A Portfolio Approach to Managing Information Systems and Technology Services – Moving From Applications Portfolio to Service Portfolio

Thando G. Mjebeza, 9602905

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Supervisor: Professor Andy Bytheway

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KEYWORDS

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IS/IT service quality

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User performance

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IS Service Management

Applications Portfolio

IS/IT Services Portfolio

IS Service Literature

IS/IT services

Abstract

To minimise costs, most organisations tend to outsource support functions that do not add considerable value. Through effective management of operations Information Systems and Technology (IS/IT) functions have been striving to improve to avoid being outsourced. Effective management has been in a form of a cycle of measuring and improving the effectiveness of the operations of the organisation. The question is what do you improve? Resources are scarce therefore; managers need to find a way of prioritising needs for improvement.

Classic literature reveals that most IS/IT functions have concentrated on improving tangible support (e.g. software, hardware, manuals, etc) and later processes that produce tangle support (e.g. systems development life cycle, project management, etc). Lately more effort is being focused to managing intangible support in a form of services (e.g. answering questions, installations, fixing PC's/desktop support, etc) to improve overall IS/IT support. This is noticed in literature written on IS/IT service management transcending from efforts originating from the field of Services Marketing.

Normally an IS/IT function offers many services i.e. a portfolio of services. This therefore gives problems in terms of prioritising resource allocation and deciding on management approaches to different services. According to research conducted prior 2002, there is no literature on managing IS/IT services as a portfolio (i.e. as a group). A well-taught tool called the Applications Portfolio has been used to categorise applications. It is in a form of a two-by-two matrix that groups applications according to benefits they provide to the organisation. This approach has been well received by most organisational managers all over the world. However, there are very few publications about the tool and its use in the information systems field.

Using an academic institution, this thesis demonstrates the adaptation of the Applications Portfolio in managing IS/IT services resulting to an IS/IT Services Portfolio. This research found that the Services Portfolio is not only useful in categorising services and deciding on relevant management approaches, it also shows how the service portfolio can be used to diagnose the alignment of IS/IT strategy and organisational strategy. It also concludes that the two-by-two matrix has weak boundaries i.e. one service can be categorised to be in more than one quadrant. Therefore, the four boxes are not enough; nine boxes are more appropriate to produce effective results.

Declaration

I declare that *A Portfolio Approach to Managing Information Systems and Technology Services – Moving from Applications Portfolio to Service Portfolio* is my own work, that it has not been submitted for any degree or examination in any other university, and that all the sources I have used or quoted have been indicated and acknowledged by references.

Full Name: Thando G. Mjebeza Date: 5 September 2004

Signed: _____

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Glossary

Information System (IS)	Group of interrelated sub-systems that include people, hardware, software, etc to work together with the purposed of producing information to support users to make decisions
Information Technology	Technological side of information systems e.g. computer hardware, computer networks, etc and it is part of an information systems
Information Systems and Technology (IS/IT)	Combination of information systems and information technology
Service	"Services are deeds, processes, performances." Unlike goods, services cannot be touched or felt. An example includes training for staff in an organisation. An organisation can offer services on their own as primary products or as part of manufactured goods, Zeithaml and Bitner (1996).
IS/IT services	IS/IT services are services offered by an organisational unit that is designated to provides IS/IT support to the organisation i.e. IT/IS department.
IT/IS supply	Provision of information systems and information technology to the organisation
IS/IT Support	Support supplied to users of systems by IS personnel.
Internal IS/IT unit or IS/IT departments	Organisational unit that provides IS/IT services to the entire organisation. This could be in a form of support that includes installing and maintenance software and hardware for personnel within other organisational departments.
Applications	Software component of an information system. In this thesis applications and information systems are used interchangeable. Software is a set of packaged programs (instructions that tell a computer how to do a certain task) that is meant to support particular activities (e.g. finance activities).
Support functions	Any kind of function that provides support to the organisation. Example is finance, IT/IS, purchasing, marketing, etc.
Strategic tool	A tool that affect long term goals of an organisation
Customer	Implies internal people or organisational employees who receive services from the IT department
External Customer	Implies people that receive services from organization
IT Tools	Hardware and software used by users and providers of IT services.

1 Chapter 1 - Introduction

1.1 Background

This research emanates from the researcher's previous work which dealt with measuring information systems and technology (IS/IT) service within an organisation using SERVQUAL[1] as a measurement tool. The researcher observed the following problem:

"There are different types of services within an organisation and offered to different users. For example, users who use only PC's and the Internet might require desktop support only while some might need other types of support. The SERVQUAL tool measures service quality for a unit or organisation as a whole. The problem with this is that results did not show specifically which services are more problematic than others" (Mjebeza 2002).

The researcher concluded that IS/IT service measurement tool should clearly articulate services being measured. The tool might produce distorted results. This is because users will give opinions about their personal experiences towards only those services they receive from the IS/IT department. Such results will not inform IS/IT department about which service(s) to concentrate for improvement. For example, it might be possible that there are no problems with network services, but there are huge problems with desktop services and most users use network services. Aggregate results might show that IS/IT service is satisfactory which might not be entirely accurate. It is therefore important to have a view about user perceptions concerning one specific service (or one group of services).

The impasse is how one determines the importance of a particular service over others. Knowing and rating services according to their importance could help conserve limited resources. This is because the IS/IT department will allocate resources where they will add significant value. The value that a service contributes to the organisation will determine the importance of a particular service.

[1] SERVQUAL is an instrument used to measure the quality of services (Zeithaml and Bitner 1996)

1.2 Layout of Study

Chapter 1 starts by introducing the reader to the concepts under study and the purpose of this research. The next Chapter presents literature on IS service, and then explores the origin and theory on the Applications Portfolio Matrix. Chapter 3 presents the research plan and Chapter 4 discusses results and their implications leading to the conclusions and recommendation in Chapter 5. Chapter 5 also proposes pointers for further research based on findings.

1.3 Introduction

The general intention behind investing heavily in Information Technology (IT) is to increase efficiency as to positively influence organisational productivity, thus keeping up with market standards (Turban, MacLean, and Wetherbe 2001). Due to huge investments in IT, organisations are paying attention to IT as to make sure that it serves expected benefits. Information Systems and Technology (IS/IT) units need to find ways to justify their existence (Whyte and Bytheway 1995). This task is difficult because it is not easy to measure the success of an Information Systems (IS) unit (which normally houses IT) due to limited measurement tools of IS/IT effectiveness. Before one starts measuring, IS/IT effectiveness, it is important to understand the output from an internal IS/IT unit (Whyte *et al* 1995).

To improve the effectiveness of IS/IT functions, most of IS/IT managers have concentrated on improving applications (information systems) and projects delivery (Whyte and Bytheway 1995). This thesis hopes to contribute by helping in better understanding IS/IT services as a portfolio. Improved understanding of IS/IT services can lead to more effective management hence improve service delivery to internal organisational employees resulting to a more successful organisation (Grönroos 1994 and Hart 1995).

Previous research in the domain of IS/IT service concentrated on understanding the concept of service with the main objective of improving IS/IT service quality. One

could be working on improving a certain service or group of services. What if those services are not important in adding value to the organisation? Problems exist when deciding on how to prioritise when managing IS/IT services. It is difficult to give similar attention to all services due to the scarcity of resources (funds and labour).

Portfolio management helps answer the questions raised above. The concept of portfolio management has been in existence for a long time. It is about managing a complete business investment lifecycle across all investment (e.g. finance, human resources, etc.) (Fischer 2003). It helps in identifying the contribution of resource, projects, applications, etc. to the goals of the organisation. In the field of IS the Applications Portfolio matrix (or just the Applications Portfolio) has helped understand the contribution of applications to the goals of the organisation. Previous research pointed out that, the Applications Portfolio matrix uses a portfolio management approach to managing applications (Edwards, Ward and Bytheway 1991; Ward 1990; and Ward and Peppard 2002). This in turn has helped IS/IT management prioritise the allocation of finite resources in managing applications.

This research seeks to contribute by adapting the Applications Portfolio to a tool that assists in prioritising services offered by an IS/IT unit. It is the researcher's belief that adapting the Applications Portfolio model to managing services it can allow managers to make informed decisions in allocation of resources to management of services. Priority and decisions are informed by value that services add to the organisation. The tool also allows management to choose appropriate management strategies for managing IS/IT services.

This Chapter first draws the reader's attention to the importance of IS/IT services, and then introduces the reader to the main concepts dealt with in this research including relationships between those concepts. To help clarify the concepts, this Chapter presents a conceptual model, which diagrammatically shows the main concepts and the scope of this research. It then discusses major concepts then concludes by stating the main research objectives.

1.4 Importance of Information Systems and Technology Services

Researchers in the field of IS and IT have found it important to measure IS/IT services because of IS/IT's importance to the success of the organisation (Russell and Maskett 1993; Kittinger and Lee 1997; Nel and Pitt 1997; Pitt, Berthon and Lane 1998; Pitt Watson and Kavan 1997; and Watson and Pitt 1998). Moreover, researchers found it important to study services because of the way services are available to an organisation (Grapentine 1999). This section highlights the importance of IS/IT services to the organisation (i.e. why services) hence justifies the importance of the study of IS/IT services.

1.4.1 Services as a Strategic Tool

As a step towards addressing the research problem, it is imperative for the researcher to explore a possible tie between IS services and the overall performance of the organisation. Theoretical and empirical research suggests that superior quality of service management is useful as a Strategic tool (Grönroos 1994). Zeithaml and Bitner (1996) claim that service as a strategic tool could lead to benefits that include increased market growth through improved customer retention and acquisition. Managed effectively, IT services can improve overall performance of an organisation (DeLeon and McLean 1992)

1.4.2 Improve Understanding Between IS/IT and the Business

In 1991, Price Waterhouse of London conducted research to find out the problems that "curse" organisations even though they have highly qualified IS/IT Professoressionals. This research involved gathering opinions of 5000 IT Professoressionals around the world. They also interviewed 102 board-level executives from 100 major companies around the world. Preceding research concluded that there was often lack of understanding between the IT department and the rest of the business (Russell *et al* 1993).

Results of the research listed six items that can contribute to a responsive IT

department (IS/IT unit). Amongst these items was internal customer[2] service. They argue that the problem stems from separation of power from responsibility i.e. IT departments have all the control over systems that help in dealing with customers but are not responsible for the service that is delivered to external customers[3]. On the other hand, users (those people using these services) have no control over amending systems that help do their work but hold the responsibility if satisfying external customers. This research also proposes that justification for IT departments' budgets/investment should come from the extent to which the systems produced by IS/IT departments help in serving the external customers.

[2] Customer implies internal people or organisational employees who receive services from the IT department.
[3] External Customer implies people that receive services from organisation.

1.4.3 Improve Organisational Performance

Internal services are useful to improving performance of the organisation (DeLeon and McLean 1992 and Hart 1995). Figure 1 adopted from Hart (1995) illustrates that a service comes from the support unit of the organisation, in this case the IT department. This service is offered to the business, which in turn assists the business in offering a service or product to the organisation/business' customers. If the IT department does not offer a good service, that will affect the final service that the organisation offers to external customers. This diagram therefore shows that to improve the service offered to the final customer, it is important to better the service offered to internal customers.

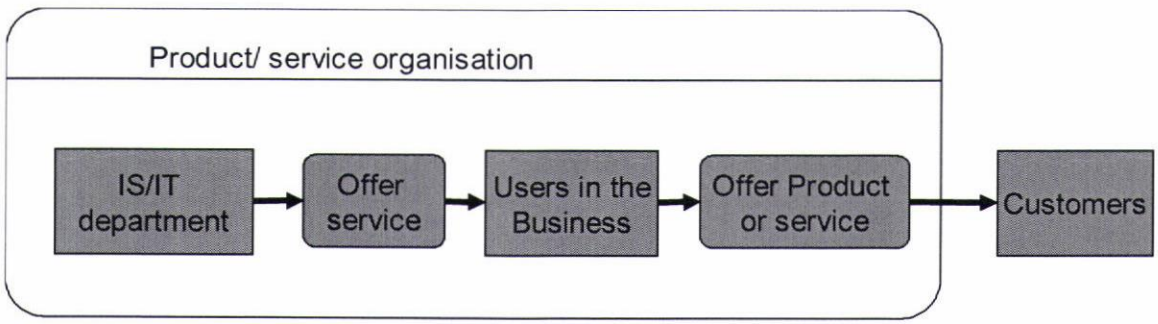

Figure 1: Effect of Internal IT Service (Adopted from Hart (1995))

Grönroos (1994) uses a "service-Professorit chain," to show that there is a relationship between internal service and Professorit. He argues that better service levels from inside can lead to increased organisational customer satisfaction, which then implies more revenue for the organisation because they will keep coming back.

1.4.4 Service as a Source of Value

Venkatraman (1997) argues that service could be a source of value in the organisation. The value center in Figure 2 shows four independent sources of value from the IS/IT department. The models consist of two dimensions each broken down into two. The first one is purpose, and is broken down into business capability and operational efficiency. The second dimension is risk propensity, broken down into

maximising opportunity and minimising risk. These dimensions yield four quadrants resulting to the following analysis:

- Cost center - focuses on operational efficiency and minimum risk
- Service center - focuses on business capabilities and minimising risk
- Investment center - long-term, focuses on creating new IT-based business capabilities
- Professorit center - focuses on delivering IT service to the external marketplace for incremental revenue on growing the business through IT ("world-class IT organisation")

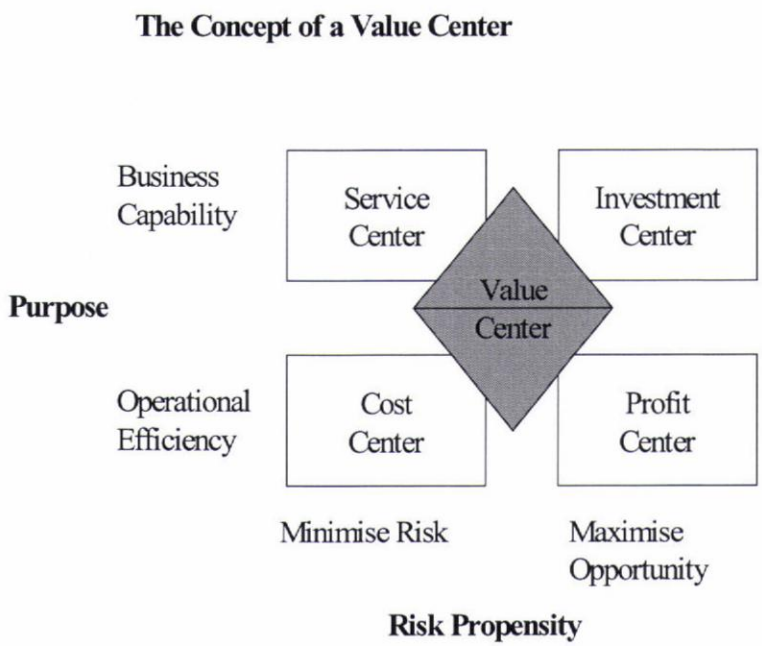

Figure 2: The Value Centre, Venkatraman (1997)

Venkatraman also mentions that two boxes on the left (Service and Cost Centers) focus on current or short-term activities or results and those on the right have focus on long-term results meaning that their success is relatively hard to ascertain. The importance of these quadrants will differ for different organisational (also including departments or functions) contexts.

She argues that for every IT department to be effective it needs to have a strategy aligned to the business strategy. This strategy should address the four components as

provided in the value center. He argues that these four are possible sources of value from IT resources and they are sufficient to make sure that the internal IT department becomes a center for the entire organisation's success.

Venkatraman's arguments show that the service component is not the only component that leads to the success of IS/IT department in the organisation. Her model does show the service center as one component that is directly in contact with the business in terms of offering business capability. This, therefore makes service a strong starting point to justify further investment allocations (bigger budget) to facilitate long term endeavours to reach the investment center and the Professorit center.

1.5 The Conceptual Model

This section shows the relationship between concepts dealt with in this thesis in a form of a conceptual model. In later sub-sections, it also discusses relationships between the concepts.

The conceptual model is shown in a form of an entity model as shown in Figure 3 on the next page. Rules for reading entity models are as follows:
The boxes are ENTITIES. ENTITIES are things or concepts about which information is kept. Lines connecting boxes denote relationships. A single line to a box indicates a single occurrence (relationship) at a point in time. Lines ending in forks (crow's feet) represent multiple occurrences of the entity. Entity models can be read by reading from one entity to another (left to right in this case) by using the relationship as a verb-phrase connecting two nouns (or noun phrases).

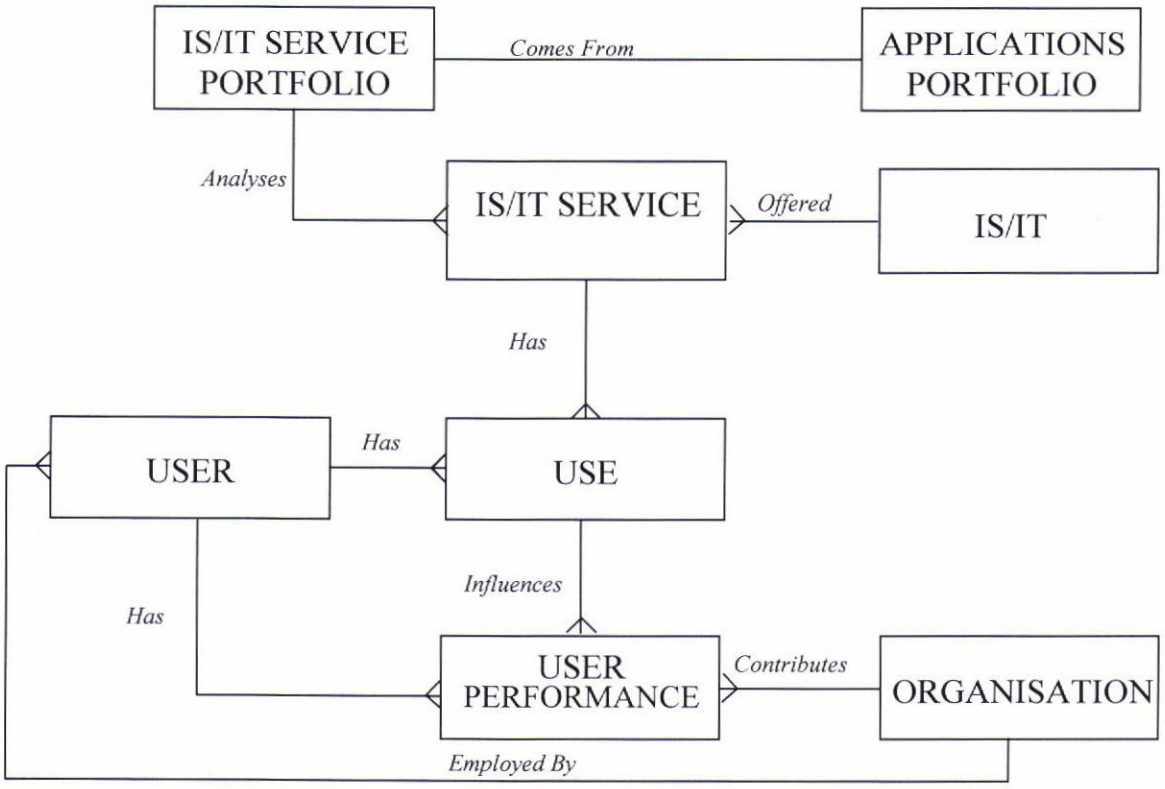

Figure 3: The Conceptual Model

Summary of the conceptual model (entities in capital letters):

IS/IT SERVICE PORTFOLIO comes from (is adopted therefore has characteristics of) APPLICATIONS PORTFOLIO.
IS/IT SERVICE PORTFOLIO analyses a portfolio of (many) IS/IT SERVICES
The IS/IT offers many IS/IT SERVICES.
IS/IT is owned by the ORGANISATION.
Many USERS are employed by one ORGANISATION.
A USER uses more than one IS/IT SERVICE and an IS/IT SERVICE can be used by one or more users therefore USE is an occurrence that happens between the two. That therefore implies that a USER has more than one USE for IS/IT SERVICE.
USE of IT services influences more than one USER PERFORMANCE.
A USER has USER PERFORMANCE that could have many attributes and USER PERFORMANCES (attributes) contribute to the ORGANISATION (success).