Evidence that use of the ITIL framework is effective

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The Information Technology Infrastructure Library (ITIL) is a framework outlining best practice in ICT Service Management. To date, ITIL is the only comprehensive, non-proprietary, publicly available guideline for ICT Service Management (Pink Elephant, 2002). Although the OGC claims that the use of ITIL improves Customer Satisfaction and Service Quality, this was not proved to date but rather inferred. The aim of the research project was to ascertain if a direct correlation exists between customer satisfaction and the use of ITIL. Of secondary concern was to determine if Customer Satisfaction is an indication of effective service provision. Our research site was a large service unit of ICT in a provincial government in South Africa during 2002/3.

Keywords

Service Management, User satisfaction, ITIL

1. INTRODUCTION

The Information Technology Infrastructure Library (ITIL) is a framework developed by the UK's Office of Government Commerce (OGC), outlining Best Practice in Information and Communication Technology (ICT) Service Management. To date, ITIL is the only comprehensive, non-proprietary, publicly available guideline for ICT Service Management (Pink Elephant, 2002). Although the OGC claims that the use of ITIL improves Customer Satisfaction and Service Quality, this was not proven to date but rather inferred.

Best Practice focus on the pursuit of world class performance, thus looking at what successful organisations do to manage their organisations and by implication means continuous improvement of operations (ABPDP, 1994). Service Management revolves around conceiving and designing service packages and service delivery systems that fulfil customer needs and the effective and efficient management of the daily activities of the service organisation. Service Management thus focus on delivering a quality service that satisfies customer needs, within the organisation's financial means (Collier, 1987) and is reliant on a Service Culture (Fry, 1989) which is seen as a prerequisite for delivering a quality service (Mastenbroek, 1991).

Our research framework is shown in figure 1 (figures also contains non-relevant references to aspects covered in the full thesis of Botha (2004)). Our intention was to monitor the deployment of the activities in the ITIL framework (right-hand column) and then see if similar movements occur in the levels of satisfaction of users (left-hand column). In addition would correlating movements in service level statistics be useful to support a observations about causal relationships (middle blocks). This could then be supported further by interviews with staff and management. Note how different sources of information are used complementary.

2. ICT SERVICE MANAGEMENT AND BEST PRACTICE

Very little academic material exists on ICT Service Management Best Practice. The ITIL framework seems to be the *de facto* standard and forms the basis of the BS1500 *de jure* standard. Not all authors though agree that ITIL encompasses all aspects of ICT Service Management Best Practice (the researcher agrees with this view). Thiadens (2002) comments that three phases are visible in the development of ICT Service Management over the years and that the accent in the late 90's moved from organising internal services (ITIL) to directing services towards an improved performance. The

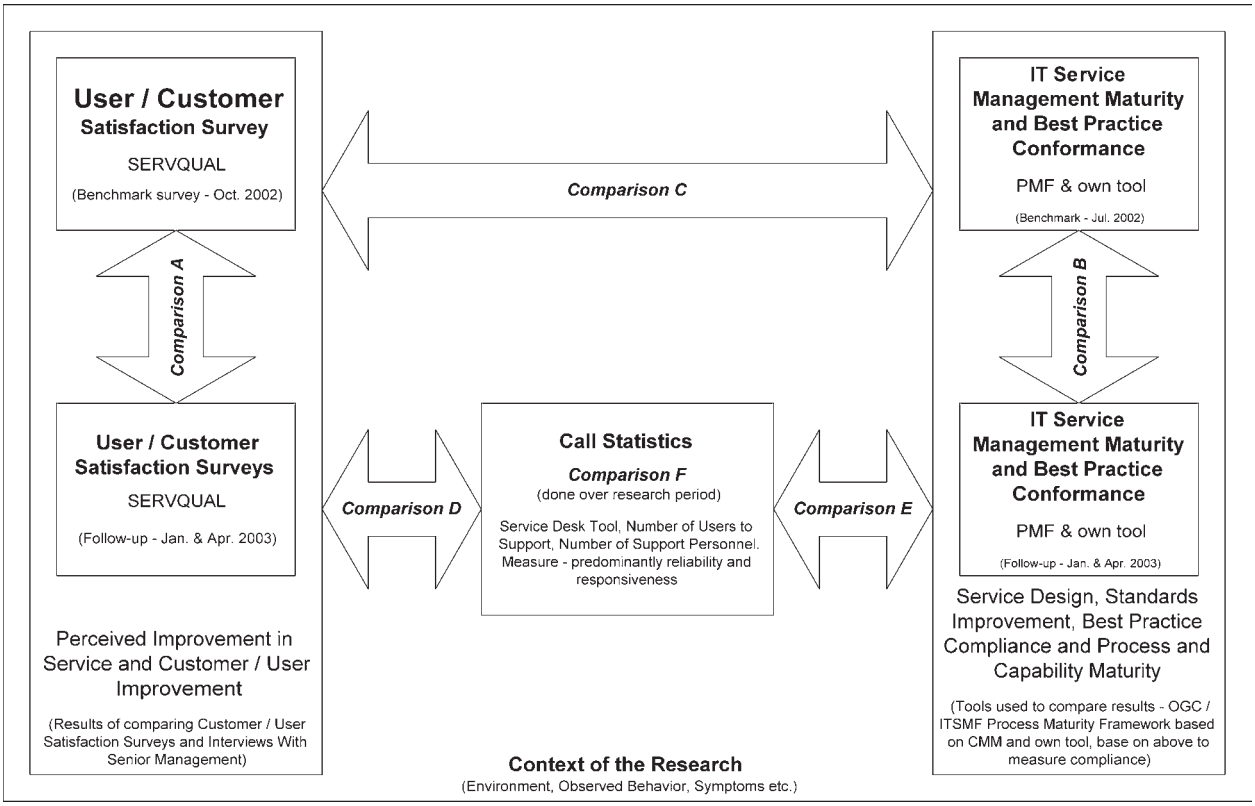


Figure 1. Research Framework.

development is also a sequential progression as organisations mature.

The Service Support and Service Delivery books cover the Best Practice processes (functions) as outlined in Table 1 (OGC(1):2002).

Niesink (2001) and Office of Government Commerce (OCG, 2002) also defined levels of maturity for each of above processes (see figure 2). The Office of Government Commerce developed a tool to measure organisation's Information Technology Service Management maturity based on the Capability Maturity Model (CMM) of Carnegie Melon University and the Service Capability Maturity Model of "die Vrije Universiteit", and the work done at Harvard Business School and IBM. The Process Maturity Framework, although based on the concepts of CMM does not exactly have the same underlying structure and draws heavily on IBM/Harvard model (OGC(2):2002). The tool is helpful to obtain a baseline of the organisation's Service Management process maturity as well as to assist the organisation in identifying that needs attention. Overall activity and deployment of the ITIL framework is calculated by summarizing the activity of each process of ITIL.

Survey questionnaires were developed by OCG to assess above levels of maturity and activity. These were used in this project.

3. METHODOLOGY FOR FIELD WORK

The SERVQUAL instrument of Parasuraman et. al (1990) was used to design Customer Satisfaction Surveys. Pitt *et al* [1995] confirmed the applicability of this instrument that is typically used in the marketing field, to the Information Systems field. Although the survey was in essence a quantitative measurement device, qualitative statements were associated with the rating scale (e.g. Excellent = 1, Fair = 3, Very Bad = 5 etc.). Comparing customer expectations and their perception of actual performance can be done by using the SERVQUAL scale of Berry, Parasuraman and Zeithaml (1990). This scale was developed for the service sector, and it thus fits our environmental context well.

The Scale has five generic dimensions (quality factors) (Zeithaml et al, 1990), namely Tangibles, Reliability, Responsiveness, Assurance and Empathy. Tangibles covered aspects of the appearance of physical facilities, equipment, personal and communication materials. Reliability concerns the ability to perform the proposed service dependably and accurately. Responsiveness is the willingness to help customers and provide prompt service is covered by. Assurance is the knowledge and courtesy of

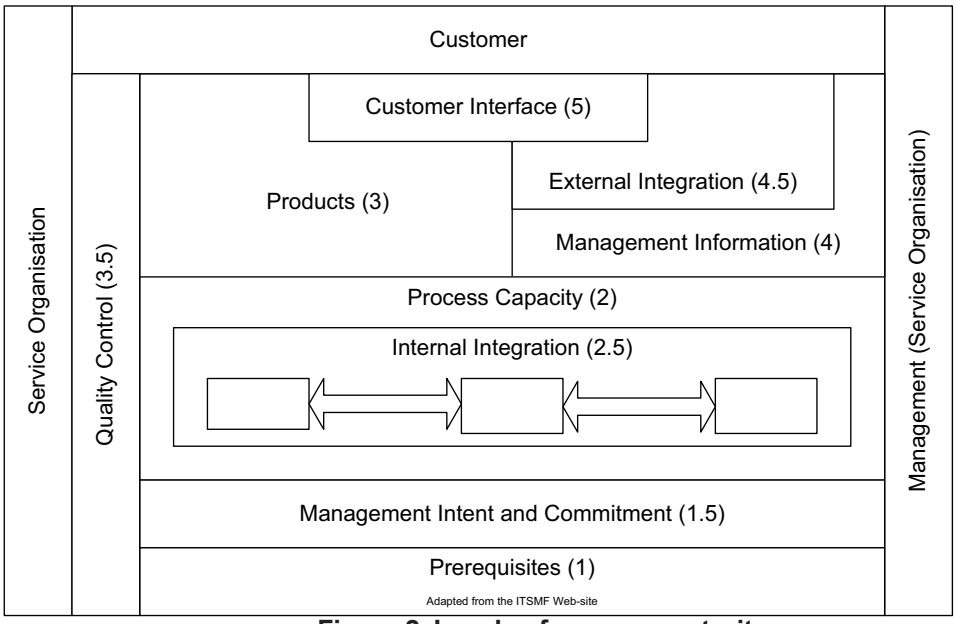


Figure 2. Levels of process maturity.

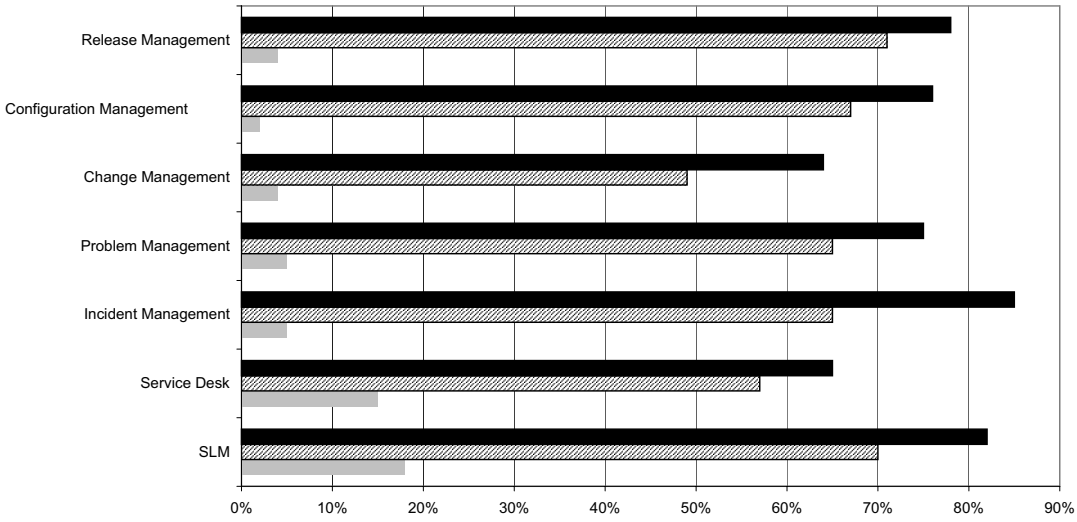
Table 1 – Overview of the ITIL framework.

VOLUME 1 – SERVICE SUPPORT
Service Desk (function). The objective of the service desk is to provide a central point of contact between users and the ICT department delivering services to the users.
Incident Management (process). The day to day process that restore normal acceptable service with a minimal impact to the business.
Problem Management (process). The process of diagnosing root causes of incidents in an effort to proactively eliminate and manage service disruption.
Release Management (process). The process of testing, verification and release of changes to the ICT environment
Change Management (process). Standard methods and procedures for effective management of all changes in or to the ICT environment.
Configuration Management (process). Representing the physical and logical perspective of the ICT services provided or delivered.
VOLUME 2 – SERVICE DELIVERY
Availability Management (process). Optimisation of ICT infrastructure capabilities, services and support to minimise service outages and provide sustained levels of service to meet the business requirements.
Information Technology Service Continuity Management (process). Processes to manage an organisation's capability to provide the necessary level of service following an interruption of service or a major disaster.
Capacity Management (process). Processes that enable the organisation to tactically manage resources and strategically plan future resource requirements
Service Level Management (process). Processes to manage maintain and improve the level of service provided to the organisation.
Financial Management (process). Processes to manage the cost associated to providing the organisation with services or resources to meet the business requirements.

employees and their ability to convey trust and confidence (including competence, courtesy, credibility and security). And finally does empathy cover the provision of caring, individualised attention to customers (including access, communication and understanding the customer).

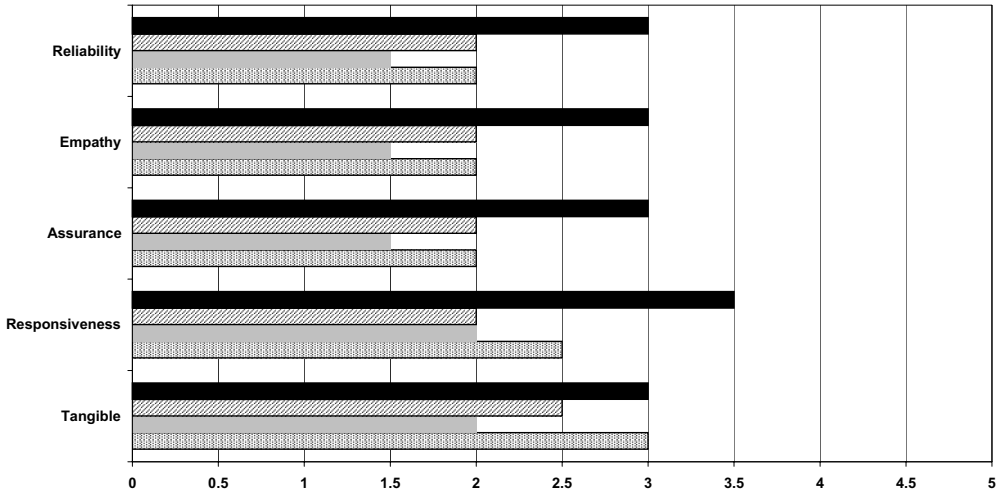
Although there is some criticism on the long term results of the SERVQUAL scale (Lam & Woo, 1997) and the general applicability of the five dimensions (Crosby & LeMay, 1998), SERVQUAL is a widely used instrument by business and academics alike. Customer Satisfaction Surveys were sent to all users at the research site, via e-mail. The sample response achieved for the three surveys ranged between 17% and 28%, which is rather satisfactory. Fortunately 93%- 97% of respondents have logged calls to obtain technical assistance. The sample thus qualifies to express an opinion.

Data was also collected for objective service improvement over the entire research period. The main source of measurement for assessing service levels in the institution was the number of calls logged at the Help Desk. This data source has one major drawback in that it does not measure a full spectrum of objective service levels. Other major items typically used by many organizations include problem resolution times, system performance levels and adherence to installation schedules. These were considered to be relatively unimportant for staff and management at the site studied. Given that user dissatisfaction with above parameters are reported and logged at the Help Desk, we can rather safely con-



	SLM	Service Desk	Incident Management	Problem Management	Change Management	Configuration Management	Release Management
Apr-03	82%	65%	85%	75%	64%	76%	78%
Jan-03	70%	57%	65%	65%	49%	67%	71%
Jul-02	18%	15%	5%	5%	4%	2%	4%

Figure 3. ITIL activities increased over time.



	Tangible	Responsiveness	Assurance	Empathy	Reliability
S1 Median (All)	3	3.5	3	3	3
S2 Median (All)	2.5	2	2	2	2
S3 Median (All)	2	2	1.5	1.5	1.5
S3 Median (Man)	3	2.5	2	2	2

Figure 4. Perceptions about service quality improved over time.

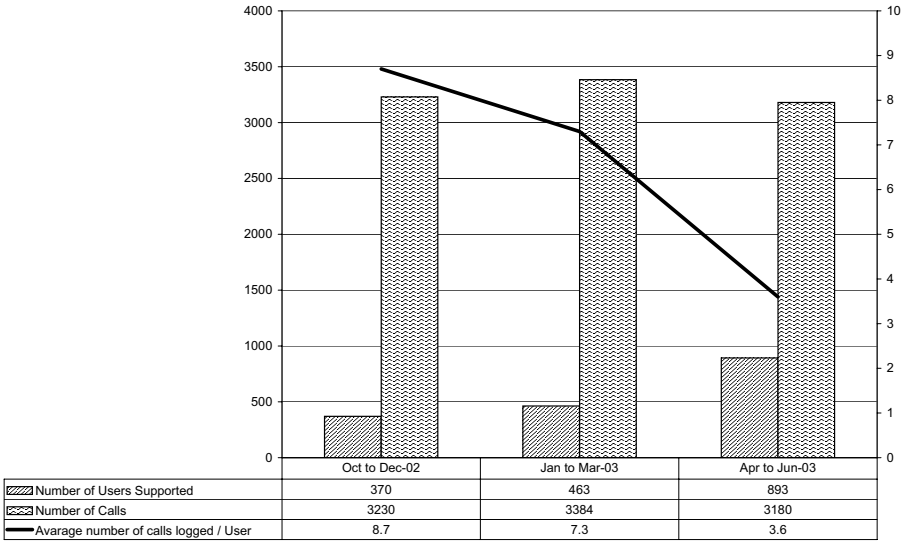
clude that the number of problems logged would be a good reflection of objective service levels.

Interviews with managers and observations by the researcher were used to further validate observations from above instruments. These are not reported here due to space limitations.

4. RESULTS

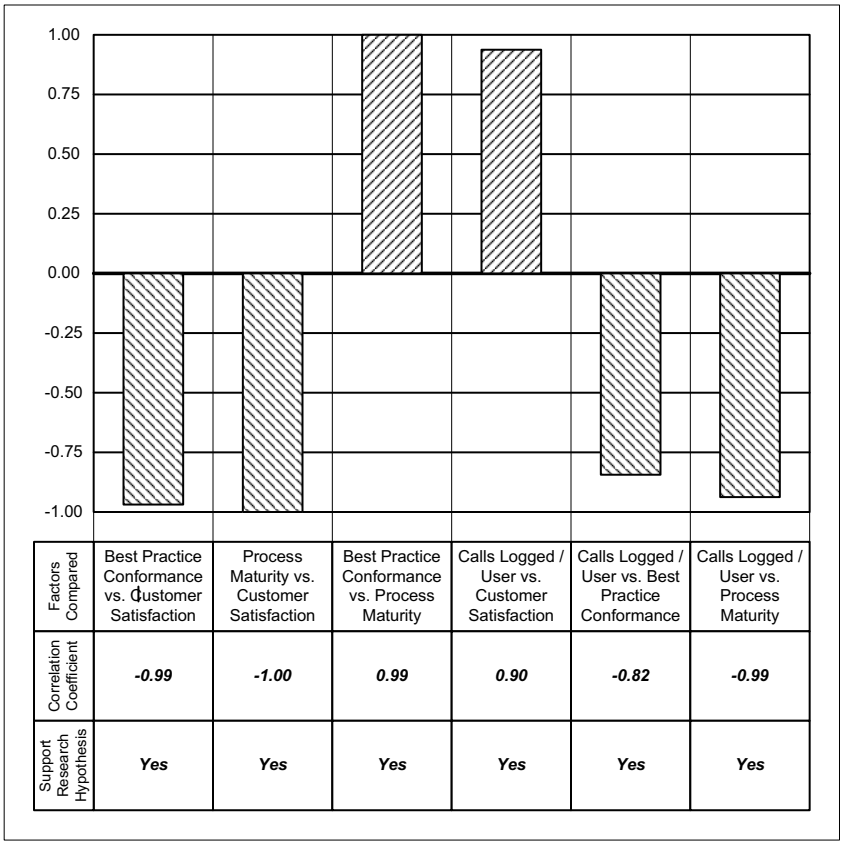
We did not cover processes of the ITIL framework but the number of activities caused by the deployment of ITIL clearly increased during the period of study – see figure 3. The majority of activities were from lower levels of maturity with fewer activities from levels 4 and 5.

Service quality also improved as is visible in Figure 4. The length of the bars actually indicates dissatisfaction with service, not satisfaction. As is evident, the bars from the last survey (S3) are much shorter than that of previous surveys, indicating improvement. Note that the view of management during the third and final survey is less positive than that of other users (they were not measured separately previously). Their responses during interviews how-



	Oct to Dec-02	Jan to Mar-03	Apr to Jun-03
Number of Users Supported	370	463	893
Number of Calls	3230	3384	3180
Avarage number of calls logged / User	8.7	7.3	3.6

Figure 5. Number of calls per staff member reduced over time.



Factors Compared	Best Practice Conformance vs. Customer Satisfaction	Process Maturity vs. Customer Satisfaction	Best Practice Conformance vs. Process Maturity	Calls Logged / User vs. Customer Satisfaction	Calls Logged / User vs. Best Practice Conformance	Calls Logged / User vs. Process Maturity
Correlation Coefficient	***-0.99***	***-1.00***	***0.99***	***0.90***	***-0.82***	***-0.99***
Support Research Hypothesis	***Yes***	***Yes***	***Yes***	***Yes***	***Yes***	***Yes***

Figure 6. Indications of high correlation.

ever indicate that they are still very satisfied with the overall improvement over the duration of the project. This seems to indicate that there statistical measure would probably have been consistently more conservative than that of users during the whole period of the project.

Operational service levels also appeared to have improved, as is measured by the average number of calls logged by user per quarter (figure 5).

Data was recorded at detailed enough level to perform certain statistical analysis. The Correlation Coefficients were however unusually high and may be viewed with suspicion. Factors that may have contributed to unusually high correlations could be that a subjective measure (customer satisfaction) was converted to an integer response for ease of analysis – the customer's view of service quality however is expressed on a continual scale falling anywhere between integers on the scale. The results

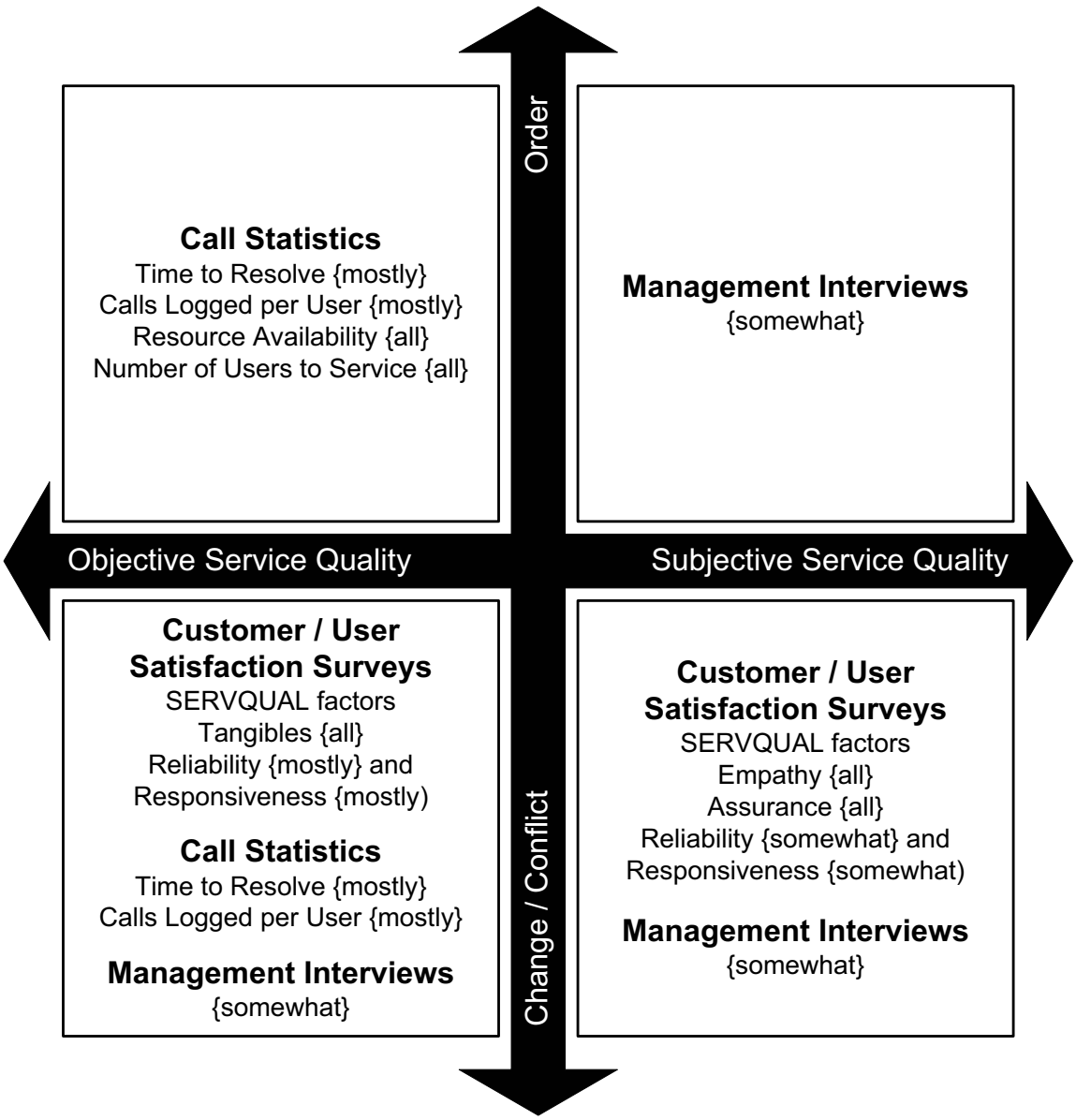


Figure 7. Research data from all four of Potgieter's paradigms.

would show a marginal variance if rating scales offered more choice. Secondly, only three sets of data were colleted during the research project while more frequent surveys would have shown a strong correlation and would be viewed as more reliable.

As stated earlier, it is difficult to relate data collected if the source of the data and the type of data differ. Some data is objective and perhaps less contestable while others are subjective and relies heavily on the perceptions of respondents. Furthermore can research environments can not be regarded as stable; there is always a measure of order and a measure of change present in the environment. Potgieter (1997) developed a framework of four paradigms (regulating ICT systems, accommodating different service perceptions, managing different service perceptions and changing ICT systems) and showed that these paradigms are all present in any research environment. This work was based on the work of Burrell & Morgan [1979] applied to the information systems field by Hirschheim & Klein [1989]. He concluded that all ICT environment contains elements of objectivity and subjectivity, order and conflict - some elements may be more dominant than others but all are none the less present and should be considered. This model was used to ensure that sufficient information is gathered.

It is clear that data collected is a mix of subjective and objective data, with a slight bias towards objective data (shaded area).

5. CONCLUSIONS

The aim of the research project was to ascertain if a direct correlation exists between customer satisfaction and the use of ITIL. Of secondary concern was to determine if Customer Satisfaction is an indication of effective service provision.

We found that both customer satisfaction and operational performance improve as the activities in the ITIL framework increases. Increased use of the ITIL framework is therefore likely to result in improvements to customer satisfaction and operational performance.

Although the study was limited to a single research site, claims made by executive management of the research site and OCG as to the contribution the ITIL framework seems to be justified. More definitive research delineating the nature of these "relationships" is however needed, especially regarding each process in the ITIL framework.

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