

*Full Length Research Paper*

# An exploratory investigation into using ITSM metrics to indicate the business value of IT in a South African financial services company

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Companies' executives have long realised the importance of IT in conducting business. As such, an ever larger portion of capital is allocated to IT. Managers see an opportunity to reduce the input cost of producing value for clients by reducing IT expenditure; however, managers need a clear picture of the value of IT to make appropriate cut of IT cost. This study explores the value the IT unit provides to business, by investigating a method of identifying IT metrics that are significant to IT managers and extending their significance beyond the IT unit to business executives. The Gartner business value model was used to link IT metrics to financial metrics in a South African financial services company. Senior business executives, business process owners and IT respondents were interviewed to get pertinent information, and an exploratory approach was taken to investigate the information garnered. The results illustrate that if a set of leading indicators of financial performance can be identified by senior business executives, the business activities that support these leading indicators and the IT services these activities rely on can be uncovered. By identifying IT services that have a bearing on future financial performance, the metrics recorded around them may be used to demonstrate the impact that the IT unit has on future revenue.

**Key words:** Business value, ITSM, metrics.

## INTRODUCTION

The aim of this research is to demonstrate the value of using Information Technology Service Management (ITSM) metrics to business stakeholders; particularly decision makers. Stakeholders are increasingly pushing for IT managers to demonstrate the value of the IT unit to business (Holtsnider and Jaffe, 2012). The goal of Information Technology Service Management (ITSM) is to manage IT infrastructure as a resource of a company

while optimizing IT services to satisfy business requirements and controlling associated costs (Galup et al., 2009).

A model that links a set of metrics that is significant to both IT managers and business stakeholders was used to indicate IT value (Smith, 2007). The Gartner Business Value model was used to identify ITSM business metrics, which are generally defined by the ITIL best practice

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framework (Coyle, 2007; Brittain and Coyle, 2009; Steinberg, 2006).

This study explores the use of asset of ITSM metrics in a South African financial services company to demonstrate the business value of IT to those business decision makers. The financial company had implemented ITIL as a case study. Both managers and IT staff were interviewed and documentation was examined. The company granted permission to conduct the research, provided all respondents remained anonymous, and the company was given a fictitious name -Finstitute.

## LITERATURE REVIEW

An IT department in a large organisation can be seen as a collection of coherent, related, self-contained functions that span multiple divisions including hardware installations, software installations, networking systems, application management and other systems related to the storage, transfer and manipulation of information (Zammuto et al., 2007). The foundational goal of IT in a company is to provide a cost effective service to meet the company's needs and align with its business strategy (McNaughton et al., 2010).

With the realisation of the criticality of IT as a resource (Beachboard et al., 2007; Bloodworth and Herron, 2007; Carr, 2003; Smith, 2007), the associated costs have exponentially increased in the last few decades, pressing IT managers to demonstrate the value of IT in economic terms to business decision makers (Coyle, 2009; Smith, 2007).

### Benefits of IT

IT can provide both tangible and intangible benefits. Tangible benefits are those which affect a company's bottom line, and can be measured by a quantitative, objective and in many cases, financial means (Ward and Daniel, 2006; Ward and Peppard, 2002). Many companies have found the intangible benefits of IT to be difficult to demonstrate, and measure their investments solely on hard benefits. Intangible benefits are typically measured qualitatively (Ward and Daniel, 2006), and have been found to include the following benefits (Beachboard et al., 2007; Ward and Daniel, 2006; Ward and Peppard, 2002):

1. *Competitive advantage* is derived from delivering something that is unique and difficult to replicate or copy by a competitor. Sustaining this competitive advantage means ensuring the unique feature is also unable to be substituted by a competitor (Bharadwaj, 2000; Ward and Daniel, 2006);
2. *Increased internal efficiencies* by means of reducing costs associated with resources, allowing companies to

do more with fewer resources, thereby improving economies of scale (Ward and Daniel, 2006; Ward and Peppard, 2002; Zammuto et al., 2007). This increase in output while limiting input cost is referred to as productivity (Ward and Peppard, 2002); and

3. *Aiding decision making* by getting information about customers, potential customers, markets and internal technology available to senior executives in order to make strategic decisions (Ward and Daniel, 2006; Ward and Peppard, 2002). This improved information may give decision makers the ability to make decisions about resourcing in the future, resulting in increased economies of scale (Ward and Daniel, 2002; Zammuto et al., 2007).

### The management of IT as a service (ITSM)

As the IT unit spans many technology silos and disciplines, the evaluation of the impact of this unit on company performance means that the demonstration of the benefits falls into the domain of IT service management (ITSM). Galup et al. (2009) defines service to be the coordination of people, technology and processes that result in a change in the performance of an entity.

The impact of the IT unit on companies' performance is synonymous with the definition of IT as a service. The IT unit includes the people, processes and technology responsible for IT, while ITSM is the management of the IT unit responsible for delivering service and infrastructure to the company. The goal of ITSM is to deliver this service to a company in a cost effective way, while improving the quality of the service delivered. ITSM focuses on a particular set of IT operations that include service delivery and service support (Galup et al., 2009).

### ITIL

While IT costs are significant and emphasis has been put on assigning monetary value to IT investments, the attention of Chief Information Officers (CIO) are being diverted away from the day to day management of IT by factors including the needs of stakeholders, cyber threats and regulatory compliance (Beachboard et al., 2007; Carr, 2003). A multi-dimensional, best practice framework, the Information Technology Infrastructure Library (ITIL) has been developed to help IT managers improve day to day IT operations. ITIL has become popular as it liberates the IT manager from day to day operational tasks to concentrate on these other factors (Beachboard et al., 2007; Galup et al., 2009).

### IT metrics

As a generic best practice framework, ITIL provides for a

myriad of metrics that measure any number of variables at many levels in the IT unit (Coyle, 2007; Brittain and Coyle, 2009; Steinberg, 2006). The variables can be categorised around the type of information they can provide as follows:

1. At an operational level, information about historical events can be measured (referred to as *operational metrics*).
2. At a management level, another set of metrics can provide information that forms the basis of making business decisions (known as *performance metrics*).
3. At a company-wide level, there are metrics that indicate the need to take action (referred to as *tolerance metrics*).

ITIL implementations are initiated because they are expected to reduce costs, while improving delivery and quality of IT services to a company (Beachboard et al., 2007; Galup et al., 2009). ITIL implementations are therefore initiated to achieve ITSM goals. The aspect of providing metrics for the IT unit enhances the improvement of service because it means the magnitude of improvement can be measured (Beachboard et al., 2007; Galup et al., 2009; Steinberg, 2006). The improvement of delivery and quality of service along with the reduction of associated costs suggests that the implementation of an ITIL framework leads to a performance increase of the company (Galup et al., 2009).

### Why use ITSM metrics to indicate value?

While a large amount of capital is spent on IT every year, up to 90% of that goes into the day to day operations associated with providing IT services to companies (Carr, 2003; Galup et al., 2009).

Using ITSM as a discipline to manage the IT unit as a service provides an opportunity to link the costs associated with the IT unit with the benefits the IT unit brings (Galup et al., 2009). IT managers need to interpret these ITSM metrics to business executives so that all the nuanced benefits IT brings to companies become synonymous with increased company's performance (Brittain and Coyle, 2009; Beachboard et al., 2007; Galup et al., 2009; Smith 2007).

### A model to indicate IT value (Gartner Business Value Model)

Smith (2007) suggested a way to demonstrate IT value to a financially conscious audience by selecting leading indicators of financial performance in the income statement and can be linked to the IT unit.

These indicators of financial performance are well

known to senior business executives, as they are used to show the future profitability of the company. Leading indicators are different to other financial instruments in that they have a reliance on business processes to achieve them (Smith, 2007). "For example, one of the processes that results in revenue is the sales process. One of the activities performed in a typical sales process is qualifying a sales lead.

Therefore, measuring the number of qualified sales in a given period is a leading indicator of revenue" (Smith, 2007, p5). These indicators can be linked to business processes because most transactional business processes rely on IT infrastructure (Beachboard et al., 2007; Smith, 2007). Once the link between IT infrastructure and an income statement element is established, the way is paved for IT performance metrics to be used to demonstrate value to senior business executives (Smith, 2007).

The Gartner Business Value model is a method suggested to identify financial metrics that can be linked to ITSM metrics (Smith, 2007), as illustrated in Figure 1.

Smith (2007) asserts that there are relationships between a set of IT metrics and business processes, and the business processes have a direct bearing on leading indicators of financial performance. The application of the Gartner business value model aims to establish the relationship between IT service and future revenue, to indicate the impact IT service has on future revenue.

### Financial metrics

Metrics refer to a measurement of sorts, with financial metrics that use financial (finance or accounting) outputs to derive such measurement. Determining relevant metrics are vital in the pursuit to understand areas of improvement, evaluate achievements and defining success (Brittain and Coyle, 2009). The income statement is an indicator of the future cash flows of a company, whilst the balance sheet is an indicator of the liquidity and leverage.

Shortcomings of such metrics should be noted in that they are unable to breach the gap between the book and market value of a publicly listed company. The value of unique business processes and intellectual property, amongst others, are often not accurately incorporated (Apfel, 2008).

Leading indicators of financial performance are elements of these statements that can be linked to business processes. Establishing the relationship between the *financial metrics* tier and the *leading indicators of financial performance* tier means senior business executives need to be engaged to uncover the elements found at these tiers and the relationships between the cascading tiers (Smith, 2007).

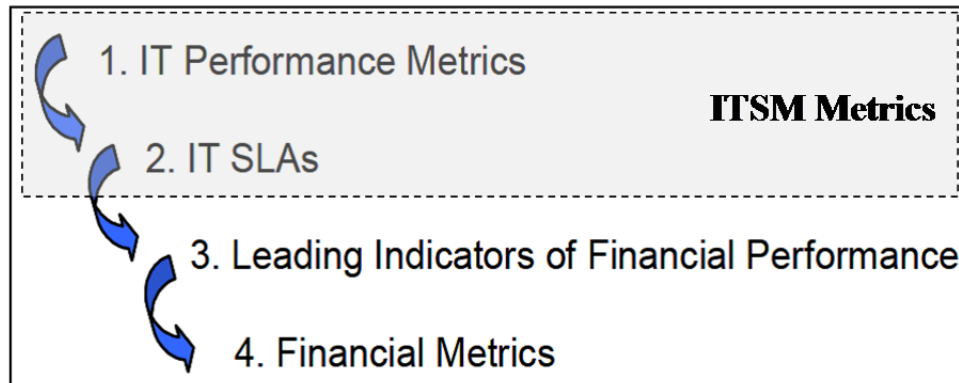


Figure 1. A four-tier Business Value Model, Smith (2007).

### Leading indicators of financial performance

Leading indicators of financial performance are instruments that indicate a company's future revenue (Smith, 2007). More commonly known as key performance indicators; these elements can be financial (working capital ratio), people (training), customer (referrals) or operational (productivity) and are scrutinised to determine any changes in the indicators of financial performance (Smith, 2007). Leading indicators of financial performance enable a simpler means of representing the value of IT than financial metrics on their own (Smith, 2007). Linking the *leading indicators of financial performance* tier to the *IT service level agreements (SLA)* tier comes from determining the business processes that support these financial performance indicators. These can be uncovered by interviewing senior executives and business process owners (BPO) to establish which business processes support the specified leading indicators of financial performance identified at the previous level (Brittain and Coyle, 2009; Smith, 2007).

### Service level agreements (SLAs)

Service Level Agreements (SLAs) are agreements between customers (business process owners) and service providers (IT) which assure customers of the quality of a service (Kumbakara, 2008). SLAs define mutual understandings and expectations of the type, performance level, quality and quantity of service between a service provider and the customer (Jin et al., 2002; Kumbakara, 2008). SLAs are typically used to govern the interactions between the customer and the service provider. SLAs also provide the legal and monetary implications of violating the agreement, which is why providers should form their agreements once they are aware of the capabilities (Jin et al., 2002).

The link between the *IT SLA* tier and the *IT*

*performancetier* comes from SLAs that are negotiated with the business process owners. *IT metrics* can then be used to show how well the IT unit is performing to meet those negotiated SLAs (Smith, 2007).

### IT metrics

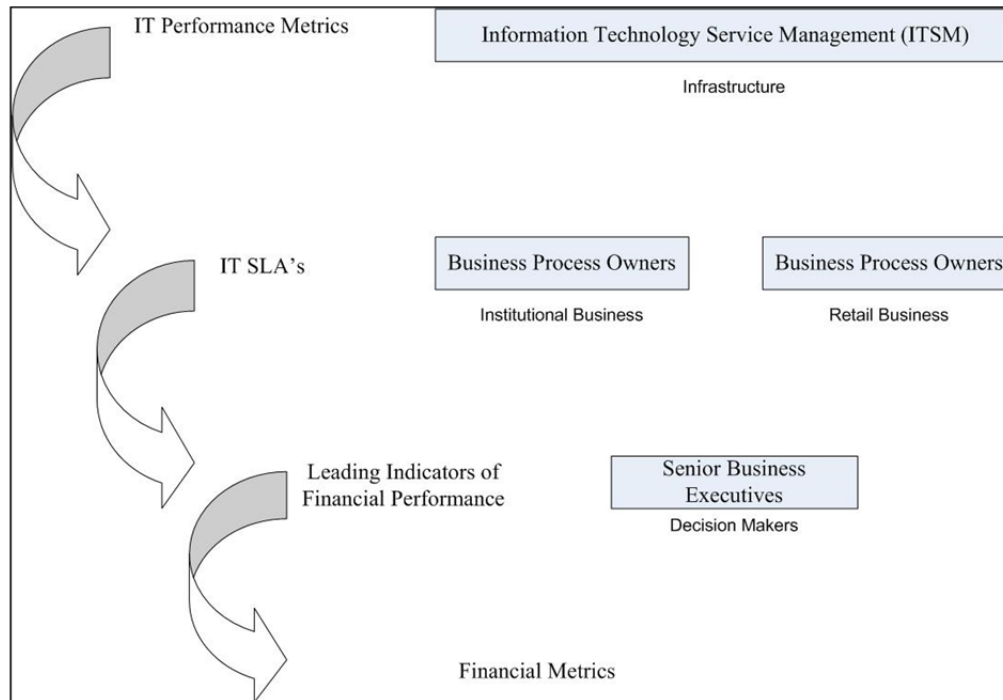
Key Performance Indicators (KPIs) provide the most important performance information that enables organisations or their stakeholders to understand whether the organisation is on track or not (Ward and Daniel, 2006). One of the key concerns during development of KPIs is the ability to differentiate the more important strategy-driven metrics from the plain vanilla metrics (Webber, 2009).

At the final tier, it is important to understand the difference between IT services and IT processes. The services are what a company or its users consume, while processes are a series of activities that are performed to provide IT services to a company. Executive management is generally not concerned about the series of processes required to deliver IT services. IT services need to be described in a way that is meaningful to executives (Smith, 2007).

This leads to the research question, *how can ITSM metrics be used to indicate the value of IT to business decision makers?*

### RESEARCH METHOD

The research is based on a single case study of a financial company that has implemented ITIL. A case study is an empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident (Yin, 2009, p. 18). An in-depth case study was deemed appropriate to explore and develop an understanding of ITSM metrics in the context of a large financial company. The company provided subjects to interview, a wealth of documents and artefacts, and opportunities for observation. Case



**Figure 2.** Gartner Business Value Model mapped to Finstitute.

studies allow a variety of data collection methods such as documents and interviews to be used (Yin, 2009). Smith (2007) suggested that shareholder communication documents and interviews with business managers are appropriate methods of investigating the various business areas contained in the Gartner Business Value model. The organisation is a financial institute in South Africa referred to as 'Finstitute' for confidentially reasons.

The Gartner Business Value model specifies that information be gathered from the following sources (Smith, 2007):

1. ITSM Metrics Respondents(IT) (The ITSM architect at Finstitute was included as a respondent - referred to as IT1).
  2. Business Process Owners(BPO) (Finstitute has two distinct business operations; institutional and retail. A business process owner was selected from each business operation).BPO respondents are referred to as BPO1, BPO 2 etc.
  3. Senior Business Executives (SBE) (These respondents determine which leading indicators of financial performance are considered important and can provide information about financial metrics employed at Finstitute). SBE respondents are referred to as SBE1, SBE2 etc.
  4. Purposeful sampling was used to select people as described by Smith (2007). People from different levels in the organisation were interviewed in an attempt to construct a landscape of reality as seen through their eyes (Walsham, 2006).
- At Finstitute, the business domains align with the Gartner Business Value model as shown in Figure 2.

Primary data were gathered through semi-structured interviews, with secondary data gathered from documents, such as shareholders' reports and information from the organisation's ITSM database. The interview protocol is available on request. Interviews allowed for organised, open-ended questions which allowed the researcher to confirm and clarify information during the interview as well as providing an opportunity to probe and draw information from the respondents.

There were interviews with multiple respondents at each of the three levels, data were collected from several sources including interviews, documents, etc, and then compared (Anfara et al., 2002). The strategy of using multiple data sources to build a coherent justification of themes means that triangulation was used to validate data (Creswell, 2003).

All respondents checked and verified the accuracy of their individual interview records, as well as the final report (Anfara et al., 2002). This suggests a member checking strategy to validate the report or responses contained in it (Creswell, 2003).

An illustration of how the data sets and items were mapped through the sample to the Gartner business value model is shown in Figure 3.

Each level of the model discussed indicates which set of respondents should be approached for information at that level. The data sets are mapped to the levels indicated in the model through the sample indicated earlier. Table 1 expands on the mapping of the model to the case study by indicating where the various data sets have been identified. From the mapping of the model to the case study, the individual data items can be shown by incorporating the interview sample. Table 1 indicates how the data items fit into the various data sets.

The data item descriptions can be found in the appendix labelled "Appendix B: Respondent Role Codes." Each data item code represents a respondent by the role they play in the organisation.

Each interview was recorded with the researchers' notes indicated at various points in the interviews. Senior business executives were interviewed first, followed by business process owners and the IT respondents. This was dictated by the Gartner business value model. The analysis followed the process shown in Table 2.

In the results section, references are made to the data item and data extract number in the format, "Data Item, Data Extract Number." An example of the code generated is shown in Table 3. In Table 3 the response would be referenced as (SBE1, 10) to

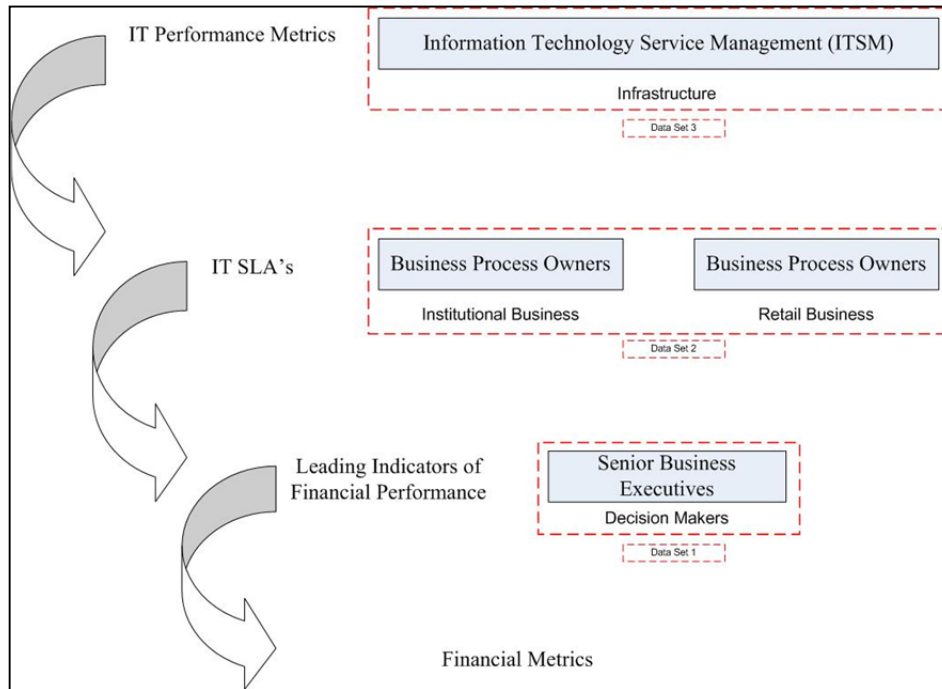


Figure 3. Gartner business value model mapped to case study structure, indicating data sets.

Table 1. Data corpus.

Data set	Interview sample					Pilot sample	
Data Set 1	SBE1	SBE2	SBE3			SBE1	
Data Set 2	BPO1	BPO2	BPO3	BPO4	BPO5	BPO1	BPO2
Data Set 3	IT1						

Table 2. Phases of thematic analysis (Braun and Clarke, 2006).

Phase	Description of the process
Familiarizing yourself with your data:	Transcribing data (if necessary), reading and re-reading the data, noting down initial ideas.
Generating initial codes:	Coding interesting features of the data in a systematic fashion across the entire data set, collating data relevant to each code.
Searching for themes:	Collating codes into potential themes, gathering all data relevant to each potential theme.
Reviewing themes:	Checking if the themes work in relation to the coded extracts (Level 1) and the entire data set (Level 2), generating a thematic 'map' of the analysis.
Defining and naming themes:	On-going analysis to refine the specifics of each theme, and the overall story the analysis tells, generating clear definitions and names for each theme.
Producing the report:	The final opportunity for analysis. Selection of vivid, compelling extract examples, final analysis of selected extracts, relating back of the analysis to the research question and literature, producing a scholarly report of the analysis.

indicate "Typical strategy cycles look at 1-3 years."

From Table 3, the code generated is "R|3[a]." The code represents the area of interest, which is derived from the Gartner business value model, the question number, which is derived from the interview protocol and a letter representing the response. The

representation of the area of interest is "R" for revenue, "D" for business processes, "S" for SLA's and "I" for IT metrics.

These were coded across the entire data set, with data collated that were relevant to each code. The codes were collated into a matrix that represents the interview protocol questions and by

**Table 3.** Thematic code generation.

Data Item	Data Extract number	Question number	Question	Response	Area	Code
SBE1	10	3	What period do you take into account when making strategic decisions?	Typical strategy cycles look at 1-3 years.	R	R 3[a]

extension, the Gartner business value model, which is represented in Table 4.

The matrix shown in Table 4 is the thematic map of the responses of interviewees. The results in the matrix represent the recursive process of generating codes, collating the codes into potential themes, then checking if the themes work in relation to the entire data set and to the initial codes.

## RESULTS

Results of the analysis are observed at two levels, a semantic level and then an initial inductive level. The observations about the level of insight of respondents and the results related to the Gartner business value model are at a semantic level. The inductive level results are separated from the semantic level results and presented as findings stemming from the analysis.

### Observations about the level of insight of respondents

The matrix presented in Table 4 shows that senior business executives gave their input along financial metrics primarily, where sources of revenue and leading indicators of financial performance were uncovered. The bulk of responses at the business process level came from business process owners and senior business executives. The comments related to SLAs shows that the appropriate level of service has been established by business process owners and IT. Table 5 illustrates the number of comments related to areas of interest.

The areas of interest, derived from the Gartner business value model, are represented in the left hand column of Table 5. Each area along with the expected comments is highlighted in a particular colour. All comments were volunteered.

The area of "Financial Metrics," along with the number of significant comments is highlighted in blue. The comments from the business process owners (BPOs) are significant, owing to the instrument looking for responses about general business activities and not necessarily related to a particular department.

The area highlighted in red: the "business processes" is in line with expectations that both senior business executives and business process owners have similar

insight about which business activities support leading indicators of financial performance.

The area of interest highlighted in green "SLA's," is in keeping with assertions from the literature, that business managers would be involved in determining the SLAs for IT servicing business activities. Business managers may include senior business executives and business process owners (Smith, 2007). No questions related to SLAs were directed at senior business executives but were brought up by these executives on their own accord. SLAs are not formalised at Finstitute; everyone has an understanding of what is expected of IT to support different business activities. SLAs are therefore implemented on a break fix basis and these are coded into the ITSM system in use at Finstitute.

Finally, the responses from the IT respondent at the level of "IT Metrics" are expected as IT metrics by themselves are significant in the IT unit and no other business managers are expected to have insight into them (Smith, 2007).

### Results related to the Gartner business value model

#### Financial metrics

A summary of the comments by responder code at the "financial metrics" level of Table 4 indicates that most of the comments on financial metrics were by the Senior Business Executives. Revenue generators at Finstitute are primarily from investment performance, whilst the amount of assets under management (AUM) is a secondary generator of revenue according to respondents (SBE1, SBE2, SBE3). Investment performance is a measure of investment return compared to a benchmark at Finstitute. The benchmark for investment return is determined by mandates for portfolios by clients, and is usually the Johannesburg Stock Exchange All Share Index (SBE2). Fees paid by clients are a mix between being calculated on an absolute basis, or on a sliding scale based on "alpha" (SBE1; SBE2). A major cost of revenue was identified as people cost. There is a need to maintain the current number of people while increasing the assets under management. These efforts are around increasing economies of scale. There are also efforts around waste, meaning people are not doing things they do not need to be doing (SBE3).

**Table 4.** Matrix of thematic codes representing responses mapped to the research instrument.

		SBE			BPO					IT
		SBE1	SBE2	SBE3	BPO1	BPO2	BPO3	BPO4	BPO5	IT1
Financial Metrics	Q0	, a, a, a			, b, b					
	Q1	, a, b, c, c, c	, b, c, e, e	, d, c						
	Q2		, d, d	, e, c, c	j, a, b, b					
	Q3	, a, a, a, a, b	, d	, c						
	Q4		, b, c, d							
	Q5	, a, b, c								
	Q6		, a	, a						
	Q7	, a	, c	, b, d						
	Q8									
	Q9	, a, a, a, a		, b, b, c, c, d, b	, b, c, b					
	Q10			, a, a						
Q11										
Business Processes	Q0	, a	, b				, c, c		, f, d, e, e, e	
	Q1	, a, a, a								
	Q2	, a, b, d, e	, c, b		, k, k, k, k, k, k, k	, c, d, e, f, f, f	, c, l, l, l, a, a, a, a	, c, g, g, g, g, j, g	, h, j, g, i	
	Q3		, a, a, b, b, d, d, c							
	Q4			, a, b		, b		, a		
	Q5						, c	, a, a, b		
	Q6			, a, b, b, c, d						
	Q7		, a, a	, c	, a, a			, b, b		
	Q8							, b, c, d, e, f		
SLAs	Q0	, a, a, a				, e, g, g, h, d, d		, c, c, b		, a, a, a
	Q1		, d, e, e, e	, a, a, b, a, a, a, a	, k, k, k	, k, g, k, g, q, k, k, r, n, o, f	, c, k, k	, k, k, l, m, m	, h, h, h, j, b, p	, i, i
	Q2		, e	, b	, a, a, a					
	Q3			, b	, b	, b	, e, e	, j, j, k, m, b		
	Q4					, a, g	, g, g, h, h	, b, b, b, b	, d, c, c	, e, f, i, f, b, g, i, g
IT Metrics	Q0									, a, a, a, b, b, b, b, c, c, d, e, f, f, g, g, g, h, i
	Q1									, a, a, b, c, d, a, a, a



**Table 5.** Number of comments.

<b>Financial metrics</b>	<b>SBE = 49 Comments</b>	<b>BPO = 9 Comments</b>	<b>IT = 0 Comments</b>
Business Processes	SBE = 27 Comments	BPO = 54 Comments	IT = 0 Comments
SLA's	SBE = 17 Comments	BPO = 65 Comments	IT = 5 Comments
IT Metrics	SBE = 0 Comments	BPO = 0 Comments	IT = 26 Comments

### Leading indicators of financial performance

Leading indicators of financial performance are difficult to determine at Finstitute because of the cyclical and unpredictable nature of financial markets, although some scenario planning is done based on expected lows and highs. Scenario planning for budgetary purposes takes into account a period of between 1 and 5 years (SBE1; SBE2).

AUM is based on the number of clients Finstitute has, and the amount each are willing to invest. Several future indicators of financial performance can be attributed to AUM and can be measured, including client satisfaction and perception, the length of time investors stay in a fund, and the internal rate of return of an investment. The length of time an investor stays in a fund is an indicator of clients' satisfaction and perception. The internal rate of return feeds into clients' satisfaction (SBE1; SBE2; SBE3; BPO1).

The business departments that have been identified as owning business activities that support leading indicators of financial performance are the client services centre, distribution, marketing, business development managers, institutional client administration, investment portfolio managers and finance (SBE1; SBE2; SBE3).

**Clients' Satisfaction:** Helping clients understand the investment philosophy at Finstitute is a business activity aimed at increasing clients' satisfaction, and compelling clients to remain invested in funds for a longer period of time. This business activity is shared by the client services centre and marketing department (SBE1; SBE2; SBE3). The client services centre achieves this with the interactions between clients and the call centre. The marketing department achieves this with the use of above the line marketing; a term used to describe advertising that is paid for by Finstitute and with events aimed at current clients (BPO2; BPO4).

Other business activities aimed at increasing clients' satisfaction and that are measured, include attempts to maintain and increase quality of the interactions with clients. These activities are achieved through the use of quality evaluation measures and clients' satisfaction surveys, and fall into the domain of the client services centre (BPO2).

**Waste:** The distribution department has adopted a "one touch" philosophy of maintaining clients' satisfaction. This philosophy aims at reducing the number of interactions

needed to collect clients' information and consequently, reduce waste. Minimizing the number of client interactions to issue an instruction, or make an investment perpetuates the idea that it is easy to invest with Finstitute (BPO1; SBE1).

### Service level agreements (SLAs)

Business managers and IT have an understanding of the level of service expected from IT documented in SLAs; such as core processing, communication, customer relationship management (CRM), e-commerce, institutional, and IT desktop support. The expectations are around availability of the services and performance of the services during business hours. Performance relates directly to clients' satisfaction and perception for some of the consumers. SLAs are the same across applications that fall into an IT service category and have various priority levels attached to break fix times (BPO1; BPO2; BPO3; BPO4; IT1).

### IT metrics

At the final level, IT metrics that are presented to the business include measures for the services mentioned. The metrics can be categorised as those that highlight when a decision needs to be made about a service (performance based metrics), and those that show an impact on clients or users of a service (tolerance metrics) (IT1).

To indicate that information was first collected for financial metrics, leading indicators of financial performance, then SLAs and finally IT metrics, the initial Gartner business value model diagram was inverted. The arrows in Figure 4 indicate that IT metrics are linked to SLAs, which are linked to leading indicators, which in turn are linked to financial metrics. The Financial metrics in Figure 4 show the sources of revenue (Investment performance, Assets under management) and cost of revenue (People Cost). The leading indicators are clients' satisfaction (linked to assets under management), scalability (linked to cost of revenue and assets under management) and waste (linked to productivity of people - people cost). At the next level, SLAs are negotiated for communication and CRM (linked to clients' satisfaction), e-commerce (linked to scalability) and core processing

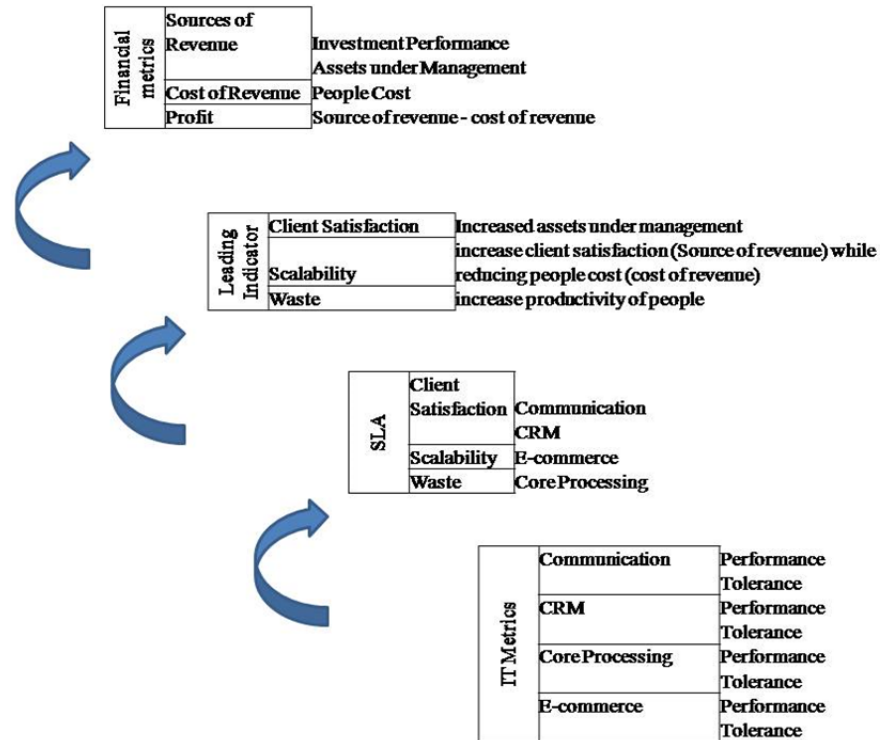


Figure 4. Gartner business value model mapped to case study results.

(linked to waste). Finally, performance and tolerance IT metrics for each service are indicated.

**FINDINGS**

**IT benefits**

Underpinning the business value that IT has is the fact that IT delivers benefits to a company. The literature indicated that IT helps increase competitive advantage, increases internal efficiencies and aides in decision making (Beachboard et al., 2007; Ward and Peppard, 2002). The case study is congruous with the reviewed literature in the ways described below.

**Increased competitive advantage (profitability)**

The literature indicates that competitive advantage is achieved with the use of a resource that is rare. Sustained competitive advantage is achieved when the resource is difficult to replicate or replace by a competitor (Ward and Peppard, 2002). Combining IT applications and managing them as a single service in a way that is unique and is difficult to replicate at a competitor results in competitive advantage Brynjolfsson and Hitt, 1998; Carr, 2007;

Melville et al., 2004; Ward and Daniel, 2006; Ward and Peppard, 2002). In the case of Finstitute, the application of IT resources becomes a source of competitive advantage, where it supports the “one touch” approach to dealing with clients and increases customers’ satisfaction, which in turn potentially increases assets under management in the future (BPO1).

**Increased internal efficiencies (productivity)**

Productivity means delivering value to a client as an output while reducing the input resources to deliver this value (Brynjolfsson and Hitt, 1998). It has been shown in the case study that internal efficiencies are achieved with the use of IT by having a direct impact on people costs, in terms of productivity and waste. The number of clients that can be serviced is increased dramatically with a marginal increase in the number of people cost required to do so (SBE3). The ITIL framework also increases internal efficiencies by arranging applications into services, and managing those services as single entities, reducing the need for systems to exist to complete similar tasks (IT1). In the case study, the concept of productivity is seen reducing waste, where delivering value while decreasing input costs around people extend to eliminating unnecessary work (SBE3).

### **Aiding decision making (scalability)**

It has been established that IT aids decision making in the case study because IT services play an important role in the generation of future revenue. The use of ITSM and the ITIL framework allows for information about IT services to be made available to business managers through the use of performance metrics. This information aids business managers in making decisions about future requirements around human resourcing (SBE3; IT1) by giving decision makers information about which channels clients use to transact. Resources can be deployed in channels that are more popular with clients, and restrict resources in channels that are less popular. This means that Finstitute becomes geared at improving scalability in terms of human resources (SBE3).

### **IT managed as a service: a case study**

The IT unit is responsible for service delivery and service support (Beachboard et al., 2009; Brynjolfsson and Hitt, 1998; Galup et al., 2009). The discipline of ITSM has been adopted in keeping with assertions from the literature reviewed in that IT is managed as a single entity where IT service includes managing people and technology as a service (IT1). Finstitute has adopted the ITIL framework as a guide to standardise tasks and processes around best practices. The ITIL components have been implemented using a software management suite known as ITSM, which is based on the ITIL framework and has ITIL standards and disciplines built into it (IT1).

### **ITIL at Finstitute**

The ITIL framework is a best practice guide and as such, ITIL processes may be implemented piecemeal (Dubie, 2005; Galup et al., 2009). At Finstitute, the ITIL framework has been adopted in parts. It was decided to adopt the change control process first, as it was seen to be the easiest to implement (IT1). A roadmap was put in place to choose which other processes were adopted, and the order in which they would be adopted. The roadmap included those processes that were logical to implement because they leveraged off previously implemented processes (IT1). Another reason to adopt further ITIL processes stemmed from a recognised need, where management falls outside the ITSM discipline and shortcomings had been identified. Asset management preceded the adoption of the ITSM discipline and ITIL framework at Finstitute. Deficiencies have been identified around the management of assets and efforts have been made to bring it into the ITSM discipline (IT1). Finally, some ITIL processes, specifically around SLA

management, have been partially adopted due to the non-formal expectations around service levels that business has (IT1).

### **IT metrics at Finstitute**

The ITIL framework provides for a number of metrics that measure variables in the IT unit of Finstitute. Metrics may be categorised as operational, performance and tolerance metrics (Coyle, 2007; Steinberg, 2006). At Finstitute, these metrics are used to provide information to business at various levels as follows:

1. Operational metrics are used internally by the IT unit on a daily basis.
2. Performance metrics are used to give information to business process owners (BPOs) to support their decision making processes.
3. Tolerances metrics are used at a senior business executive (SBE) level for strategic decision making purposes and provide information that highlights areas of concern or interest (IT1).

The following section expands on how performance and tolerance metrics are linked to leading indicators of financial performance.

### **The Gartner business value model related to the case study**

From the analysis results it can be shown at a simple level that IT performance and tolerance metrics have a link all the way to financial metrics. From the literature reviewed, performance metrics can provide information that forms the basis of making business decisions. These may include information on any number of items including where to deploy human resources, or highlight areas of concern in the event of increased business volumes. Increasing business volumes while maintaining the same amount of input resources is also known as scalability or increased productivity (Brynjolfsson and Hitt, 1998; Steinberg, 2006). From the case study, it was found that scalability and waste have been identified as having an impact on future revenue (SBE3). Performance metrics can be used to show the extent that using IT services such as core processing reduces waste by reducing the number of checks that people need to do and can be offloaded to IT systems (BPO1; SBE3). In another instance, performance metrics can be used to demonstrate the extent that the IT service, e-commerce, is used to reduce the number of people needed to field calls in the client service centre by directing clients to get statements and other low level information from the website. Performance metrics can be used to demonstrate IT value to business managers in the departments that

directly rely on IT services (BPO4; SBE3). It goes to the scalability. Five years ago we had 10 000 clients and 10 000 calls, today we have 120 000 clients and 15 000 calls" (SBE3, 27).

Tolerance metrics are those that indicate impact on clients (Steinberg, 2006). The level that this may be presented is where leading indicators of financial performance have been identified. From the case study, clients' satisfaction is one leading indicator of financial performance (SBE1; SBE3). Tolerance metrics refer to those times when an IT service is unavailable. In the area of clients' satisfaction, the impact of the CRM IT service being unavailable when it is needed means that clients' satisfaction and perception is reduced or becomes immeasurable (BPO4). In this way, tolerance metrics can be used to indicate what level of discomfort clients suffered because of an IT service being unavailable. Most importantly, at the leading indicators of financial performance level, the value of IT investments into redundancy, hardware and people, among other things, can be demonstrated by showing the impact of these investments on future revenue (BPO4; IT1; SBE1; SBE3).

## DISCUSSION

From the results obtained it appears as if ITSM metrics can be useful in the daily operations of an IT unit. Extending this usefulness beyond the IT unit is possible when managing IT as a service, as it provides the opportunity to describe the IT unit in terms of the impact it has on business.

The application of the Gartner business value model establishes a set of links between the services provided by the IT unit and financial metrics that decision makers consider important indicators of future revenue. With the inclusion of ITSM metrics in the final tier of the model, the magnitude of this impact can be indicated. The impact the IT unit has on future revenue effectively interprets the benefits that IT brings to a company in a language that is familiar to the intended audience.

### **How can ITSM metrics be used to indicate the value of IT to business decision makers through the application of the Gartner business value model?**

In the institute case study it was shown that by identifying a set of leading indicators of financial performance and tracing them through business activities to the IT services these indicators rely on, business decision makers can begin to see where the IT unit has an impact on company performance. The study uncovers a dimension to IT metrics in the form of benefits IT brings to the company.

The benefits are directly related to areas that are

significant to decision makers. At institute, these are scalability (aiding decision making), productivity (driving internal efficiencies) and ultimately, profitability (increased competitive advantage).

Application of the Gartner business value model provides an opportunity to highlight areas where a chasm exists between IT and businesses, as well as helping business managers determine the appropriate service levels expected from IT by being able to link the business activities that rely on IT to financial metrics that are significant to senior executives.

The institute study also showed that the implementation of the ITIL framework in its entirety is not a prerequisite to using ITSM metrics to indicate business value. It shows that the categories of metrics that are pertinent to various levels of business are more important to indicating value than the framework they are embedded in. In the institute case study, the categories that metrics are arranged in have different values to various business managers. For senior business executives making strategic decisions, metrics that are categorised as tolerance metrics are most pertinent. For business process owners, performance metrics are most pertinent. Operational metrics are pertinent internally to the IT unit. The time period that leading indicators of financial performance at institute are expected to be valid for is beyond the rigid time periods used when evaluating IT using economic theory (SBE1; SBE2; SBE3). This is in keeping with literature that asserts that value needs to be interpreted in a way that takes the specific audience perspective into account and that there is a need to evaluate IT beyond timeframes that are expected when using economic theory (Bakos and Kemerer, 1992; Serafeimidis and Smithson, 2002). From this, it can be deduced that interpretive theory is more applicable than economic theory when evaluating IT as a service.

## CONCLUSION

### **Contribution of study to business**

The case study allows the business perception of IT as a resource to be changed. IT may be perceived as an input resource where opportunity exists to improve productivity and profitability by applying downward pressure on IT costs. This is related to the large costs associated with IT. The application of the model changes the perception by linking IT performance, specifically those around service and infrastructure, to financial measures that are significant to business decision makers. The business benefit of the study is the uncovering of information at the various tiers described in the Gartner business value model. By demonstrating the influences IT services have on leading indicators, the demonstration of IT value is possible.

## Opportunities for further Research

As an exploratory investigation, this case study opened the door to applying the Gartner business value model to other companies that manage IT as a service, and are trying to use IT metrics to indicate IT value to business decision makers.

The voluntary nature of the research means that some business areas were not explored at all at institute. An opportunity exists to further explore other business areas and identify the associated IT services.

The study was limited to giving the IT manager tools indicating value to business; the interpretive evaluation theory should be extended to ways these tools should be used to demonstrate value to business. This study does not go so far as to tackle the *methods* used to demonstrate value of IT. The same considerations of the different lenses various audiences have when viewing performance or tolerance metrics should be made when considering how these metrics are used when attempting to demonstrate the value of IT to individual decision makers.

## Conflict of Interests

The authors have not declared any conflict of interests.

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