Pilot Survey Instrument

Cape Peninsula University of Technology

Survey of e-Commerce Service Quality

Name of Company: .....
Number of Employees: .....

Introduction:
This is a survey of the service relationship between your business and your e-Commerce service providers. We are referring here to the service providers who provide outsourcing services such as Website development and hosting, listing your business information on their Websites, and Internet services.

1. Please indicate, by ticking the adjacent box, which e-Commerce services your business out sources to an e-Commerce service provider.
   - **Website development** ☐
   - **Website Hosting** ☐
   - **Listing on Secondary Website** ☐
   - **E-Commerce Consultancy** ☐
   - **Internet Service Provider** ☐
   - **Other (please list)** .....
   .....

2. Please indicate, by ticking the adjacent box, which e-Commerce activities your business actively engages in.
   - **E-mail** ☐
   - **Business information on a Website** ☐
   - **Customer feedback or enquiries via a Website** ☐
   - **Bookings or order placement via a Website** ☐
   - **Payment via a Website** ☐
   - **Collaboration with suppliers or business partners** ☐
   - **Other (please list)** .....
   .....

3. How can (or does) the Internet and e-Commerce benefit your business?
   .....
   .....
   .....
   .....
   .....

4. How can your e-Commerce service providers better assist or support your business to benefit from e-Commerce?
   .....
   .....
   .....
   .....
   .....

5. Please indicate how **Important or Unimportant** you rate each of the following service criteria. Indicate your rating by ticking **ONLY ONE** of the boxes on a scale from 1 to 5. The higher the number the more important the service criteria. This should serve as an indication of how relevant each service criteria is to your overall service satisfaction with your e-Commerce service provider.

When it comes to...

1.	...Providing services as promised...	Important 5 4 3 2 1 Unimportar
2.	...Dependability in handling customer's service problems...	Important 5 4 3 2 1 Unimportar
3.	...Performing service right the first time...	Important 5 4 3 2 1 Unimportar
4.	...Providing services at the promised time...	Important 5 4 3 2 1 Unimportar
5.	...Maintaining the reliable technology and system...	Important 5 4 3 2 1 Unimportar
6.	...Keeping customers informed about when service will be made...	Important 5 4 3 2 1 Unimportar
7.	...Prompt service to customers...	Important 5 4 3 2 1 Unimportar
8.	...Willingness to help customers?	Important 5 4 3 2 1 Unimportar
9.	...Readiness to respond to customer's requests...	Important 5 4 3 2 1 Unimportar
10.	...IS employees who instill confidence in customers...	Important 5 4 3 2 1 Unimportar
11.	...Making customers feel safer in computer transactions...	Important 5 4 3 2 1 Unimportar
12.	...IS employees who are consistently courteous...	Important 5 4 3 2 1 Unimportar
13.	...IS employees who have the knowledge to answer customers' questions...	Important 5 4 3 2 1 Unimportar
14.	...Giving customers individual attention...	Important 5 4 3 2 1 Unimportar
15.	...IS employees who deal with customers in a caring fashion...	Important 5 4 3 2 1 Unimportar
16.	...Having the customer's best interest at heart...	Important 5 4 3 2 1 Unimportar
17.	...IS employees who understand the needs of customers...	Important 5 4 3 2 1 Unimportar
18.	...Convenient business hours...	Important 5 4 3 2 1 Unimportar
19.	...Up-to-date technology...	Important 5 4 3 2 1 Unimportar
20.	...Visually appealing facilities...	Important 5 4 3 2 1 Unimportar
21.	...IS employees who appear professional...	Important 5 4 3 2 1 Unimportar
22.	...Useful support materials (such as documentation, training, videos, etc.)...	Important 5 4 3 2 1 Unimportar

6. What other service criteria do you expect from your e-Commerce service provider?

.....

.....

.....

.....

Thank you for taking the time to complete this questionnaire.

APPENDIX C: Final Survey Instrument (after pilot)

Cape Peninsula University of Technology

Survey of e-Commerce Service Quality

Name of Company : .....
Number of Employees: ...

Introduction:
This is a survey of the service relationship between your business and your e-Commerce service providers. We are referring here to the service providers who provide outsourcing services such as Website development and hosting, listing your business information on their Websites, and Internet services.

Please save the document on completion, and email to gdapril@gmail.com

1. Please indicate which of these e-Commerce services your business out sources to an e-Commerce service provider. Please mouse click one or more of the adjacent boxes.
   - **Website development** ☐
   - **Website Hosting** ☐
   - **Listing on Secondary Website** ☐
   - **E-Commerce Consultancy** ☐
   - **Internet Service Provider** ☐
   - **Other (please list)** .....

2. Please indicate which e-Commerce activities your business actively engages in. Please mouse click one or more of the adjacent boxes.
   - **E-mail** ☐
   - **Business information on a Website** ☐
   - **Customer feedback or enquiries via a Website** ☐
   - **Bookings or order placement via a Website** ☐
   - **Payment via a Website** ☐
   - **Collaboration with suppliers or business partners** ☐
   - **Other (please list)** .....

3. Please indicate how **Important or Unimportant** you rate each of the following service criteria. Indicate your rating by mouse clicking **ONLY ONE** of the boxes on a scale from 1 to 5. The higher the number the more important the service criteria. This should serve as an indication of how relevant each service criteria is to your overall service satisfaction with your e-Commerce service provider.

How important is it that your e-Commerce service provider...

	Important 5 4 3 2 1 Unimportar
1. ...provides you with services as promised?	☐☐☐☐☐
2. ...is dependable in handling your service problems?	☐☐☐☐☐
3. ...performs services right the first time?	☐☐☐☐☐
4. ...provides you with services at the promised time?	☐☐☐☐☐
5. ...provides you with reliable technology and systems?	☐☐☐☐☐
6. ...keeps you informed about when service will be made?	☐☐☐☐☐
7. ...delivers prompt service to you?	☐☐☐☐☐
8. ...has the willingness to help you?	☐☐☐☐☐
9. ...has the readiness to respond to your requests?	☐☐☐☐☐
10. ...has staff that instils confidence in you?	☐☐☐☐☐
11. ...makes you feel safer in computer transactions?	☐☐☐☐☐
12. ...has staff that is consistently courteous?	☐☐☐☐☐
13. ...has staff that has the knowledge to answer your questions?	☐☐☐☐☐
14. ...gives you individual attention?	☐☐☐☐☐
15. ...has staff that deal with you in a caring fashion?	☐☐☐☐☐
16. ...has your best interest at heart?	☐☐☐☐☐
17. ...has staff that understands your service needs?	☐☐☐☐☐
18. ...has convenient business hours?	☐☐☐☐☐
19. ...has up to date technology?	☐☐☐☐☐
20. ...has visually appealing premises and facilities?	☐☐☐☐☐
21. ...has staff who appear professional?	☐☐☐☐☐
22. ...has useful support materials (such as documentation, training, videos, etc.)?	☐☐☐☐☐

4. How can your e-Commerce service providers better assist or support your business to benefit from e-Commerce?

.....

.....

Thank you for taking the time to complete this questionnaire.

APPENDIX D: Cover Letter for Survey Questionnaire

Goodday,

I am conducting a survey as part of a National Research Foundation (NRF) funded project at the Cape Peninsula University of Technology (CPUT).

My research investigates the service requirements of small businesses, such as yourself, regarding e-Commerce service providers. I am referring here to service providers delivering services such as listing your company on their website, website development and web hosting.

My preliminary research has revealed that the Internet and its e-Commerce applications are critical to the success of businesses in your industry. Your service requirements are thus of special interest.

I would greatly appreciate your help in completing the attached survey questionnaire which has been designed to use the least amount of time and effort.

Thank you kindly for your participation.

Kind regards
Graham April

Masters Student
CPUT

APPENDIX E: Businesses visited during Pilot study

Business Name	Location	Manager/Owner
Huis de Villiers	Villiersdorp	Florayne Carr
Evertsdal Guesthouse	Durbanville	Leandi
Le Petit Chateau Guesthouse	Durbanville	Lynda
Highlands Lodge	Durbanville	Jennifer
Olives on Providence	Panarama	Terry
Ramasibi B&B	Panarama	JJ
Tranquil Manor	Durbanville	Denise
Winelands Lodge	Durbanville	Mrs Barrett

APPENDIX F: Verbatim responses to Open-ended Survey Questions

How can your e-Commerce service providers better assist or support your business to benefit from e-Commerce?

The verbatim responses to this question are listed below together with the service quality dimensions which are impacted by the responses:

- "Don't let the server go down – loss of business... SP should do what they say they can and will do."
  IMPACTED DIMENSIONS: Credibility, Expertise

- "SP should care about me – I should be important enough to them – they should know who I am. Had a bad experience with "Webmail" – did not deliver on promise – wasted R6000."
  IMPACTED DIMENSIONS: Credibility, Supportiveness

- "SP should deliver on promises of increased customer awareness and bookings. Have listings on 23 website – get booking from only 3. Have invested R30 000 in listings."
  IMPACTED DIMENSIONS: Credibility

- "User-friendly 'templates'. "
  IMPACTED DIMENSIONS: Tangibles

- "Keeping us informed of technological advances that may be of benefit."
  IMPACTED DIMENSIONS: Expertise, Availability

- "They could give themselves a face! We have never met most of them - purely email or phone conversations."
  IMPACTED DIMENSIONS: Supportiveness, Tangibles

- "By constantly reviewing my website and ensuring that the website appears at the top of search engine listings."
  IMPACTED DIMENSIONS: Availability, Expertise

- "Our e-Commerce service provider does keep as well abreast of new technologies, systems and developments. We feel secure in their hands, and really heavily on their expertise going forward. They have a good understanding of our business model. This we feel is the most important part of an e-Commerce provider, that they take the time to understand and develop with you (not for you) an e-Commerce solution to suit your business."
  IMPACTED DIMENSIONS: Credibility, Expertise

- "I rely on good websites with loads of hits leading to loads of enquiries. All my business comes from websites. Most I try are a waste of money but a couple of South African ones always come up trumps. I now don't subscribe to any new offers unless they give a free trial and can put their money where their mouth is."

  IMPACTED DIMENSIONS: Credibility, Expertise

- "Note: I am with MWEB who have consistently provided the best service around at almost the best rates."

  IMPACTED DIMENSIONS: Credibility

- "Probably more than 90% of our business is sourced from our secondary website listings. I think the small B&B market is well catered for in SA. I'm generally very satisfied with the services provided."

  IMPACTED DIMENSIONS: Credibility

- "More information for latest developments and current improvements. I am happy with my service provider right now but need to sort our Telkom and the skyrocketing costs of dial-up. Honestly, these are necessary evils."

  IMPACTED DIMENSIONS: Credibility, Expertise

- "Make sure that the business advertised reach more possible clients. Help me in my marketing endevour and win customers for my tourist business."

  IMPACTED DIMENSIONS: Expertise

- "I find my dealings with the e-Commerce service providers outstanding and personal attention exceptional!"

  IMPACTED DIMENSIONS: Availability, Supportiveness

- "Don't interrupt service delivery."

  IMPACTED DIMENSIONS: Availability

- "They close over December – January, but I suppose they need to take a break."

  IMPACTED DIMENSIONS: Availability

- "Up to date with technology and developments in that area."

  IMPACTED DIMENSIONS: Expertise

- "Update and Upgrade website. Confidentiality. Improve search engine ratings."

  IMPACTED DIMENSIONS: Credibility, Expertise

- "SP should inform me of webpages that are not working for me – are they viable."

  IMPACTED DIMENSIONS: Credibility, Expertise

- "None, very happy with the service that I receive, good feedback & reasonable special offer advertising – capestay.co.za"

  IMPACTED DIMENSIONS: Credibility, Supportiveness

- "By taking a pro-active approach. "

  IMPACTED DIMENSIONS: Credibility, Expertise

- "Ensure that search engines find our website."

  IMPACTED DIMENSIONS: Expertise

APPENDIX G: Raw survey research data

Survey data collected

	Reliability					Responsiveness				Assurance				Empathy					Tangibles			
SURVEY	Rel1	Rel2	Rel3	Rel4	Rel5	ResS1	ResS2	ResS3	ResS4	A1	A2	A3	A4	E1	E2	E3	E4	E5	T1	T2	T3	T4
1	5	5	5	5	5	3	5	5	5	5	5	5	5	5	5	5	5	5	5	1	3	3
2	5	5	4	4	4	5	5	5	5	5	3	5	4	5	5	5	4	5	5	1	4	1
3	5	5	5	4	5	4	4	5	5	5	5	4	5	5	4	5	5	5	5	2	5	3
4	5	5	5	4	4	5	5	5	4	1	1	1	4	4	1	1	1	5	4	1	1	1
5	5	5	3	5	5	5	3	5	3	5	5	3	5	5	4	5	5	5	5	1	1	1
6	4	4	4	4	4	4	5	3	4	2	5	1	1	1	1	4	5	5	5	1	1	3
7	5	5	5	5	5	4	5	5	4	4	4	4	4	3	3	4	5	4	3	2	4	3
8	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
9	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	1	5	3
10	5	5	5	5	5	4	5	5	5	4	4	4	5	5	4	5	5	4	5	1	4	4
11	4	4	3	3	5	3	3	3	4	4	2	2	4	4	2	4	4	2	4	1	3	1
12	5	5	5	5	5	5	5	5	5	5	5	5	5	5	4	5	5	5	5	3	4	3
13	5	5	5	5	5	5	5	5	5	5	5	5	5	5	3	4	5	3	3	1	2	2
14	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	1	1	1	5
15	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	4	5	5
16	5	5	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
17	5	5	5	5	5	5	5	5	3	3	3	1	5	3	1	3	5	5	5	1	1	5
18	5	5	5	5	3	4	5	5	5	5	5	4	5	5	5	5	5	4	5	2	4	3
19	5	5	5	5	5	5	5	5	5	5	3	4	5	4	3	3	4	5	5	3	5	4
20	5	4	4	4	4	4	5	4	4	3	3	3	4	3	3	4	3	3	4	1	1	1
21	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	4	5	4	5	4
22	5	5	5	5	5	5	5	5	5	5	5	5	5	3	5	5	5	5	5	3	5	5
23	4	4	4	4	5	5	5	4	4	4	4	4	4	4	4	4	4	5	5	5	5	5
24	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	1	3	1
25	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	1	5	5
26	5	5	5	5	5	4	5	5	5	5	5	5	5	4	4	5	5	5	5	5	4	3
27	5	5	5	5	5	4	4	5	5	4	4	3	3	4	2	4	4	5	5	1	2	2
28	5	4	4	4	5	5	5	5	5	4	4	4	5	5	5	4	4	4	4	5	4	3
29	5	5	5	5	5	5	5	5	4	5	4	3	5	2	3	5	5	3	5	1	4	3
30	5	5	4	5	5	5	5	5	5	5	5	4	5	5	5	5	5	5	5	1	1	3
31	5	5	5	5	5	4	5	5	5	4	5	5	5	4	4	3	4	3	3	2	3	4
32	5	5	5	5	5	5	5	5	5	5	5	3	5	5	4	5	5	1	5	1	3	1
33	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	1	1	1
34	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	1	1	3
35	5	5	5	5	5	5	5	5	5	5	5	4	5	5	5	5	5	5	5	4	5	5
36	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
37	5	5	4	5	5	3	3	5	5	4	3	3	5	4	2	2	5	4	4	1	1	1
38	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	1	1	3
39	5	5	5	5	5	5	5	5	5	5	5	3	5	5	5	5	5	5	5	1	1	3
40	5	5	5	5	4	4	4	4	3	1	1	1	5	1	1	1	5	5	1	1	1	1

41	5	1	5	5	5	5	5	4	5	5	5	5	5	5	5	5	5	5	5	1	4	1
42	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
43	5	5	4	4	4	4	4	3	5	5	4	4	5	5	3	4	4	2	4	1	4	2
44	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	4	5	4
45	4	4	4	4	5	3	4	4	4	3	2	3	4	3	3	5	4	3	4	1	3	1
46	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
47	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	3	5	3
48	5	5	5	5	5	4	5	5	5	5	5	3	5	4	3	5	5	4	5	1	4	4

Frequencies for the instrument items

RELIABILITY DIMENSION

Rel1: ...provides you with services as promised?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	4	4	8.3	8.3	8.3
	Important	44	91.7	91.7	100.0
	Total	48	100.0	100.0	

Rel2: ...is dependable in handling your service problems?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Unimportant	1	2.1	2.1	2.1
	4	6	12.5	12.5	14.6
	Important	41	85.4	85.4	100.0
	Total	48	100.0	100.0	

Rel3: ...performs services right the first time?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	2	4.2	4.2	4.2
	4	10	20.8	20.8	25.0
	Important	36	75.0	75.0	100.0
	Total	48	100.0	100.0	

Rel4: ...provides you with services at the promised time?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	1	2.1	2.1	2.1
	4	10	20.8	20.8	22.9
	Important	37	77.1	77.1	100.0
	Total	48	100.0	100.0	

ASSURANCE DIMENSION

A1: ...has staff that instils confidence in you?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Unimportant	2	4.2	4.2	4.2
	2	1	2.1	2.1	6.3
	3	3	6.3	6.3	12.5
	4	9	18.8	18.8	31.3
	Important	33	68.8	68.8	100.0
	Total	48	100.0	100.0	

A2: ...makes you feel safer in computer transactions?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Unimportant	2	4.2	4.2	4.2
	2	2	4.2	4.2	8.3
	3	5	10.4	10.4	18.8
	4	8	16.7	16.7	35.4
	Important	31	64.6	64.6	100.0
	Total	48	100.0	100.0	

A3: ...has staff that is consistently courteous?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Unimportant	4	8.3	8.3	8.3
	2	1	2.1	2.1	10.4
	3	9	18.8	18.8	29.2
	4	11	22.9	22.9	52.1
	Important	23	47.9	47.9	100.0
	Total	48	100.0	100.0	

A4: ...has staff that has the knowledge to answer your questions?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Unimportant	1	2.1	2.1	2.1
	3	1	2.1	2.1	4.2
	4	8	16.7	16.7	20.8
	Important	38	79.2	79.2	100.0
	Total	48	100.0	100.0	

EMPATHY DIMENSION

E1: ...gives you individual attention?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Unimportant	2	4.2	4.2	4.2
	2	1	2.1	2.1	6.3
	3	5	10.4	10.4	16.7
	4	10	20.8	20.8	37.5
	Important	30	62.5	62.5	100.0
	Total	48	100.0	100.0	

E2: ...has staff that deal with you in a caring fashion?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Unimportant	4	8.3	8.3	8.3
	2	3	6.3	6.3	14.6
	3	8	16.7	16.7	31.3
	4	9	18.8	18.8	50.0
	Important	24	50.0	50.0	100.0
	Total	48	100.0	100.0	

E3: ...has your best interest at heart?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Unimportant	2	4.2	4.2	4.2
	2	1	2.1	2.1	6.3
	3	3	6.3	6.3	12.5
	4	10	20.8	20.8	33.3
	Important	32	66.7	66.7	100.0
	Total	48	100.0	100.0	

E4: ...has staff that understands your service needs?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Unimportant	1	2.1	2.1	2.1
	3	1	2.1	2.1	4.2
	4	10	20.8	20.8	25.0
	Important	36	75.0	75.0	100.0
	Total	48	100.0	100.0	

E5: **...has convenient business hours?**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Unimportant	1	2.1	2.1	2.1
	2	2	4.2	4.2	6.3
	3	5	10.4	10.4	16.7
	4	8	16.7	16.7	33.3
	Important	32	66.7	66.7	100.0
	Total	48	100.0	100.0	

TANGIBLES DIMENSION

T1: **...has up to date technology?**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Unimportant	2	4.2	4.2	4.2
	3	3	6.3	6.3	10.4
	4	8	16.7	16.7	27.1
	Important	35	72.9	72.9	100.0
	Total	48	100.0	100.0	

T2: **...has visually appealing premises and facilities?**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Unimportant	28	58.3	58.3	58.3
	2	4	8.3	8.3	66.7
	3	4	8.3	8.3	75.0
	4	5	10.4	10.4	85.4
	Important	7	14.6	14.6	100.0
	Total	48	100.0	100.0	

T3: **...has staff who appear professional?**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Unimportant	13	27.1	27.1	27.1
	2	2	4.2	4.2	31.3
	3	6	12.5	12.5	43.8
	4	12	25.0	25.0	68.8
	Important	15	31.3	31.3	100.0
	Total	48	100.0	100.0	

T4: ...has useful support materials (such as documentation, training, videos, etc.)?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Unimportant	12	25.0	25.0	25.0
	2	3	6.3	6.3	31.3
	3	15	31.3	31.3	62.5
	4	7	14.6	14.6	77.1
	Important	11	22.9	22.9	100.0
	Total	48	100.0	100.0	

Frequencies for the instrument dimensions

Reliability Dimension Frequencies

		Responses		Percent of Cases
		N	Percent	
Reliability(a)	Unimportant	1	.4%	2.1%
	3	4	1.7%	8.3%
	4	37	15.4%	77.1%
	Important	198	82.5%	412.5%
Total		240	100.0%	500.0%

Responsiveness Dimension Frequencies

		Responses		Percent of Cases
		N	Percent	
Responsiveness(a)	3	13	6.8%	27.1%
	4	34	17.7%	70.8%
	Important	145	75.5%	302.1%
Total		192	100.0%	400.0%

Assurance Dimension Frequencies

		Responses		Percent of Cases
		N	Percent	
Assurance(a)	Unimportant	9	4.7%	18.8%
	2	4	2.1%	8.3%
	3	18	9.4%	37.5%
	4	36	18.8%	75.0%
	Important	125	65.1%	260.4%
Total		192	100.0%	400.0%

Empathy Dimension Frequencies

		Responses		Percent of Cases
		N	Percent	
Empathy(a)	Unimportant	10	4.2%	20.8%
	2	7	2.9%	14.6%
	3	22	9.2%	45.8%
	4	47	19.6%	97.9%
	Important	154	64.2%	320.8%
Total		240	100.0%	500.0%

Tangibles Dimension Frequencies

		Responses		Percent of Cases
		N	Percent	
Tangibles(a)	Unimportant	55	28.6%	114.6%
	2	9	4.7%	18.8%
	3	28	14.6%	58.3%
	4	32	16.7%	66.7%
	Important	68	35.4%	141.7%
Total		192	100.0%	400.0%

Reliability of the instrument

Reliability Dimension

Cronbach's Alpha	N of Items
.681	5

Responsiveness Dimension

Cronbach's Alpha	N of Items
.725	4

Assurance Dimension

Cronbach's Alpha	N of Items
.851	4

Empathy Dimension

Cronbach's Alpha	N of Items
.764	5

Tangibles Dimension

Cronbach's Alpha	N of Items
.759	4

Reliability of the Complete Instrument

Cronbach's Alpha	N of Items
.902	22

Mean and standard deviations for the dimensions

DIMENSION	MEAN	STANDARD DEVIATION
Reliability	4.80	0.496834
Responsiveness	4.69	0.593375
Assurance	4.38	1.056022
Empathy	4.37	1.046479
Tangibles	3.26	1.650789

New Derived Instrument

	Initial	Extraction
Relia1 provides you with services as promised?	1.000	.717
Relia2 is dependable in handling your service problems?	1.000	.878
Relia5 provides you with reliable technology and systems?	1.000	.657
Resp1 keeps you informed about when service will be made?	1.000	.726
Resp2 delivers prompt service to you?	1.000	.659
Resp4 has the readiness to respond to your requests?	1.000	.750
A3 has staff that is consistently courteous?	1.000	.853
E1 gives you individual attention?	1.000	.765
E2 has staff that deal with you in a caring fashion?	1.000	.834
E4 has staff that understands your service needs?	1.000	.701
E5 has convenient business hours?	1.000	.574
T2 has visually appealing premises and facilities?	1.000	.785
T3 has staff who appear professional?	1.000	.800
T4 has useful support materials (such as documentation, training, videos, etc.)?	1.000	.812

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings(a)
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	5.044	36.029	36.029	5.044	36.029	36.029	3.871
2	1.650	11.783	47.812	1.650	11.783	47.812	2.810
3	1.477	10.547	58.359	1.477	10.547	58.359	2.757
4	1.207	8.623	66.982	1.207	8.623	66.982	1.969
5	1.132	8.086	75.069	1.132	8.086	75.069	1.517
6	.756	5.400	80.469				
7	.700	4.997	85.466				
8	.548	3.914	89.380				
9	.453	3.237	92.617				
10	.286	2.041	94.659				
11	.276	1.972	96.631				
12	.236	1.688	98.318				
13	.141	1.006	99.324				
14	.095	.676	100.000				

Extraction Method: Principal Component Analysis.

a When components are correlated, sums of squared loadings cannot be added to obtain a total variance.

Structure Matrix

	Component				
	1	2	3	4	5
Relia1 provides you with services as promised?	.491	-.088	.422	.029	.659
Relia2 is dependable in handling your service problems?	.057	.098	.058	.086	.921
Relia5 provides you with reliable technology and systems?	.258	.182	.156	.792	-.052
Resp1 keeps you informed about when service will be made?	.351	.193	.841	.144	.150
Resp2 delivers prompt service to you?	.361	.331	.753	-.021	.070
Resp4 has the readiness to respond to your requests?	.860	.278	.205	.196	.137
A3 has staff that is consistently courteous?	.871	.440	.355	.372	.103
E1 gives you individual attention?	.870	.147	.228	.203	.153
E2 has staff that deal with you in a caring fashion?	.850	.393	.455	.366	.070
E4 has staff that understands your service needs?	.250	.161	.179	.822	.194
E5 has convenient business hours?	.048	.182	.707	.329	.155
T2 has visually appealing premises and facilities?	.235	.681	.286	.132	.028
T3 has staff who appear professional?	.429	.846	.099	.134	-.048
T4 has useful support materials (such as documentation, training, videos, etc.)?	.153	.785	.476	.374	.287

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.

Component Correlation Matrix

Component	1	2	3	4	5
1	1.000	.239	.267	.184	.123
2	.239	1.000	.233	.192	.010
3	.267	.233	1.000	.181	.183
4	.184	.192	.181	1.000	.077
5	.123	.010	.183	.077	1.000

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.

Reliability

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	48	100.0
	Excluded(a)	0	.0
	Total	48	100.0

a Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.837	14

	Initial	Extraction
Relia1 provides you with services as promised?	.406	.450
Relia2 is dependable in handling your service problems?	.287	.780
Relia5 provides you with reliable technology and systems?	.328	.256
Resp1 keeps you informed about when service will be made?	.582	.707
Resp2 delivers prompt service to you?	.626	.451
Resp4 has the readiness to respond to your requests?	.690	.649
A3 has staff that is consistently courteous?	.818	.857
E1 gives you individual attention?	.741	.685
E2 has staff that deal with you in a caring fashion?	.837	.827
E4 has staff that understands your service needs?	.421	.692
E5 has convenient business hours?	.286	.276
T2 has visually appealing premises and facilities?	.592	.667
T3 has staff who appear professional?	.578	.667
T4 has useful support materials (such as documentation, training, videos, etc.)?	.633	.757

Extraction Method: Principal Axis Factoring.

Total Variance Explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotatic Sums Square Loading)
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	5.044	36.029	36.029	4.730	33.786	33.786	3.6
2	1.650	11.783	47.812	1.319	9.423	43.209	2.5
3	1.477	10.547	58.359	1.091	7.790	51.000	1.1
4	1.207	8.623	66.982	.843	6.023	57.023	2.6
5	1.132	8.086	75.069	.736	5.260	62.283	2.0
6	.756	5.400	80.469				
7	.700	4.997	85.466				
8	.548	3.914	89.380				
9	.453	3.237	92.617				
10	.286	2.041	94.659				
11	.276	1.972	96.631				
12	.236	1.688	98.318				
13	.141	1.006	99.324				
14	.095	.676	100.000				

Extraction Method: Principal Axis Factoring.

a When factors are correlated, sums of squared loadings cannot be added to obtain a total variance.

Structure Matrix

	Factor				
	1	2	3	4	5
Relia1 provides you with services as promised?	.445	-.032	.469	-.419	.134
Relia2 is dependable in handling your service problems?	.091	.056	.875	-.122	.094
Relia5 provides you with reliable technology and systems?	.263	.201	.010	-.192	.485
Resp1 keeps you informed about when service will be made?	.344	.204	.159	.835	.203
Resp2 delivers prompt service to you?	.331	.314	.102	.645	.156
Resp4 has the readiness to respond to your requests?	.797	.291	.138	-.272	.300
A3 has staff that is consistently courteous?	.871	.456	.095	-.413	.486
E1 gives you individual attention?	.826	.176	.150	-.303	.248
E2 has staff that deal with you in a caring fashion?	.839	.405	.063	-.512	.491
E4 has staff that understands your service needs?	.247	.159	.144	-.205	.826
E5 has convenient business hours?	.122	.195	.138	.499	.273
T2 has visually appealing premises and facilities?	.240	.808	.038	-.328	.197
T3 has staff who appear professional?	.400	.779	-.037	-.176	.237
T4 has useful support materials (such as documentation, training, videos, etc.)?	.161	.746	.282	-.513	.448

Extraction Method: Principal Axis Factoring.
Rotation Method: Oblimin with Kaiser Normalization.

Factor Correlation Matrix

Factor	1	2	3	4	5
1	1.000	.251	.128	-.342	.296
2	.251	1.000	.002	-.288	.282
3	.128	.002	1.000	-.229	.107
4	-.342	-.288	-.229	1.000	-.287
5	.296	.282	.107	-.287	1.000

Extraction Method: Principal Axis Factoring.
Rotation Method: Oblimin with Kaiser Normalization.