# SUCCESS OF IT OUTSOURCING FROM THE VIEWPOINT OF INFORMATION RESOURCE MANAGEMENT - CASE AKER YARDS, FINLAND

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Outsourcing the IT services of a company has been popular in recent years. There are several reasons why a company decides to outsource either a part or all of its IT services, and, as a result the success of outsourcing can also be examined from various viewpoints. This thesis covers outsourcing reasons, the extent of IT outsourcing, the position of IT in a company, the outsourcing contract and relationship between the outsourcing parties and their effect on outsourcing success.

This study discusses the success of IT outsourcing from the viewpoint of the Information Resource Management of Aker Yards, Finland. In this context, success means the implementation of the desired state of affairs in practice to the greatest degree possible. To determine the desired state of affairs in Aker Yards, Finland, the request for quotation that led to the IT outsourcing was compared with the contract eventually used for outsourcing the IT services. Based on the comparison, a set of interview questions was created to discover the expectations and perceptions of Information Resource Management personnel. In addition, the interviewees were asked to fill in a questionnaire based on the SERVQUAL model, which surveys expectations and perceptions of services.

The study showed that the principal objective of outsourcing, that is, outsourcing costs that vary in compliance with the need for the services, has not been achieved. After the service areas were discussed separately, it can be stated that in general, apart from non-routine service requests or situations, the quality of the outsourced services corresponds to the requirements of Information Resource Management. On the other hand, there is a substantial need for improvement of the non-routine service requests and situations. Based on the study results, it appears that there is no need for the company to insource any of the currently outsourced services. Instead, there is still room for outsourcing, for example, the life cycle service of mobile phones and printers, the training service of end users and a part of the telecommunication services.

The results of the study suggest that the service providers might not be flexible enough in their contract terms and service selection, and this is the reason why some services have been omitted from the outsourcing contract although their outsourcing would otherwise be simple. Based on the study, it is recommended that the situations in which the service provider should contact the client company be written into the contract, as should how the data of end users' service requests should be analysed.

Keywords: outsourcing IT services, outsourcing success, Aker Yards, Information Resource Management, outsourcing decision, SERVQUAL

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Yrityksen IT-palvelujen ulkoistaminen on ollut viime vuosina suosittua. On useita syitä, joiden vuoksi yritys voi päätyä ulkoistamaan osan tai kaikki IT-palveluistaan. Tästä johtuen myös ulkoistamisen onnistumista voi tarkastella useasta eri näkökulmasta. Tässä tutkielmassa esitellään ulkoistamisen syiden ja laajuuden, tietotekniikan aseman, ulkoistussopimuksen ja ulkoistusosapuolten välisen suhteen vaikutusta ulkoistamisen onnistumiseen.

Tässä tutkimuksessa on tutkittu Aker Yards, Suomen tietohallinnon henkilöstön näkemystä kyseisen yrityksen IT-palvelujen ulkoistamisen onnistumisesta. Tässä yhteydessä onnistuminen tarkoittaa toivotun tilan toteutumista mahdollisimman hyvin käytännössä. Aker Yards, Suomen toivotun tilan selvittämiseksi tutkimuksessa vertailtiin IT-ulkoistukseen johtanutta tarjouspyyntöä ja tarjouspyynnön pohjalta tehtyä sopimusta IT-palvelujen ulkoistamisesta. Tältä pohjalta luotiin joukko haastattelukysymyksiä tietohallinnon henkilöstön tuntemuksien ja odotuksien selvittämiseksi. Lisäksi haastateltuja pyydettiin täyttämään SERVQUAL-mallin mukainen odotuksia ja tuntemuksia kartoittava kyselylomake.

Tutkimuksessa selvisi, että ulkoistuksen pääasiallista tavoitetta, eli palvelujen tarvetta myötäilevää kustannusten joustoa, ei ole saavutettu. Palveluryhmittäin tarkasteltuna voidaan tutkimuksen perusteella todeta, että erikoistilanteita lukuun ottamatta ulkoistettujen palvelujen laatu vastaa tietohallinnon vaatimuksia. Sitä vastoin erikoistilanteiden, eli rutiinitoiminnoista poikkeavien palvelupyyntöjen ja tilanteiden, osalta palvelujen laadussa olisi huomattavasti parantamista. Tulosten perusteella yrityksen ei ole tarpeen sisäistää mitään tällä hetkellä ulkoistetuista palveluista. Sen sijaan vielä olisi mahdollista ulkoistaa esimerkiksi matkapuhelinten ja tulostinten elinkaaripalvelut, loppukäyttäjien koulutuspalvelut ja osa tietoliikennepalveluista.

Tutkimuksen tulokset viittaavat siihen, että palveluntarjoajat eivät mahdollisesti ole riittävän joustavia sopimusehdoissaan ja palveluvalikoimassaan, ja näin ulkoistussopimuksen ulkopuolelle voi jäädä palveluja, joiden ulkoistaminen olisi muuten yksinkertaista. Tutkimuksen perusteella on suositeltavaa, että ulkoistussopimukseen kirjattaisiin selkeästi, missä tilanteissa palveluntarjoajan tulee olla yhteydessä asiakasyritykseen, ja miten loppukäyttäjien palvelupyynnöistä kerättyä tietomateriaalia tulee analysoida.

Avainsanat: IT-palvelujen ulkoistaminen, ulkoistamisen onnistuminen, Aker Yards, tietohallinto, ulkoistuspäätös, SERVQUAL

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# Contents

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# 1 Introduction

## 1.1 Motivation and background

Outsourcing and especially outsourcing of IT services has been a focus of companies since the beginning of the 1990s. Initially, the companies aimed at cost reductions, but today the reason for outsourcing is more often strategic.

Aker Yards, Finland (AYFi) outsources a significant share of its IT services. The decision to outsource everything except core competencies has been company's strategic decision and the IT department has among other departments acted according to the strategy. The success of IT outsourcing as a whole has so far not been evaluated.

This thesis aims at discovering how the outsourcing of IT services has succeeded. Temporary outsourcing contracts are left outside of inspection, and most attention is paid to long-term contracts. The view of IT management is emphasized, but the company management's view is also taken into consideration. The end user view has not been examined because customer satisfaction surveys are repeatedly performed by the principal service provider.

The IT department is seen as a client purchasing service from the supplier of IT services. By investigating the company's reasons for outsourcing and its expectations of outsourced services and then comparing them to the present situation, the success of outsourcing can be evaluated. The principal research method is interview-based but documentary material is also exploited to the extent it is possible.

## 1.2 Case: Aker Yards, Finland

Aker Yards ASA is one of the world's largest shipbuilding companies. It has three business areas: Cruise & Ferries, Offshore and Specialised Vessels, and Merchant

Vessels. The company's 17 shipyards are situated in Brazil, Finland, France, Germany, Norway, Romania and Ukraine. As a whole, Aker Yards ASA gives work to 20 000 employees (Aker Yards, 2006a).

Aker Yards, Finland belongs to the Cruise & Ferries business area and it comprises three shipyards which are situated in Turku, Rauma and Helsinki. The Turku shipyard is specialised in post-panamax size cruise vessels, that is, in vessels that do not fit through the Panama Canal. The world's largest cruise vessels are at present built at the Turku shipyard. The Helsinki shipyard specialises in car ferries and the Rauma shipyard in ferries, multipurpose icebreakers and naval craft. The number of personnel in Aker Yards, Finland is 3 800 (Aker Yards, 2006b).

Aker Yards, Finland has adopted an assembly yard concept. In practice, this means that the shipyards operate as assembly sites and the vessels are assembled there from highly processed and standardised subassemblies, components, modules and prefabricates in co-operation with several suppliers. The core competence of the company is the execution of ship projects, utilising the supplier network. The control of customer relationships during the whole ship project is seen as company's another core competence area. Aker Yards, Finland thus concentrates on managing the shipbuilding project as a whole and the suppliers are able to concentrate on their core business (Aker Finnyards Oy, 2005).

There has been industrial shipbuilding in Turku since 1737. Initially, the shipyard was located at the mouth of the Aura River, but in 1974 the current shipyard in Perno was built. The roots of Aker Yards, Finland lie in merging Valmet Oy's and Wärtsilä Oy's shipyards in 1986. The established company, Wärtsilä Marine Oy, went bankrupt in 1989 and a new company, Masa-Yards Oy, was founded to operate the shipyards in Helsinki and Turku. In 1991, the Norwegian engineering and construction services company Kvaerner acquired Masa-Yards Oy and its new

name became Kvaerner Masa-Yards Oy. In 1997 Rauma Shipyard was purchased by Aker and it was renamed Aker Finnyards. The shipbuilding activities of Aker and Kvaerner merged in 2002 and in 2005 the Finnish shipyards were merged into Aker Finnyards Oy. Later the name was transformed into Aker Yards, Finland.

## 1.3 Thesis structure

The thesis is organised as follows. In Chapter 2, the concept of 'information resources management' (IRM) is presented. A look at the historical background is taken, and ways to position the IT and its importance for the company are discussed.

The objective of Chapter 3 is to provide the reader with sufficient knowledge on what the outsourcing of IT services means in practice. Reasons to outsource are discussed as well as activities that can or cannot be outsourced. To help in discussion of whether or not an activity can be or should be outsourced, some frameworks are presented. Subsequently, outsourcing contracts, issues that should be considered in contracting, and the importance of client-vendor relationship in putting the outsourcing contract into practice are covered. Finally, some aspects of outsourcing success are discussed.

Chapter 4 concentrates on representing the IRM function in the case company, Aker Yards, Finland. The history of IT activities in a shipyard is compared to the general development of IT activities in companies. Both, the position and significance of IT in Aker Yards, Finland are also considered.

Chapter 5 discusses the IT activities and outsourcing objectives of Aker Yards, Finland, in detail. The request for quotation that covers the activities AYFi intends to outsource and the contract written based on this are presented and compared with each other.

In Chapter 6, the plan concerning how the study is performed is presented,

as are the methods and instruments used in the study The principal method is interviewings of IRM personnel and, to support the interviews, every interviewee is asked to fill in a SERVQUAL questionnaire. The reasoning behind the interview questions is also discussed in this Chapter.

Chapter 7 introduces the results of the interviews and SERVQUAL enquiry.

Chapter 8 discusses the interview and enquiry results against the theory and gives guidelines on how the success of IT outsourcing could be improved. Propositions on how the results could be improved and the possibilities open further study are also considered.

Finally, Chapter 9 summarises the contents of this thesis.

# 2 Information resources management

## 2.1 Definition of information resources management

Information Management, known also as Information Resources Management (IRM) has no standardised definition. Generally, IRM means management operations related to information technology in a company.

Earl (1989, p. 24) has defined *information management* as follows.

> "Information management comprises planning, organisation and control of information resources."

Ministry of Finance (2003) has defined information management as follows.

> "Management operations, the aim of which is to develop, maintain and secure data processing, data warehousing and interoperability of information systems, procurement and supply of information technology (IT) and IT services together with security and economic efficiency of information operations in an organisation." (translation mine)

Information management is therefore responsible for offering information technology and IT services required to fulfil the purpose of the company. To succeed in this mission, it is not enough to provide and maintain information systems, data warehouses, networks and IT services. Following and analyzing the markets and the development of information and telecommunication technology is essential. Information management should also take responsibility for developing and supervising the company's information technology as a whole. The information technology then also includes issues concerning security, information processes and interoperability of information systems, processes and warehouses. By affecting working practices and methods, information management may have a substantial effect on company's success. Looking after the economic efficiency and appropriateness of systems, services

and operations also affects the company's degree of success (Ministry of Finance, 2000).

Peppard (2003) discusses information management as a portfolio of services. He divides services into four categories: application services, operational services, value-enabling services and infrastructure services. Although the groups are separate, there is still a high dependency between them.

*Application services* consist of information processing services, information sharing services, information storage services and information access services. These services are provided to users via software applications. The purpose of the other services is to support the application services (Peppard, 2003).

*Operational services* enable users to use application services. Operational services include, for example, installation and upgrading of hardware and software, troubleshooting of problems, running the data centre and maintaining the communications network and servers (Peppard, 2003).

*Value-enabling services* aim at increasing the profit of the information technology used within a company. Strategy development, network and systems design, user support and infrastructure architecture planning are all activities that strive to make the utilisation of IT more effective. In addition, activities such as purchasing and relations and contracts management fall into this category. Their purpose is to ensure that the services and products supplied by other companies meet the demands of the enhanced IT utilisation (Peppard, 2003).

*Infrastructure services* could also be characterised as technical capabilities. They constitute a basis for other services, for without the infrastructure there would be nothing to work with. Infrastructure services include hardware, software and communications infrastructure. These can be considered to represent capacity, connectivity, scalability, flexibility and security services (Peppard, 2003).

## 2.2 Evolution of information resources management

Since the 1950s, information technology has been used in companies. Initially, from the 1950s to the early 1970s, information technology was mainly used in large companies to process information and to automate processes (Boddy et al., 2002). Systems were usually centralised and the information from mainframe computers was accessed by users using dumb terminals. Because of the limitations of communications technology at that time, the computers were mainly used by people residing in the same building as the computers. Reports were received on paper and any changes in the reports required changes in the program code (Applegate et al., 1999). Information systems management was left to specialists and the function became very influential (Boddy et al., 2002).

In the early 1970s, microprocessors were commercialised and that made it possible to create relatively low-price computers for personal use. By the early 1980s, the use of minicomputers and personal computers (PCs) had grown rapidly, and computers were therefore also available for smaller companies. It was now possible to use computers locally to help in personal tasks such as planning, budgeting and information reporting. It was also possible to automate production with the help of systems for CAD/CAM (computer-aided design and manufacturing). Personal computers reduced the importance of the mainframe computer and computing became decentralised. However, personal computers did not completely replace the mainframe computer. It now had to be decided which tasks were managed centrally by the IT organisation and which tasks locally by the end users (Applegate et al., 1999).

Because of the local, computing it became difficult to share information across the organisation. A solution to this problem was to combine the best features of the

mainframe and personal computer technologies. By the 1990s, as a result, client-server architectures became available. In such a system, the users have access to shared information and services on servers through their local clients, such as workstations or machines using portable technologies. However, the implementation of the client-server architecture was cumbersome, costly and difficult to manage until the emergence of the Internet and World Wide Web in the mid-1990s. Internet-based client-server systems are easier to realise, less costly and more powerful than the earlier, client-server systems (Applegate et al., 1999). The Internet also offers companies completely new opportunities for doing business (Boddy et al., 2002). All this means that the information technology can no longer be considered as an expense but as a value-creating investment which delivers value today and in the future (Applegate et al., 1999).

## 2.3 The position of information technology in a company

Earl (1989, p. 1) presented the idea that information technology is a resource to be managed like any other. In the late 1980s, according to him, managers had understood the importance of information technology and they agreed that IT had become a strategic resource. In some companies, such as banks, IT is even in a critical position (Earl, 1989, p. 5). Earl (1989) presents four ways in which IT can be a strategic weapon for a company. The first way is to use IT to gain competitive advantage. This can be done by using IT in products or services, or in the operations of the company in such way that the company is more attractive to customers than other competing companies. The second way is to improve productivity and performance with the help of the IT. Computer aided design (CAD) and computer aided manufacturing (CAM) are examples of this. Thirdly, IT can be used to enable new ways of managing and organising. As an example, Earl mentions the decision

of Rank Xerox to allow personnel to work from remote locations such as home. The fourth way to allow a company to benefit from IT is to develop new businesses based on information. Some examples of this are producing expert system products for professionals and providing data analysis services that assist market research (Earl, 1989). IT can sometimes even change the markets. The spreading of the Internet, for example, had a drastic influence on the markets of encyclopaedias. The means of accessing the product, and eventually the entire actual product itself, was completely transformed and little market space was left for the previous product and means of access (Applegate et al., 1999).

Applegate et al. (1999) have introduced a strategic grid (Figure 1)to categorise a company based on strategic relevance and the impact of IT in the company. As mentioned previously in Section 2.1, Peppard (2003) pointed out that all of the services provided by information management exist to support the application services. Therefore, it is practical to measure the relevance of the IT based on the importance and the strategic meaning of the IT applications for a company.

The first criterion which Applegate et al. (1999) present concerns the importance of the existing information systems. For some companies, IT is crucial and even small interruptions in service may have a severe impact on company's business. On the other hand, there are companies to which disturbances in IT have no significant effect.

The second criterion deals with the meaning of the IT applications under development. For some companies, new applications may be useful. However, they do not have any profound meaning for the company. For other companies, applications under development have a strategic meaning; that is, they have an effect on the competitiveness of the whole company.

Based on the importance of existing IT applications and the strategic meaning of

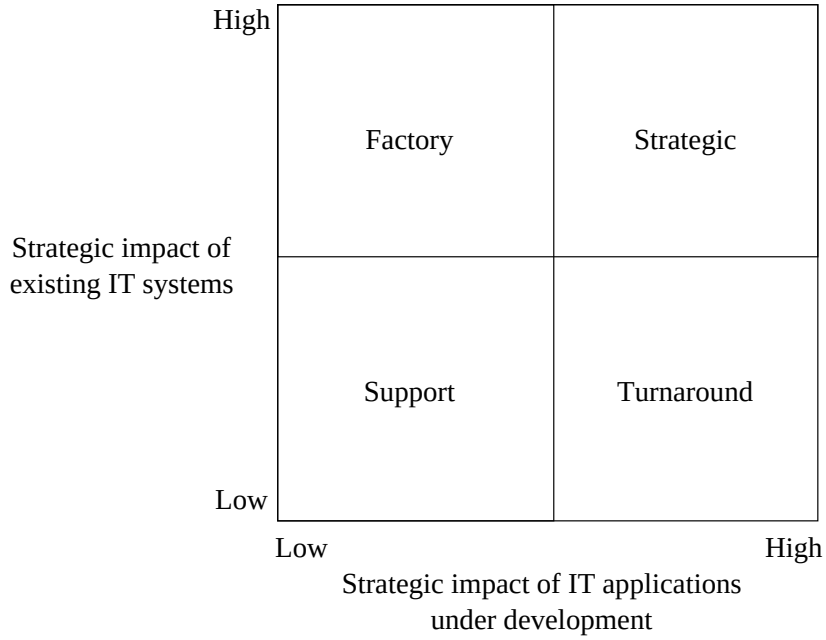


Figure 1: Strategic grid (Applegate et al., 1999)

IT applications under development, companies can be divided into four categories. Those are strategic, factory, turnaround and support. The two-dimensional matrix in Figure 1 illustrates the relationships between the groups.

For companies that fall into the *strategic category*, information technology is a crucial part of the business. The strategy and operations of these companies rely heavily on IT. Because of this, the relationship between IT and senior management has to be very close. IT applications under development are essential to future competitiveness. Banks, insurance companies and major retail chains usually fall into this category (Applegate et al., 1999).

In the *factory category*, companies are heavily dependent on information technology. Even small disruptions may have far-reaching financial, operational or competitive consequences, such as loss of clients and money. Thus, information technology used in these companies should be totally reliable. Information technology is used to make critical operations function smoothly. IT applications under development are

useful, but they have no fundamental meaning to the company's ability to compete. For these companies, it is often worthwhile to consider the outsourcing of IT. By outsourcing, it is possible to gain access to specialised expertise and costly security systems and thereby be able to minimise the risk of the system going down (Applegate et al., 1999). The operations of this kind of company may, for example, be dependent on booking systems or systems for material requirements planning (MRP) (Leino, 2004).

In the *turnaround category*, the operations of the company are not dependent on information technology, although they may use information technology widely to help in their operations. New applications that the company is going to acquire will, however, change the status of IT in the company. After the introduction of a new application, the company will move into either the strategic or factory category, depending on whether the company intends to continue developing new strategic uses of IT or go on maintaining the existing applications. Companies fall usually into the turnaround category when they realise that information technology offers new opportunities, for example, to organise the company or its operations. Information technology may, for example, enable arrangements such as centralising the control of operations. The company may operate more effectively while improving services or lowering administrative or operation costs. If the company is not capable of providing the required technology or skills, it should consider outsourcing (Applegate et al., 1999).

In the companies that fall into the *support category*, information technology does not play a significant role even though it may be utilised effectively in individual functions. Despite a major IT failure, the company could still function with reduced efficiency. IT applications under development have no actual meaning at the strategic level. The senior management is not committed to linking IT to business activities

or interested in seeking new opportunities opened up by information technology. If IT has a low position of this kind in a company, outsourcing may be sensible since it provides access to professional IT skills and current IT technologies and reduces the risk of inappropriate IT architecture (Applegate et al., 1999). An example of a support category function is a helpdesk service (Leino, 2004).

Thus, the more the company exploits IT, the greater the level of integration of IT with the rest of the company. According to Earl (1989), the study by Feeny et al. discovered eight characteristics which are present if integration is high. If the integration is low, none of them was present. The characteristics are as follows:

1. Business unit management perceives that future exploitation of IT is of strategic importance.

2. An IT executive is established as part of the executive team or board for the business concerned.

3. There is ongoing education for business unit management in IT capability.

4. There is a top-down planning process for linking IS strategy to business needs.

5. The business mandate for IT is 'centrally planned plus some elements of leading edge'.

6. Some IT development resource is positioned within the business unit.

7. The introduction of, or experimentation with, new technologies take place at business unit level under business unit control.

8. There is a cost centre rather than profit centre orientation in controlling IT activities, with relatively unsophisticated chargeout procedures.

# 3 Outsourcing IT services

*IT outsourcing* is defined as an organisational decision to transfer the company's IT assets, activities or people to an external service provider (Kern and Willcocks, 2000; Lacity and Hirchheim, 1993; Ketler and Willems, 1999). After selling or contracting out the functions the third party vendor provides the assets or services during the contract period (Kern and Willcocks, 2000).

## 3.1 IT outsourcing – past and present

As long as there has been information technology, there also has been the outsourcing of IT services, earlier commonly known as facilities management. As mentioned above, in the 1960s, computers were large and expensive. For this reason, many companies ended up buying IT services such as data processing from professional companies who had the facilities required (Lee et al., 2003).

In the 1970s, the price of computers dropped and made it possible for smaller companies, too, to acquire a computer and to varry out the data processing themselves. Demand for IT applications increased. However, there were too few qualified employees to implement these applications (Lee et al., 2003). To overcome this problem, companies contracted out programming (Ketler and Willems, 1999).

In the 1980s, companies emphasised the internal control of the product development process (Ketler and Willems, 1999). The whole process from the production of the raw materials to the delivery of the product to customers was controlled by the company. Among other functions, IT, too, was considered to be a valuable internal function (Lee et al., 2003). Standardised hardware and software were purchased, and a suitable infrastructure for company's needs was made of these building blocks (Lee et al., 2003).

After the period of vertical integration, the interest in outsourcing began to

increase again in the 1990s (Lee et al., 2003). The objective of outsourcing was now to improve the competitiveness of the company. Expert companies provided the IT services, and some IT companies even concentrated on providing total solutions to manage the entire information technology function (Ketler and Willems, 1999). The first widely known company adopting this view was Kodak. By outsourcing its data centre operations in 1989, it proved that outsourcing is also possible for big companies (Field, 1999).

## 3.2 Reasons for outsourcing

The reasons behind outsourcing decisions have been widely studied (see Lacity and Hirchheim, 1993, p. 13–17; Ketler and Willems, 1999; Gottschalk, 2005, p. 7). They can be categorised into three groups: cost reductions, access to increased knowledge and focus on core business. The reasons are discussed below.

The first of the reasons is *cost reductions*. By outsourcing, the company strives to reduce the cost of their IT function, which is usually one of the most expensive functions in an organisation (Barthélemy, 2001). Cost savings result from economies of scale, that is, due to the service provider's larger scale it may negotiate more profitable contracts with hardware or software providers or use more powerful equipment than an individual company (Barthélemy, 2001).

When a company considers outsourcing to reduce its costs, it should also count in the additional costs related to the outsourcing. Barthélemy (2001) discusses these hidden costs in his article "The Hidden Costs of IT Outsourcing". He demonstrates that the costs of vendor seeking and contracting, switching in-house activities to the vendor, managing the outsourcing relationship and switching the vendor after the end of the contract constitute a remarkable proportion of the costs of outsourcing. Ignoring these costs may even cancel out the savings gained by outsourcing.

The second reason to outsource is related to *personnel and knowledge*. Employing round-the-clock personnel to look after the uninterrupted operation of critical systems or full-time technical specialists may not be possible or sensible. There may also be fluctuation in the demand for specialised personnel such as software developers (Ketler and Willems, 1999).

Outsourcing enables the company to access a wide variety of skills without the obligation to engage personnel. It also makes it possible to pay only for what is needed (Gottschalk, 2005). The company benefits from the expertise gained by the entire vendor company. In addition, the large scale of the vendor facilitates keeping abreast of technological development (Gottschalk, 2005). The disadvantage of outsourcing is loss of in-house knowledge in the outsourced domain. If the IT department is not well managed, there is also always the risk of losing control to the service provider. According to the survey of outsourcing in Finnish companies by Market-Visio (2002) the main advantages of outsourcing are, from the IT management's point of view, gaining technological knowledge, and better availability and reliability of information systems. Obtaining a skilled labour force is also considered important.

The third motive for outsourcing is *strategic*. The company may choose to concentrate on its core business (Gottschalk, 2005). This can be achieved by outsourcing the units of the IT department that have no significant effect on company's success, although they are still necessary. According to the survey by Market-Visio (2002) corporate management considers this motive especially important.

It is also worthwhile to consider the financial aspect of outsourcing IT services. By leasing the computers of the personnel, for example, the company is able to avoid capital investments and thereby strengthen its balance sheet (Applegate et al., 1999). From this point of view, outsourcing is about turning the fixed costs of IT

into variable costs. The fixed costs are equal despite the company's actual needs. In contrast, the variable costs are directly proportional to the consumption of the services, so it is more straightforward to evaluate the costs of IT.

## 3.3 Functions to outsource

Today, when a company begins to consider outsourcing, the most essential question is what to outsource. Sometimes it is sensible to outsource the whole IT department of the company. However, if the company decides to outsource its IT completely, usually either its finance or IRM is in a bad state or IT has little significance in the organisation. Most of the companies that decide to outsource IT outsource only some of their activities. This is called *selective outsourcing* (Market-Visio, 2002). The best results are achieved when the IT activities to be outsourced are carefully selected (Gottschalk, 2005, p. 2, 132).

Applegate et al. (1999, p. 384) present the questions to be discussed when considering selective outsourcing. They are here reproduced as follows:

- Can the proposed outsourced piece be separated easily from the rest of the firm, or will the complexities of disentanglement absorb most of the savings?
- Does the piece require particular specialized competencies that we either do not possess or lack the time and energy to build?
- How central are the proposed outsourced pieces to our firm? Are they either more or less significant to the firm's value chain than the other IT activities and, thus, deserve different treatment?

In the following sections, theories to classify IT services and sourcing options are presented. Categorisation, a theory by Peppard (2003) presented in Section 3.3.1 helps in defining how difficult it is to outsource a particular activity when the level

of user involvement and customisation level of the service is known. To clarify sourcing options and to support decision between the options three frameworks by Lacity et al. (1996) are represented in Section 3.3.2. Section 3.3.3 discusses the best practice process model for modern IRM function, that is, IRM's role after efficient outsourcing. In Section 3.3.4, the most commonly outsourced activities are discussed in detail as well as the services that should not be outsourced.

### 3.3.1 Classification based on the nature of a service

Peppard (2003) classifies IT services into four groups based on the degree of customisation and user involvement of the service. The groups are service factory, service shop, service boutique and service mall. Figure 2 illustrates relations between these groups.

Activities in the *service factory* group involve little or no contact with the user. The degree of customisation is also low. As examples of these kinds of services, Peppard (2003) mentions installation of PCs and security, asset and configuration management. Service processes in this category need to be well defined.

*Service shop* activities are customised, but the involvement of the user in a delivery process is low. Services like this are, for example, software development, infrastructure design and contract management. These all require customisation according to the user's needs but can be performed with little user participation in a process itself (Peppard, 2003).

Activities that fall into the *service boutique* category are highly customised and involve a significant amount of contact with the user during the delivery process. IRM strategy formulation, consulting services and development of customised training programmes are examples of this kind of services (Peppard, 2003).

The *service mall* category includes activities in which the level of customisation

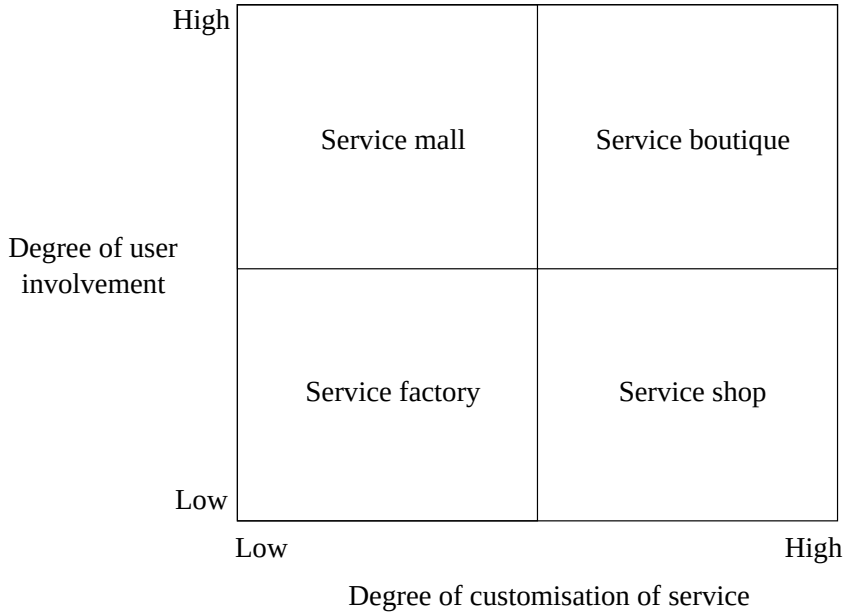


Figure 2: Service matrix (Peppard, 2003)

is low, but the degree of the user involvement is high. A help desk is an example of this kind of activity. User contact is high, but small number of responses cover the majority of the cases. For more complex problems, a service shop approach can be adopted: a group of specialists solving a well-defined problem (Peppard, 2003).

Peppard (2003) states that services which include a high level of user involvement or a high level of customisation are problematic when considering outsourcing. On the contrary, services that fall into the service factory category are usually well suited to outsourcing as the process and its outcome can be defined precisely. Depending on the realisation, the same service can be categorised into different groups. A training course, for example, can fall into the service boutique category if it is tailored to the needs of the audience, or into the service mall category if it is carried out as a standard course (Peppard, 2003).

### 3.3.2 Different sourcing options

Lacity et al. (1996) have developed frameworks to clarify sourcing options and to support decision-making when deciding between the options. The frameworks do not state unambiguously whether or not the activity should be outsourced or acquired some other way. Rather they offer premises to decide the preferred way to acquire the service.

The first framework discusses IT activities based on their importance to a company's operations and the competitiveness of the company (Figure 3). The contribution of an activity to business operations is evaluated on a scale of useful to critical, whereas the necessity of the activity in competition is evaluated to be between commodity and differentiator. If the activity is critical to the company's operations and it gives competitive advantage to the company, it is important to retain the activity in-house. If activities are critical but they do not distinguish company from its competitors and are more like commodities, it is reasonable to consider outsourcing at least the most standard activities. If the activity is a commodity without being critical but useful, such as an accounting system, outsourcing is often to be recommended. If the activity ends up being a useful differentiator, that is, it distinguishes the company from competitors but does not directly contribute success, the activity should be eliminated or its status changed.

The second framework compares sourcing options based on the size of the IT department and managerial practises. If the necessary critical mass is achieved in the size of the IT element in a company, it is possible to achieve economies of scale if the company functions effectively. In such case, outsourcing does not decrease costs. If this critical mass has not been achieved, it still may be profitable to keep the activity in-house if efficient managerial practices exist. If the IT department

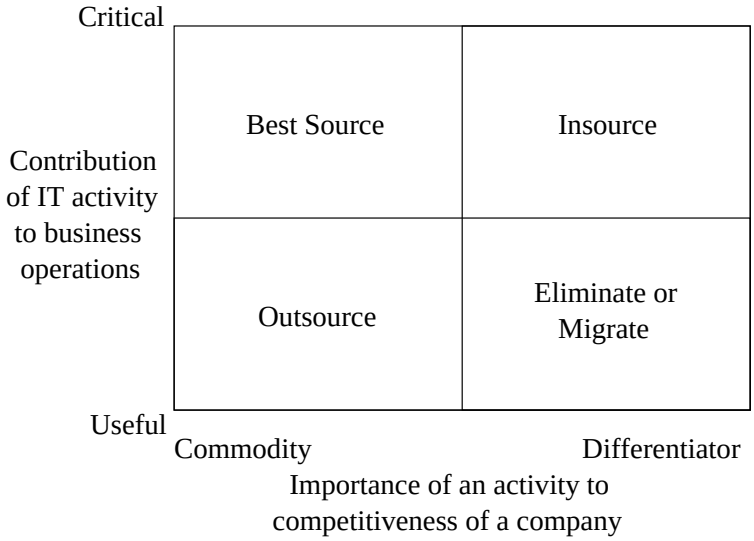


Figure 3: Selecting IT Outsourcing Candidates (Lacity et al., 1996)

has failed to adopt efficient practices, outsourcing should be considered. However, savings may be achieved with little effort by implementing some practices before outsourcing.

The third framework relates technical maturity and technology integration in a company to sourcing options (Figure 4). Technical maturity characterises the ability of the company to describe precisely its requirements to vendors. A low maturity level may be due to the new technology used or inexperience with the technology, for example. Technology integration expresses the level of IT activity's integration with other business processes and technical systems. If the integration is low, the activity can be easily separated, but if it is high, the risks of outsourcing increase. In those cases where the company technical maturity level is low and the activity can be easily separated from the company's processes, buying the service from a vendor is a good option. If the technical maturity level is high but the activity is not highly integrated with other business processes and systems, a successful sourcing option could be contracting out. When contracting out, the contract can

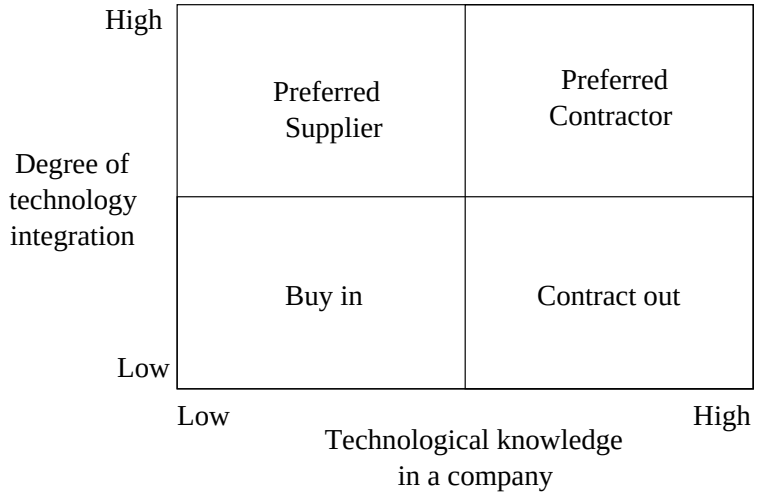


Figure 4: Selecting an Appropriate Contract (Lacity et al., 1996)

be defined to meet the company's requirements exactly. If the integration is high, it is possible to acquire service outside but shared or complementary goals and co-operation between the vendor and the company are required. If the level of technical maturity is low, good results may be achieved by developing a close relationship with a supplier to access the required resources. If the company centralises its services to one supplier, the company may receive a volume discount in exchange, and the goals of the company and the supplier thus complement each others. If the technical maturity level and integration level both are high, contracting out the activity to a preferred supplier is a good option. The contract can therefore be tailored to the company's needs but, in addition to that, a close relationship, ensured by shared goals, is required to maintain the integrity of interfaces.

### 3.3.3 Activity-based classification

Berends (2006) has discussed the traditional IRM function and how outsourcing changes it. The result is the best practice process model called *SGF (Sourcing Governance Function) model* presented in Figure 5.

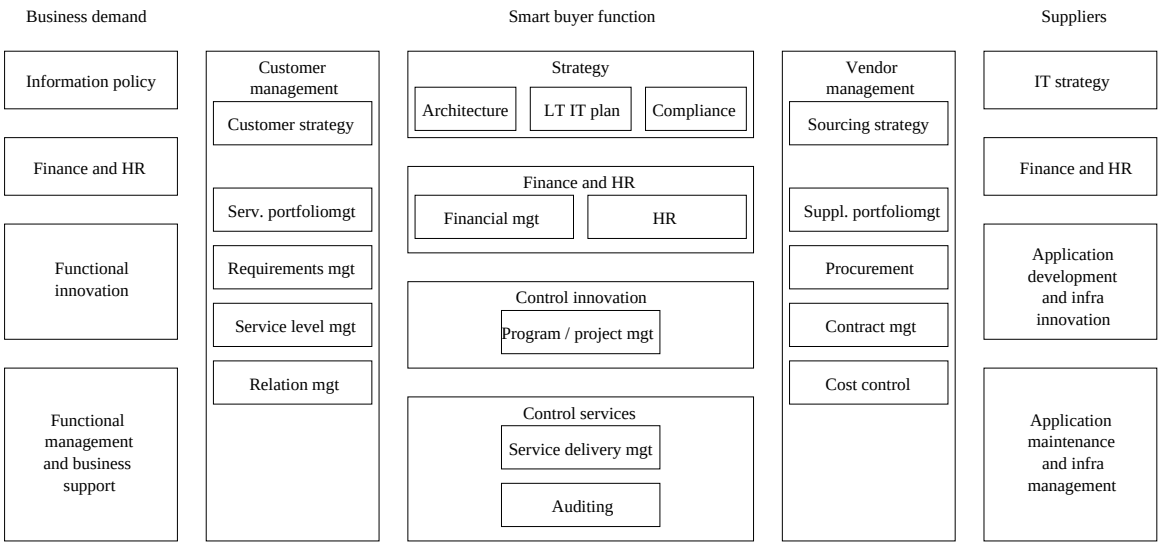


Figure 5: SGF model (Berends, 2006)

In the SGF model, the focus of IRM function shifts from managing IT operations to managing outsourcing relationship. Berends (2006) states that, when outsourcing, application development, infrastructure innovation, application maintenance and support, and infrastructure maintenance and support are transferred to external suppliers. However, management of these projects and services is retained in-house. The nature of Human Resources (HR) and Finance processes change and partly they are transferred to external suppliers with the other outsourced services. Strategic processes related to architecture and compliance can also be transferred to suppliers.

The retained activities are customer management, strategy, finance and HR, control innovation, control services, and vendor management. These activities aim at meeting the business demand of IRM.

*Customer management* focuses on the relationship between the IRM, corporate information management and internal customers. Its main purpose is to implement company policies for IT and meet the needs of internal customers.

*Strategy* consists of ICT policy, architecture, governance and sourcing strategy processes. The strategy defines the policies for SGF operation. Other processes are traditional IT processes, while the sourcing strategy process is introduced as a new process in SGF. The sourcing strategy process discusses the aims achieved by outsourcing.

The IRM budgets and people are managed by *Finance and HR* processes. Outsourcing forces the IRM to evaluate and control procedures more tightly than in traditional IRM. The key success factor of IRM is effectively building and managing the knowledge and competencies of IRM employees.

*Control innovation* is about managing the major changes while the control service process concentrates on the minor changes. Control innovation deals with future services and improvements of service delivery and infrastructure.

The *service control* process takes care of managing everyday IT activities delivered by the supplier. Depending on the responsibilities and the number of suppliers, the management may either be forced to take the end-to-end responsibility for delivering the service or, if the supplier takes end-to-end responsibility, concentrate on defining requirements for availability of the service.

Unlike traditional IRM, the importance of *vendor management* increases in the SGF model. Vendor management consists of IT procurement and contract management. Its aim is to ensure that the IRM has right amount of suppliers and to achieve cost benefits by consolidating demands, for example, by purchasing services from a limited number of suppliers.

### 3.3.4 Outsourcing of particular services

According to a study of outsourcing decisions by Ketler and Willems (1999), the most commonly outsourced activities are education and training, which was outsourced

in 57 per cent of the companies outsourcing their activities, and systems development (51 %). Other activities outsourced, although more rarely, were maintenance programming, systems conversions, operations management, systems integration, network management and telecommunications.

Market-Visio (2002) has performed a survey of IT outsourcing in Finnish companies. In the survey, outsourcing means that a significant portion but not necessarily all of the activities in the field, if it exists in a company, are outsourced. The most commonly outsourced field, according to the survey, is management and surveillance of the wide area network (WAN), which is outsourced in 66 % of the companies. Another very commonly outsourced field is maintenance of WWW services, such as WWW pages or electronic marketplaces (59 %). Mainframe computers are outsourced in 59 % of the companies and servers in 55 %. Mainframe computers are large computers which centralise information-processing activities and may or may not act as servers. Servers, on the other hand, are defined as computers providing services such as e-mail, and shared resources such as network drives and printers. Systems development is outsourced in 54 % of the companies and approximately 40 % of the companies have outsourced their help desk and maintenance of the Enterprise Resource Planning (ERP) system or other business application. Other outsourced areas were as follows: management and surveillance of local area network (LAN); information security; on site user support; procurement, installation and maintenance of basic applications; PC-workstations and fixed assets accounting (Market-Visio, 2002).

Applegate et al. (1999, p. 384) state that planning is a core activity of the IT department. Even information resources management, as a concept, means ensuring that the appropriate amount of IT resources is appropriately distributed. The critical areas to be retained in a company are, according to Applegate et al., the following:

partnership and contract management; planning and developing the company's IT achitecture; observing emerging technologies and their potential applications; and making users comfortable with the constant change of IT. Correspondingly, Lacity et al. (1996) state that risks related to contracts increase if the capabilities presented below are not retained in-house.

- The ability to track, assess, and interpret changing IT capability and relate this to organisational needs.
- The ability to work with business management to define the IT requirements successfully over time.
- The ability to identify the appropriate ways to use the market to help specify and manage IT sourcing, and to monitor and manage contractual relations.

## 3.4 Outsourcing contracts

### 3.4.1 Issues to be considered when contracting of outsourcing

An important aspect of outsourcing is how to outsource. Issues to be considered are the number of service providers, the length of the outsourcing period, the contents of the agreement and the relationship between the outsourcing company and service provider.

As discussed previously, the field of IRM is very wide. Therefore, it is challenging to find a service provider that is able to take responsibility for all of the IT activities the company intends to outsource. One service provider may also have special know-how in a certain area while the another is specialised into another area. Although it is easier to control the entity composed of one service provider and the company, many companies still end up having several service providers. According to a survey by Market-Visio (2002), almost two thirds of the companies who have outsourced

their activities use more than one service provider. Large companies in particular tend to use several service providers.

Outsourcing may occur either on a long-term or temporary basis. This thesis mainly concentrates on long-term period outsourcing. In these cases, responsibility for the particular activity is usually completely transferred to the service provider. In practice, this means that the outsourced activity will remain outsourced after the contract period (see Market-Visio, 2002, p. 51). It is important to understand that outsourcing is relatively easy while insourcing the activity again can be very difficult (Applegate et al., 1999, p. 370).

The contract period typically varies from 3 to 10 years. Dibbern et al. (2004, p. 9) state that contract lengths are usually from 5 to 10 years. On the other hand, the survey of Finnish companies by Market-Visio (2002) indicates that outsourcing contracts with the main service provider are typically valid for either 3 years or until further notice. Fixed term contracts longer than three years are rare: under 10 per cent of the companies have such contracts. One fifth of the contracts are made for a shorter period than three years.

Outsourcing may also occur on a temporary basis. Either the external help is needed to satisfy a short-term demand or a particular project is outsourced to a service provider. According to Ketler and Willems (1999), temporary outsourcing is most common in the areas of education and training, and system development. Outsourcing education and training is practical since these services are needed only occasionally, and finished training courses are offered by external companies. Systems development, on the other hand, often requires project organisation and knowledge that do not exist in a company. Setting up the organisation for a single project is seldom profitable. In addition, Dibbern et al. (2004, p. 10) mention use of external programmers as the most common short-term outsourced activity.

In a field as rapidly changing information technology, even the contract period of three years is relatively long. Changes in the field of information technology make changes in the outsourcing contract almost inevitable. According to the survey by Market-Visio (2002), almost 60

### 3.4.2 The outsourcing contract

The outsourcing contract creates the basis for the outsourcing relationship. A carefully prepared, tight contract is one of the factors that contribute to successful outsourcing (Ketler and Willems, 1999; Market-Visio, 2002; Gottschalk, 2005, p. 7). According to Market-Visio (2002) the contract should cover at least the following issues:

- *Description of the services*: what is done, when and by whom.
- *Level of service* and what follows if the criteria is not met.
- *Areas of responsibility*: what is done by the service provider and what is done by the company.
- *Definition of human resources*: the number and competence of the persons providing the service.
- *Procedures to make changes* during the contract period.
- *Descriptions of the processes* to manage the co-operation, to measure the success and to ensure a smooth information flow between the companies.
- *A transition process* at the beginning of the contract period. The length of the transition phase usually varies from six months to one year (Kern and Willcocks, 2000).

- *Termination of the contract*: how it is possible and what consequences it has.

In addition, security issues should be considered. A confidentiality clause or a non-disclosure agreement is often enough (Lacity and Hirchheim, 1993). That said, an agreement on intellectual property rights should be included (Beulen and Ribbers, 2003).

Since the field of information technology is very wide and constantly changing, it is not sensible or even possible to list all the tasks contracted out to a service provider in the actual contract. Outsourcing contracts are thus somewhat incomplete by default. As a solution to the problem, a contract that consists of a framework agreement and service level agreements is often used (Beulen and Ribbers, 2003).

As Beulen and Ribbers (2003) state, the framework agreement serves as an umbrella for service level agreements. It includes general terms such as operational domain, duration of the contract and pricing basis. These terms are common to all of the purchased services. The *service level agreements* (SLAs) define the purchased services in more detail. The specified service description, processes related to it, the service level and the exact price are issues to be discussed in the SLA (Kontakti.net Oy, 2005). The number or contents of the service level agreements is not fixed which allows contracting parties to update or add SLAs to make the contract correspond to reality.

## 3.5 The outsourcing relationship

After the contract has been agreed upon, the relationship between the company and service provider starts to evolve. A survey of outsourcing relationships by Kern and Willcocks (2000) indicates that in making the outsourcing a success, the relationship between outsourcing company and service provider is even more important than a good contract. If the companies are willing to co-operate, there is no need to deal

with the contract in everyday life and even the conflict situations can be resolved without referring to the contract.

The contract lays foundations for the collaboration but only the practice shows how well the co-operation works. Service level agreements, for example, give guidelines and objective measures for service provider's operation yet, according to Kern and Willcocks (2000), simply sticking to the contractual requirements do not ensure that the outsourcing company is satisfied with the service provided. Instead, satisfaction can be improved by increasing the service provider's understanding of the company's business. In creating a view of the company's business, close interpersonal relations and informal communication between the management teams are essential. After the service provider managers have a clear picture of the outsourcing company's operations, vision and strategy, they can make sure that the services they provide meet the requirements the users actually have and point out new areas where the service provider's expertise can be applied (Kern and Willcocks, 2000).

Today, companies often consider their outsourcing relationships with service providers as *partnerships*. Being partners instead of a client and a vendor emphasises the view that the outsourcing company does not just buy predefined services from the service provider but that the companies work together to make the relationship benefit both companies. Often the term partnership is also used wrongly by the outsourcing company to conceal the common situation in which the limits of the companies blur in close collaboration. Operating like this, within "the spirit of the contract" (Kern and Willcocks, 2000), may cause or be caused by a loose or incomplete contract. As Dibbern et al. (2004) state, in these cases the contract between the companies does not usually contain terms that bind companies to share risks and rewards associated with outsourcing and common goals such as in actual partnership contracts.

## 3.6 Outsourcing success

### 3.6.1 Aspects of success

*Outsourcing success* is a central notion of this thesis. Success, however, can be defined in different ways. Dibbern et al. (2004, p. 69) have identified three factors of success: (1) satisfaction, (2) expectations and their realisation, and (3) performance. They state that these factors are effectively not independent from each others. Lacity et al. (1996), on the other hand, suggest seven criteria for outsourcing success based on their case study of companies' sourcing decisions. The criteria for success are, according to them: (1) the targeted cost savings are achieved or better than anticipated; (2) service levels are maintained or improved; (3) the user management is satisfied; (4) there are few client-vendor disputes; (5) the vendor is responsive and attentive; (6) objectives and outcomes compare favourably; and (7) the contract is renewed.

### 3.6.2 SERVQUAL

Zeithaml et al. (1990) have developed a standardised and widely accepted instrument for measuring service quality (Grover et al., 1996). The instrument is called SERVQUAL and it is based on an idea that the service quality is a measure of how well the expectations of the service correspond to the service received (Parasuraman et al., 1985). The idea of gaps has later been exploited, for example, in the ISO 9001 2000 Gap Analysis Tool developed by Praxiom (1997).

When a company acquires a service from a service provider, the company's expectations of the service do not efficiently correspond to the service they receive. The company's view of the acquired service may differ from the service provider's view. Zeithaml et al. (1990) refer to these differences in perceptions as Gaps. They have specified five Gaps (see Figure 6), of which three concentrate on service provider's

perceptions and actions, one compares the perceptions of the customer and service provider, and one discusses the customer's perceptions. The service quality related to each of these Gaps can be evaluated separately.

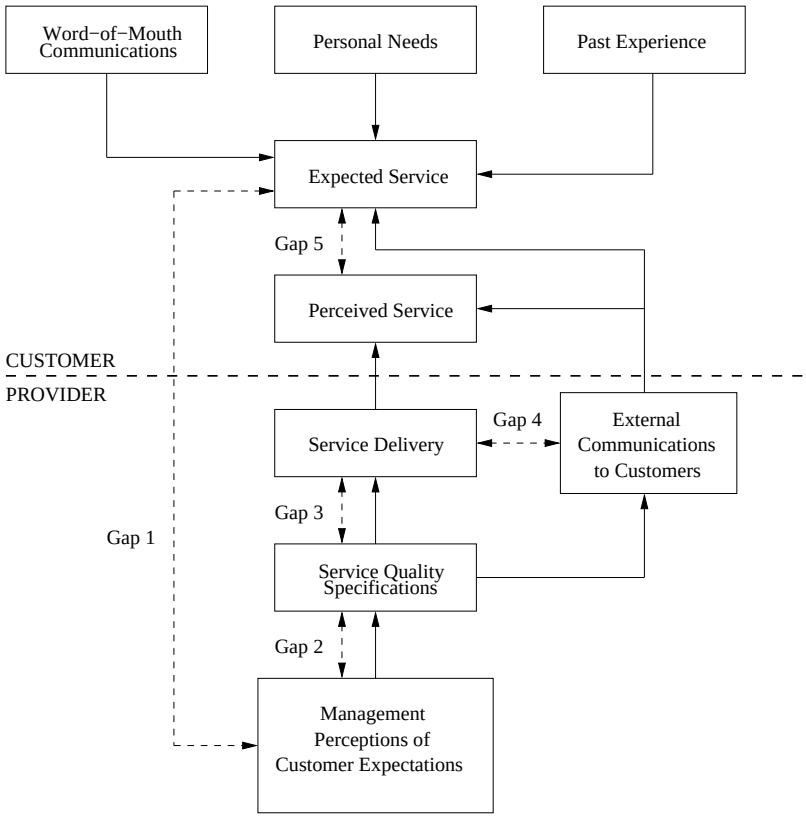


Figure 6: Gaps (Zeithaml et al., 1990)

- Gap 1: Customers' expectations – Perceptions of service provider's management: Service provider's executives have an incorrect image of customer's expectations.

- Gap 2: Perceptions of service provider's management – Service-quality specifications: Service provider's executives have difficulties in translating their understanding of customer's expectations into performance standards.

- Gap 3: Service-quality specifications – Service-delivery: Service provider is unable to meet service-performance standards set down.
- Gap 4: Service delivery – External communications to customers: Provided service differs from promised service.
- Gap 5: Customer's expectations – Customer's perceptions: Customer's expectations of service differ from actual service.

As the relationship between the companies matures, the customer's expectations change. Even if the co-operation works well, the expectations tend to increase and the customer is never completely satisfied. Because of this, it is worthwhile to measure service quality regularly in order to perceive development (Zeithaml et al., 1990).

Zeithaml et al. (1990) divide the criteria used by customers in judging service quality into five groups or dimensions. For each dimension there is a certain number of questions, represented in Appendix D. The dimensions are defined as follows (Parasuraman et al., 1985; Zeithaml et al., 1990, p. 26).

- *Tangibles* include the physical evidence of the service. For example, appearance of physical facilities, equipment, personnel and communication materials (Questions 1–4).
- *Reliability* is defined as ability to perform the promised service dependably and accurately (Questions 5–9).
- *Responsiveness* is willingness to help customers and provide prompt service (Questions 10–13).
- *Assurance* is knowledge and courtesy of employees and their ability to convey trust and confidence (Questions 14–17).

- *Empathy* is caring, individualised attention the company provides its customers (Questions 18–22).

Based on answers given to the questions, the SERVQUAL score can be calculated. The questionnaire and instructions to calculate the score can be found in Appendix D.

# 4 Role of IT in Aker Yards, Finland

## 4.1 IRM in Aker Yards, Finland

As discussed previously in Sections 2.2 and 3.1, large companies began to exploit computers in the 1950s. In Aker Yards, Finland, IT activities started at the beginning of the 1960s. The service was purchased from an external computing centre and computers were used in making technical calculations (Lindfors, 1993). This kind of usage of computers was common at that time, and so was buying the services from the professional companies.

By 1967, the company was using seven computing centres. In the same year the company acquired its first computer of its own and established an IT department. At that time, computer systems were developed by the company itself (Lindfors, 1993). One of the reasons why the company ended up developing systems itself instead of purchasing them might have been the lack of of development companies that time. As stated in Section 3.1, computers began to become common in 1970s, and it was only subsequently that the demand for experienced programmers exceeded the supply, and many companies ended up to outsourcing their system development.

At its greatest, the IT department employed over 60 persons. Maintaining and developing the self-made systems was expensive. In 1985, a reduction of IT costs was set in motion and in 1987 the IT departments were hived off into separate companies (Lindfors, 1993). By doing this, Aker Yards, Finland was ahead of its time since generally the interest in outsourcing started to increase in the 1990s.

In 1989, the self-made systems, in conjunction with some purchased CAD systems, covered all the activities of the company. However, because of the cost reductions, the systems had to be lightened and simplified. Finally, in 1991, the decision was made to abandon self-made systems and acquire open off-the-shelf-systems in-

stead (Lindfors, 1993). The decision was made relatively late since the standardisation of hardware and software environment was commonplace already in the 1980s.

Today, Aker Yards, Finland administers about 1400 workstations and there are about 1360 end users. The monthly number of support requests received by the helpdesk is 1300.

AYFi's IRM is organised as shown in Figure 7. Services provided by IRM are presented in detail in Appendix A.

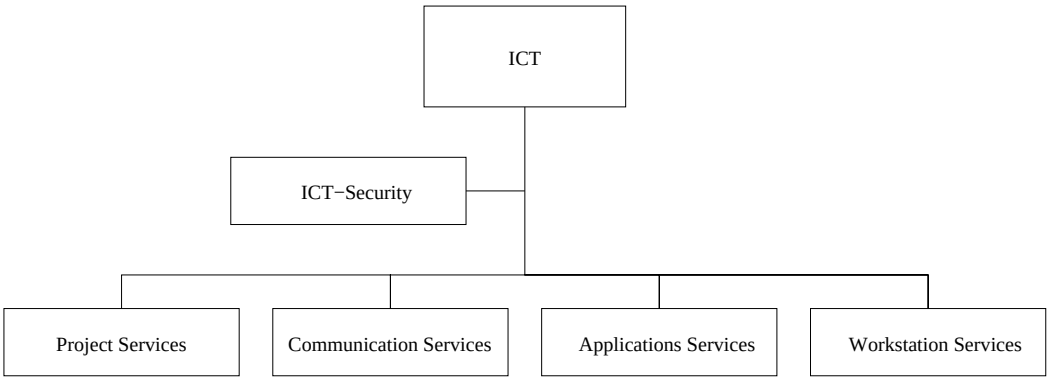


Figure 7: Aker Yards, Finland - IRM organisation

## 4.2 Relevance of IT for Aker Yards, Finland

In Aker Yards, Finland, IRM is considered to be a support function which mainly provides IT services and infrastructure for other functions to use. The main systems used in AYFi are not IRM's responsibility, but every function possesses its own systems. The systems used in design are 2D and 3D CAD systems such as AutoCAD, while the system used in hull design is Tribon. Procurement and outfitting use a common system, MARS, for material logistics. Moreover, personnel and finance functions have their own systems. Nowadays, the systems have been linked together to some extent by using a data warehouse.

The co-operation between the functions and their subsections in AYFi is difficult.

This is partly due to the shipyard's large size but conventions also play a significant role. The management of the company is not directly connected with IRM. This signifies that the company probably does not exploit its IT resources as effectively as possible. The strategic decisions made by the management have not significantly exploited information technology.

In AYFi, there is at least one system under development that has strategic impact: the common network registry of AYFi and partners used for access control and systems' access rights generates competitive advantage. A strategic IT decision has also been unifying the systems used in Aker Yards shipyards in Finland and France. Critical systems are the document management system and MARS. The document management system is used, for example, in distributing documents from subcontractors to AYFi and inside AYFi. Disruptions in the system bring the organisation to a stop since the documents are not available. MARS is used in material logistics, that is, the flow of material is controlled with it. If the system halts, there will be a chaos since the knowledge of whether the material has been ordered, where it is situated and where it is needed, is missing.

Based on the information presented above, it appears that AYFi is situated in the turnaround category in the strategic grid introduced in Section 2.3 Some of the existing systems are, however, crucial to the company's operations and their malfunction may halt a significant portion of company's operations. They do not, however, give the company competitive advantage over other shipbuilding companies. The network registry and its future uses moves AYFi to the turnaround category. If the management of the company actively continues searching for opportunities to link IT to business activities at the strategic level, the company may finally be located in the strategic category. In any other case, the company will be found in the factory category.

The management of the company is not actively searching for opportunities to link IT to business activities at the strategic level. Due to this, neither are there any future plans to use IT to gain competitive advantage. Some of the existing systems are, however, crucial to company's operations and their malfunction may halt a significant portion of company's operations. IT's main purpose is therefore to make the critical operations function smoothly but it has no fundamental meaning to the company's ability to compete.

At the end of Section 2.3, eight characteristics of high IT integration in a company were presented. When examining the existence of these characteristics in AYFi as follows, the results reveal that some characteristics of integration exist. The biggest obstacle to high integration seems to be a low knowledge of IT on a business unit management level.

1. (–) Business unit management does not perceive that future exploitation of IT is of strategic importance. This can be seen in their limited interest in IT and developing it.

2. (–) The IT executive is not established as part of the executive board. However, a system administrator is a member of the executive board.

3. (–) There is no ongoing education for business unit management in IT capability.

4. (+) There is a top-down planning process for linking IS strategy to business needs. IT strategy is made at the Aker Yards level and business units incorporate it yearly into their business strategy

5. (+) IT is partially centrally planned because IT is partly controlled at the Aker Yards level. IT requirements may, however, come from any unit of the

company. IRM continually explores new ways to make up-to-date technology benefit the company. Access control and remote access, for example, exploit the latest technologies.

6. (–) Some application managers are positioned within the business unit but no actual IT development resources.

7. (+) Introduction of, or experimentation with, new technologies take place at the business unit level under business unit control. For example, the business systems and RFID technology used in access control have been introduced on business unit management level.

8. (+) There is a cost centre orientation in controlling IT activities. The IT costs are assigned to approximately twenty accounts so the chargeout procedure is relatively unsophisticated.

The company aims at transferring as large a proportion of the fixed costs of IT as possible into variable costs which adapt to remarkable variation of shipbuilding's needs.

# 5 IT services outsourcing in Aker Yards, Finland

## 5.1 Overview of IT outsourcing in Aker Yards, Finland

Aker Yards, Finland, aims at outsourcing everything except its core competencies. This is because in the shipbuilding industry the need for the services varies heavily over time. Outsourcing makes it possible to adapt to the variation cost-effectively. The primary reason for IT outsourcing is therefore the company strategy and the main objective is to attain greater flexibility at a profitable price.

The purpose of IRM at AYFi has been to centralise most of the services into one service provider. Some services, typically related to information systems or networks are outsourced or bought from other service providers or vendors. According to Section 3.4.1, using several service providers is very common, especially in large companies. In AYFi, this kind of situation is partly due to the recent mergers of the shipyards. However, it has also been a conscious decision not to buy all the services from one service provider. This is because it has been considered that the required expertise cannot be obtained from a single service provider at a reasonable price.

Only part of the IT activities of AYFi are outsourced, that is, IRM has ended up in *selective outsourcing* (see Section 3.3). The principal IT service provider of AYFi is Fujitsu. Most of the services related to workstations, user support, servers and security are outsourced to Fujitsu. Information systems maintenance and minor development services as well as database services are outsourced to other service providers. In addition, network and communications services are bought from an external vendor.

## 5.2 Request for quotation

Before 2006, the shipyards in Helsinki, Turku and Rauma all had separate outsourcing contracts and service providers. Turku shipyard had had a contract with Fujitsu since 2003. In February 2006, AYFi and Fujitsu signed a contract to bring all the three shipyards under the same outsourcing contract. The request for quotation that led to a contract included two service areas: workstation service and infrastructure and application servers control service. Further, a request for quotation was made for LAN services and service manager service.

The general aims of the outsourcing contract are as follows.

- An IT environment that is standardised, secure and simpler and technically more homogeneous than the current environment.
- Realisation of techniques and services which take into account the needs of the company and its network.
- A substantial improvement of the quality of remote and mobile work.
- A reduction of costs of services by exploiting new technology and by centralising.
- Transforming fixed costs of services into variable costs.
- Ensuring a constant decrease in relative cost level.
- Enabling a reliable and rapid introduction of new techniques.

As a strategic objective, the service provider should commit itself to providing services that correspond to the best quality and cost level attainable on the market. The services should be developed in co-operation with AYFi so that their quality

and cost-effectiveness improves throughout the whole contract period as separately defined.

### 5.2.1 Workstation service

The aim of outsourcing of the workstation service is to better be able to adapt to the significant variation in the amount of the end users. It is also important that IT problems and other tasks are handled fast enough.

Workstation service includes services related to workstations, PDA devices and mobile phones. Accessories such as network printers, data projectors and digital cameras are included as well. In addition to the existing responsibilities of the service providers, there is possibly some new responsibilities defined in the request for quotation. These are: creation and maintenance of the instructions; identifying the need for training and providing training; taking care of the hardware procurement; and observing, piloting and testing emerging technologies. The service provider's tasks are presented below.

**Support** Troubleshooting and solving problems related to workstations, predefined applications and mobile devices. Support types are remote support, on site support and routing to experts. The service provider is responsible for solving the problems.

**Contacts** Managing contacts required for the support service.

**Co-operation** Arranging maintenance and repair with a service company, repair under warranty with a hardware supplier, and recycling and breaking up with a service provider.

**Access rights** Managing user and access rights in the workstation environment.

**Property management** Keeping asset management and the installation register up to date and stocktaking of related hardware and licences.

**Procurement** Procurement of workstations and workstation applications together with AYFi. The service provider is responsible for delivery, installation, maintenance and removal of workstations and applications.

**Configurations** Management and maintenance of hardware and software configurations.

**Installation** Preparing a workstation for use and delivering it to the end user.

**Standards** Defining standards for workstations and applications. AYFi makes decisions but the service provider is responsible for ensuring that the workstation environment is cost-effective and meets the requirements of AYFi.

**Security** The service provider together with AYFi's security team is responsible for the security of workstations.

**Communications** Creating instructions and informing end users.

**Training** Identifying needs for training and providing training as agreed separately.

**Reporting** Reporting to AYFi and carrying out a user satisfaction survey twice a year.

**Management** Managing agreed services independently and in co-operation with AYFi. Creating and maintaining a service handbook which describes, for example, roles, responsibilities and processes.

**Development plan** Maintaining a development plan for the workstation environment.

The required service levels related to the workstation service are defined in the request for quotation. It is also required that there have to be sanctions if the service levels are not met. Correspondingly, it is possible to agree upon a bonus practise.

### 5.2.2 Infrastructure and application servers control service

The aim of outsourcing of infrastructure and application servers is to achieve as consolidated an information systems server environment as possible. It should be possible to monitor and manage the server environment remotely and with the operations planned in advance. The server capacity should be dynamic, that is, it can be reduced or increased according to the needs of the shipyard.

Until the autumn of 2006, the server room was situated in the company's facilities and all of the 150 servers were the property of the company, but the service provider was responsible for the operation of servers. In the request for quotation, the service provider was asked to provide a plan for transferring the servers to the service provider's protected premises so that finally all the required server capacity is bought from the service provider. The service provider should then acquire the required hardware and facilities and take care of the required security level independently. The service provider's tasks are as follows:

**Administration** Monitoring, controlling and operating the hardware, operating system and applications. Installation and updating of hardware and operating system.

**Security** Responsibility for security, and detection of security problems.

**Safety** Backup, recovery and recovery plan.

**Management** Problem management and access rights management. Services for monitoring and managing database systems and the file system.

**Communications** Performance measurement and reporting.

**Support** Support for application providers, main users and administrators. The actual support of the operative systems is provided by the system suppliers.

In the request for quotation, some service level requirements are defined for the uptime of the servers, response time, batch processing, and backup and recovery.

### 5.2.3 LAN services

Previously, the service provider was responsible for LAN network development project planning and management, and AYFi's maintenance unit put any changes into practice. In the goal state, the service provider has total liability for all LAN services according to the following specification.

**Fault management** LAN and wireless network fault management.

**Communications** Communication with hardware suppliers and making service requests to their systems.

**Routing and cross-connection** Routing management, and cross-connection by contacting current telecommunications provider.

**Management** System management, backup and ensuring the availability of the emergency equipment. AYFi purchases the equipment.

**Active equipment** Supervision and management of active equipment.

**Removal** Arranging recycling and disposal with the help of the equipment supplier.

**Reporting** Reporting and maintaining the documentation of the network.

The service level for availability of the network is defined in the request for quotation.

### 5.2.4 Service manager service

The service manager supervises and foresees the co-operation of the service provider and AYFi. The role includes co-operating with the people in charge and supporting them in execution of projects; striving for improving the co-operation with the service provider and AYFi; acquainting oneself with AYFi's projects and service management; and ensuring that agreed contracts and procedures are followed. The tasks of the service manager are as follows:

**Management** Management and responsibility for daily working and technical aspects. Prioritisation of tasks.

**Development** Carrying out customer satisfaction surveys, and making improvement proposals.

**Communications** Reporting and communicating with AYFi when necessary. The service manager is a primary contact in commercial, contractual, qualitative and technical concerns.

**Agreements** Agreeing on new services.

### 5.2.5 Analysis of the request for quotation

There seems to be two underlying guidelines that characterise the request for quotation. One is the interest to forge a partnership-like relationship with the service provider, and the other is the effort to standardise and define interfaces for services between the service provider and the company.

Including the service manager in the request for quotation demonstrates AYFi's interest in making the service provider participate in promoting IRM's operations. In addition, requirements for, for example, ensuring that the workstation environment meets the requirements of AYFi, and identifying needs for training, highlight

the need to co-operate and not merely work as client and vendor. It seems that AYFi aims at centralising everyday activities with the service provider so that the service provider is in control of these activities and contacts other service providers and vendors and co-operates with them when necessary. Only if special needs or situations arise would the service provider inform AYFi.

One of the general aims of the outsourcing contract is enabling reliable and fast introduction of new techniques. Against this, the requirement of independently observing, piloting and testing emerging technologies and thus ensuring that the workstation environment is cost-effective, is reasonable. However, this can carry the risk that IRM loses track of the company's needs, technological possibilities and their costs. As stated in Section 3.3.4, the company should retain wihtin the company the ability to follow development of technologies and relate these to organisational needs.

There is a requirement in the request for quotation for defining sanctions if the agreed service levels are not achieved. There is also a clause that AYFi does not give the service provider exclusive rights to provide the services acquired from the service provider. As stated in Section 3.5, being partners with the service provider however requires that both parties benefit from the relationship and have common goals. Possibly this condition is fulfilled if development projects, which ensure cost reductions and to which AYFi promises to engage itself, also profit the service provider financially.

The request for quotation defines the service manager's role as including acquainting oneself with AYFi's projects and service management. It is not specified whether this signifies only IRM activities or whether it also include AYFi's business activities. To be a strategic partner, the service provider should also participate in company-level business activities. On the other hand, IRM is considered a support function of AYFi, and therefore the service provider's main purpose is to help IRM

to provide the services that the company requires.

The other guideline of the request for quotation is standardising and defining interfaces for services between the service provider and the company. The service provider has been instructed to define standards for workstations and applications. There is also reason to suspect that the strategic decision in 1991 about using off-the-shelf-systems instead of self-made systems (Section 4.1) still holds.

In the request for quotation, the responsibilities of the service provider are defined clearly and in detail. This reveals that effort has been made to separate outsourced services into independent entities. AYFi's contribution is required in procurement, security and standard definitions decisions, but these interventions can be justified by financial and practical motives. Apart from these issues, co-operation between AYFi and the service provider is confined to reporting and communication the aim of which is to develop the co-operation.

Because of the clearly defined outsourced entities and highly standardised environment that requires no extremely specialised knowledge, it is relatively easy to break away from the current service provider. As stated in Chapter 3.3, one important feature of functions to be outsourced is the potential to separate the function easily from the rest of the company. The same issue is also discussed in Section 3.3.2, Figure 4, where the effect of technology integration on the difficulty of outsourcing is considered.

## 5.3 Outsourcing contract

The contract between AYFi and Fujitsu was made in February 2006. The contract is divided into a framework agreement and service level agreements (SLAs). The features of a good outsourcing contract were examined in Section 3.4. In Section 5.3.1 the contract is compared to the theory. Subsequently, in Section 5.3.2, the

contract and the request for quotation presented in Section 5.2 are compared.

### 5.3.1 Contract analysis

The first feature of a good contract as presented in Section 3.4 is *description of services*. The framework agreement describes on a general level the services agreed on. SLAs and service handbook entries, if they exist, describe the services in more detail.

The framework agreement categorises the services into three parts: basic information technology services, system management services and communications services. Basic IT services include taking care of the basic IT processes and ensuring that the IT used meets the requirements of the business. System management services include capacity and server room service; server and system monitoring and control services; and backup and recovery services. Communication services include network component monitoring and control services as well as problem management.

The second feature is defining requirements for *level of service* in a contract. These are defined specifically in the SLAs. The framework agreement, however, defines guidelines for service levels and their existence. It requires that the services have to meet service descriptions and quality requirements agreed on. The service provider is also obliged to measure the quality of services it provides and to develop new metrics in co-operation with AYFi. The quality of the service experienced by end users is stressed: the framework agreement specifies that end user satisfaction with service and uptime of critical applications and systems has to be measured.

The third feature is separating the *areas of responsibility*. The framework agreement first states generally that the service provider takes charge of everyday IT services. Later, the responsibilities of the service provider and AYFi are defined. The service provider, for example, is responsible for providing the services that meet the

requirements using the service provider's equipment and practices. Correspondingly, AYFi is responsible, for example, for providing sufficient information and access to systems to the service provider.

The fourth feature is definition of the *human resources* used to provide the service. The framework agreement only presumes that sufficient expertise and good technical practises are applied when providing services.

The fifth feature is defining the *procedures to make changes* during the contract period. It is specified in the framework agreement that the service provider and AYFi form a management group that is empowered to agree on new SLAs or make changes to existing SLAs. Amending the framework agreement requires written agreement signed by both parties.

The sixth feature is about *managing the co-operation, communicating and measuring the success*. In addition to the management group, which was mentioned above, a follow-up group and, if separately agreed, development groups are also formed. The purpose of the groups is to deepen the co-operation, solve problem situations and develop the services. The purpose of the development group is to make proposals on how AYFi can exploit new technologies, systems and IT.

In addition to the co-operation groups, both parties are required to name a contact person who ensures that the agreement is followed and informs both parties of affairs regarding the realisation of the agreement. Both the service provider and AYFi are obliged to inform each other of disruptions, errors and changes that affect the other party.

As mentioned earlier, service level meters are defined to measure the performance and success of the service provider. The service provider reports to AYFi regularly on its success in reaching the required service levels. It is also possible for AYFi to audit the processes, practices and service-related systems of the service provider

once a year.

The seventh feature is describing the *transition process* at the beginning of the contract period. The framework agreement includes supplemental agreements on start-up of the services, and transfer and consolidation of the server capacity.

The eighth feature is the *termination of the contract*. The situations in which termination of the contract is possible and the consequences of termination are defined in detail in the framework agreement. The contract is valid for five years, after which it continues until further notice with six months' notice. The termination clauses of SLAs are separately defined in the SLAs. After the termination of the contract, the service provider is obliged to assist in transferring the services to AYFi or a third party.

Besides these features of a good contract, the framework agreement also includes the confidentiality clause and the agreement on intellectual property rights. Attached to the contract are the information security policy of AYFi and the service provider's security policy for the production of the services.

In addition to these features, the framework agreement determines that AYFi is not allowed to acquire services that would reduce the extent of the agreed services provided by the service provider from a third party or from the AYFi itself. AYFi also engages itself to the development projects which ensure cost reductions and to avoid changes that disturb such development.

### 5.3.2 Comparison of the contract and the request for a quotation

The final contract corresponds essentially to the request for quotation. In the contract, the services are divided into basic IT services, system management services, communications services and separate services. Roughly, the basic IT services correspond to the workstation service in the request for quotation; the system manage-

ment services to the infrastructure and application servers control service; and the communications services to the LAN service. The basic IT services also cover some LAN and system management activities since the basic IT services discuss the IT environment as a whole. The groups also overlap with each other to some extent. Some activities have been moved from one group to another, and services that are not included in the contract are separated into their own group. The service manager service does not exist as a service of its own, but instead the contract introduces a management group, a follow-up group and a contact person who is responsible for reporting and supervising the realisation of the contract.

In addition to the services described above, the contract also contains an agreement on unifying the IT services of the three shipyards, and an agreement on abandoning AYFi's servers and beginning to use the vendor's capacity by January 2007.

In the contract, little attention has been paid to specifying how the general aims for outsourcing, presented in the beginning of the Section 5.2, can be achieved. A decrease in costs over time is well considered in the contract, but aims such as ensuring the rapid introduction of new techniques, improving the quality of remote and mobile work, and creating an IT environment that is standardised, simple and relatively homogeneous, are vaguely, if at all, brought into a practical level.

It was required in the request for quotation that there be sanctions if the service levels are not met. Further, it was possible to agree upon a bonus practice. In the final contract there is no mention about the bonus practice, and sanctions are limited to some particular cases. As a sanction, compensation has to be paid if the agreed service levels of critical installations or transfers are repeatedly not met, and if the availability of network and servers is worse than agreed.

There are mainly two different types of service levels: time-related and availability-related service levels. The time-related service levels concern the time in which access

rights are granted, computers delivered to end users, system and LAN operations made, problems solved and reported on. The availability-related service levels concern the availability of the network and active equipment. Availability can be measured in terms of time the service is not available or number of interruptions.

When comparing the tasks defined in the request for quotation and the tasks mentioned in the contract, there appear to be some tasks not specifically included in the contract. These are managing contacts required for the support service, creating instructions and informing end users, and identifying needs for training.

## 5.4 Client satisfaction surveys

Taloustutkimus Oy performed a client satisfaction survey in September 2006 to discover how good the client companies of Fujitsu consider the service Fujitsu provides (Taloustutkimus Oy, 2006). The target group was the operative management of the client companies. Aker Yards, Finland, was among the companies whose opinions were solicited.

The AYFi operative management was generally satisfied with the relationship with Fujitsu as a whole. The co-operation was anticipated to increase or at least remain unchanged in the future. Nearly all of the participants in AYFi were ready to recommend Fujitsu to other companies.

AYFi operative management was satisfied with the reliability of Fujitsu as a supplier. Moreover, the skills of Fujitsu's personnel were evaluated as satisfactory. The personnel's ability to co-operate and their attitude towards service were considered highly satisfactory whereas Fujitsu's innovativeness and renewability was mostly evaluated as satisfactory or not satisfactory nor unsatisfactory.

The benefit gained from Fujitsu was also evaluated in the survey. The results are presented in Figure 8, where satisfaction with gain fields experienced by AYFi

is compared to their significance. The most significant gain fields for AYFi were, according to the survey, gaining human resources, technological skills and support for the development of operational efficiency as well as risk management. None of the fields was considered unimportant. AYFi was most satisfied with gaining human resources and support for the development of customer service. AYFi was least satisfied with cost savings.

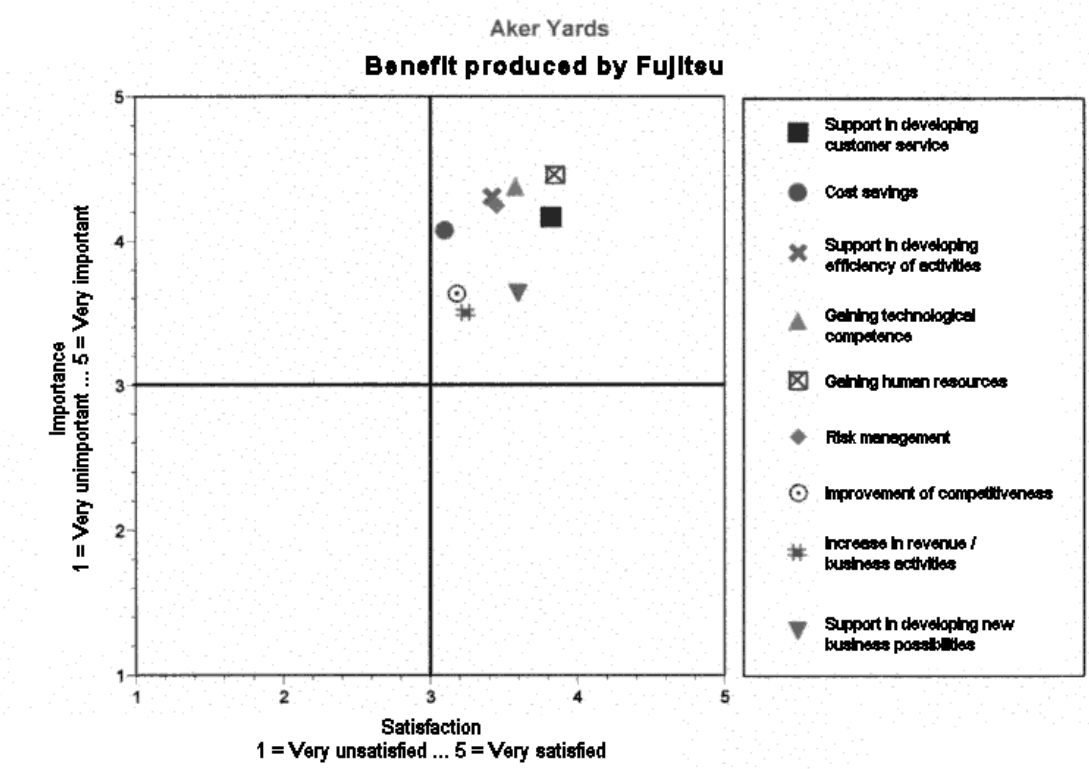


Figure 8: Benefit gained from Fujitsu (Taloustutkimus Oy, 2006, translation mine)

# 6 Performing the study

The aim of the study is to discover how the outsourcing of IT activities has succeeded in Aker Yards, Finland. The study has been carried out by surveying the IRM personnel's view of the success of the IT outsourcing and then analysing the survey results based on the theoretical background presented in this thesis.

The personnel's view was gauged by interviewing the IRM personnel in AYFi. The interviewees were CIO (chief information officer), in order to obtain a management view of the situation of IT in the company; three managers according to the groups into which the IT organisation is divided (project services was excluded since it has little to do with outsourcing); and four other members of IRM personnel. These four members were chosen based on their responsibilities and their background: one had worked for the service provider before entering AYFi; another was a new member in the IRM and the communication services group; the third has the main responsibility for the consolidation project of servers; and the fourth is responsible for workstation services in practice.

The success of IT outsourcing is related to a company's and its IRM's objectives. The position of IT in the company is shown in requirements given to IRM (see Figure 9). Correspondingly, IRM's requirements create requirements for outsourcing and the outsourcing service provider. The requirements form the basis for how the outsourcing success has to be evaluated.

The request for quotation was investigated in Section 5.2 to isolate what the IRM has sought to achieve by outsourcing its services. When the request is compared with the results of interviews, the degree of success regarding the outsourcing aims can then be evaluated. The level of success also can be analysed by comparing company-level goals for outsourcing with the results of interviews.

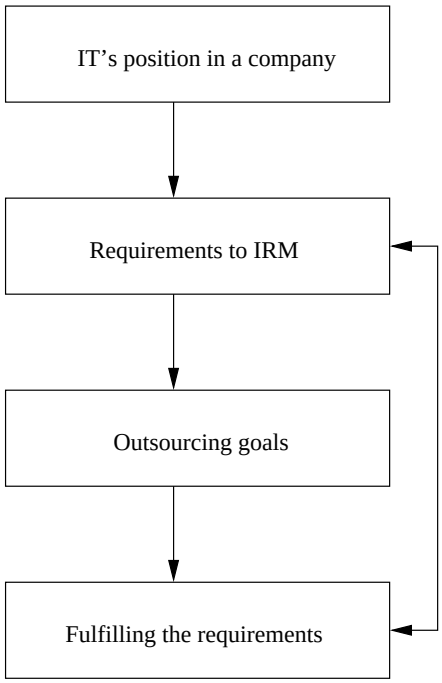


Figure 9: Building up outsourcing requirements.

Some definitions of outsourcing success were presented in Section 3.6.1. The definition by Lacity et al. (1996) (factors of success: cost savings, service levels, user management satisfaction, client-vendor disputes, vendor responsiveness and attentiveness, comparison of outcomes with objectives, and renewal of contract) provides a multifaceted and practical view of the degree to which the outsourcing can be considered a success. It is therefore used as a basis when analysing the interviews. The definition by Dibbern et al. (2004, p. 69) can be regarded roughly as a subset of the definition by Lacity et al. (satisfaction vs. user management satisfaction, expectations and their realisation vs. comparison of outcomes with objectives, and performance vs. service levels). Therefore, the constructs of these three factors (presented in Dibbern et al., 2004, p. 69–70, Table 24) can be used as an aid in developing the interview questions.

In Section 3.6.2, the SERVQUAL instrument was presented. The basic idea of

SERVQUAL is that by comparing the expectations of the service and the service actually received it is possible to measure the service quality. Zeithaml et al. (1990) also presented five Gaps, that is, differences of perceptions. In this study, the main interest is Gap 5: expected and perceived service, since only the IRM personnel's view is studied.

As a conclusion, the interview questions were developed based on the request for quotation so that the seven factors of success by Lacity et al. (1996) are considered from the view of Gap 5. First, all of the service provider's tasks specified for each of the four service areas, represented in Section 5.2, were scrutinised and overlapping tasks are combined. In this process, five question groups were formed: workstation service, infrastructure and application servers control service, LAN service, service manager service and general tasks. Each task in these five groups was assigned questions related to success factors, emphasising the satisfaction factor and the comparison of outcomes with objectives factor. Other factors were regarded with less interest since they were not as directly related to the Gap 5 or were already studied by the company itself. To gain a complete view, some general questions are added related to an interviewee's opinion on IRM's mission, outsourcing objectives and the degree to which they were achieved, and outsourcing targets. To support the results of the interviews, the interviewees were asked to fill in the SERVQUAL questionnaire for Gap 5. The interview questions were developed using the form in Appendix B, the interview questions are presented in Appendix C, and the SERVQUAL questionnaire can be found in Appendix D.

After the personnel's view was obtained via the interviews and questionnaires, a summary of the interviews was made by grouping the questions back to the original four service area groups and then studying each group on the basis of the seven success factors. Finally, the results were analysed based on the theoretical background.

# 7 Interviews

In this chapter, the results of the interviews are presented. The results are organised according to the four service areas: workstation service (Section 7.1), infrastructure and application servers control service (Section 7.2), LAN services (Section 7.3), and service manager service (Section 7.4). Every service area has been discussed from the seven viewpoints of success presented by Lacity et al. (1996). These are cost savings, service levels, user management satisfaction, client-vendor disputes, vendor responsiveness and attentiveness, outcomes compared to objectives, and renewal of contract. Two of these, user management satisfaction and outcomes compared with objectives, are separated into their own sections since they are the focus of this study. The rest of remaining viewpoints are combined into their own section, called "Other views of success". In addition to these sections, other issues discussed in the interviews are presented in Section 7.5. The results of the SERVQUAL questionnaire are discussed in Section 7.6.

## 7.1 Workstation service

### 7.1.1 User management satisfaction

According to the interviewees, among all of the outsourced service areas, outsourcing of the workstation services has succeeded best. The helpdesk is, according to them, able to either solve the problems of the clients themselves or route the service request to the specialists so that the problem is solved. The interviewees indicated that although the service provider aims at providing faceless service, there is a notable reduction in the service quality every time a member of the helpdesk team is changed.

Another duty of the helpdesk is managing the user permissions according to the requests made by AYFi personnel. They either handle the permission changes themselves or ask the AYFi's main user of the system to change the permissions. Ac-

cording to the interviewees, if problems related to the user permissions management arise, the problems generally are due to AYFi or subcontractor personnel. Problems may, for example, arise if a subcontractor does not inform AYFi or the helpdesk when an employee quits, or if AYFi personnel asking for permissions are ignorant of the permissions needed.

The interviewees were mostly satisfied with the service provider's on-site support team. They considered that the initial guidance given by the on-site team member in connection with handing the new workstation over to the end-user has still room for improvement. However, they admitted that the insufficient guidance may partly be due to end users' behaviour in the guidance situation. Otherwise, the interviewees considered that the processes of acquisition, installation, handing the workstation to the end user and removal of the workstation are well run by the service provider.

According to the interviewees, the service provider does its share of configuration management well. IRM is responsible for developing the configurations. IRM also retains control over the security of workstations. All of the operations have to be accepted by IRM. The interviewees considered that the service provider maintains the prevailing security level well, but it does not attempt to improve the security. Compared to the specialised security companies, they do also lack a service for, for example, monitoring the data traffic or testing the security of workstations.

The service provider's task is to keep the registries of equipment and some of the licences up to date. According to the interviewees knowledgeable about these registries, the licence registry is up to date but the equipment registry tends to be outdated. Some of the interviewees questioned the rationality of the equipment registry because, since it is updated manually, it is prone to mistakes, and the information received automatically, when users sign on to the workstations, is usually complete enough. The asset registry's signifiance is small, since most of the hardware

is leased or bought as a service.

In the interviewees' opinion, they get sufficient information in the form of reports from the service provider. They state, however, that the information should be more analysed so that they would profit more from it. The interviewees consider that the service provider and IRM are mainly sufficiently in touch with each other and on relevant issues. Further, the right parties are in contact with each other, according to them. In general, the interviewees do not expect the service provider to be independently in touch with the other service providers without their permission. In their opinion, the acquisition and removal of hardware works well within the limits set by IRM.

The interviewees agreed that, generally, after the service provider has received instructions regarding a process or operation, it is able to independently perform this process or operation. What the interviewees wanted was that the service provider to be more flexible, the service to not be completely faceless but always have some person to take responsibility for the service request, and the service provider to provide more development ideas and analysis based on the service requests made by end users.

### 7.1.2 Outcomes compared with objectives

In the request for quotation it was requested that the service provider have a service handbook. According to the interviewees, there is no such book. However, they recall that the service provider has descriptions of services and processes. The interviewees also considered that the service provider does not maintain a development plan for the workstation environment and actually no written development plan exists. On the other hand, they explained that the company management has some form of IT development plan.

The view of the interviewees is that the IT environment of AYFi is cost-effective and responds to the needs of the company. The interviewees report that everything necessary is standardised, but the service provider has, after all, little responsibility for these areas.

According to the interviewees, the service provider does not create instructions for the end users independently, but only as a separately charged service. Neither do they indicate the need for training based on their experiments about the end users, nor organise such training.

### 7.1.3 Other views of success

One of the outsourcing aims mentioned in the request for quotation is achievement of greater flexibility according to variations in the number of the end users. The interviewees state that at the moment the outsourcing costs do not vary as wished but the costs are mostly fixed, and since the workstations have to be kept up to date and the systems running regardless of the number of end users, major cost savings are not achieved.

There are some service level requirements given to the service provider. According to the interviewees, the service provider has, in general, succeeded in staying within the limits defined in the contract. The interviewees also agree that the routine tasks performed by the service provider are handled rapidly enough. However, in the opinion of the interviewees, it would be possible for the service provider to, for example, handle the workstation installations in a more timely manner than agreed in the contract.

The major problem related to the workstation service is handling the non-routine service requests. According to the interviewees, the helpdesk is heavily dependent on the instructions given by AYFi, and actions to solve the problem independently

are sometimes nonexistent. The interviewees consider that if there is no standard solution to the service request, the helpdesk rather tends to contact IRM than try to solve the problem themselves, or alternatively the service request is put on hold, with no one taking responsibility for it. Related to this, the interviewees also felt that the helpdesk routes the service requests too readily to the specialists, without even trying to solve the problem themselves.

The co-operation between the service provider and AYFi has continued for a number of years, and in 2006 the service provider was once again chosen to provide the workstation services for AYFi. The life cycle service of mobile phones, digital cameras, data projectors and printers was, according to the interviewees, left outside the contract, but this is still under negotiation. The interviewees also explained that a service for finding out the training needs of the end users and organising the training according to the observations were discussed but it transpired that it would not be sensible to acquire the service from the service provider.

## 7.2 Infrastructure and application servers control service

### 7.2.1 User management satisfaction

The interviewees considered the conversion of application servers into a capacity service to have been a difficult process. They questioned the service provider's ability to follow through the conversion process. The interviewees would have wished for an operations model for the conversion process, which the service provider could not offer, although the service provider offers the capacity service as a product and has experience of similar conversion cases.

Currently, from the interviewees' point of view, the capacity service generally functions well, both technically and as a service. There has been no problems with the data backup system: if data has been missing, it has been successfully restored.

With regard to the system backup, the interviewees considered that the backup procedure has not been as functional since there have been some major interruptions in the availability of some systems. Due to this, some of the interviewees thought that the recovery plan, for which the service provider has full responsibility, may need some testing and updating.

Since AYFi has agreed on a capacity service, the security of the servers is the service provider's responsibility. In addition, the information system providers are responsible for the security of their information systems. The interviewees explained that the service provider has a person who takes care of the security of the servers. The service provider should inform IRM before taking actions and, according to the interviewees, this has worked well. As a default, the interviewees do not expect the service provider to report on its affairs if everything is in order. According to the interviewees, the current reporting level is sufficient.

The interviewees considered that, after all, the conversion to the capacity service has been worthwhile. Due to the conversion, old unused systems have been removed and of the different systems used in different shipyards for the same purpose, one system has been chosen and the others removed. As a result, the number of systems and the capacity required has been drastically reduced, and the information system server environment of the shipyards has been consolidated.

### 7.2.2 Outcomes compared with objectives

One objective mentioned in the request for quotation was achievement of as consolidated an information system server environment as possible. According to the interviewees, the existing AYFi servers have basically been moved to the service provider's server room in which there is a separate area reserved for them. Not all of the machines previously situated in the AYFi's server room have, though, been

transferred to the service provider's premises. The interviewees explained that it proved too difficult to transfer some special purpose network devices, such as the spam filter devices, to the service provider's premises and thus they were left on AYFi's premises.

It was also a requirement in the request for quotation that the server environment should be monitored and managed remotely and with operations planned in advance. The interviewees considered that although the servers are monitored 24/7, the service provider is not always able to detect if some system is unavailable. The goal of IRM is, in their opinion, that the service provider is able to notice even the smallest failures.

According to the interviewees, the communication between the service provider and the information system providers is limited, and IRM has to be a middleman in their communication. The interviewees consider that common startup meetings and application card practice (there is a paper for every application in which information about the application and contacts related to it are represented) have improved the situation, but the parties could still be more directly in contact with each others. Support for the information system providers is not included in the contract.

### 7.2.3 Other views of success

It is stated in the request for quotation that the server capacity should be dynamic; that is, it should be possible to reduce or increase it according to the needs of the shipyard. It is possible to buy more storage according to the needs of the users and information systems. The interviewees consider, however, that at the moment the overall costs of the capacity service do not sufficiently correlate with business fluctuation.

The interviewees claim that the service provider has not been able to achieve the

agreed service levels. They admit that the delays are partly due to the information system providers and not the service provider itself. The interviewees bring out the fact that after the conversion project there have been some severe interruptions in the availability of some systems. They also mention that there have been situations in which the service provider has not managed to independently solve the problem but has needed assistance from IRM.

The interviewees agreed that the operations requested by IRM are handled rapidly enough and within the limits of the service levels, albeit the quality of operations is not always satisfactory. The interviewees felt that if problems arise in the server environment, the information concerning the problem is given them quickly enough. On the other hand, they wished for more information about the progress of solving the problem.

The application servers had not been outsourced before the conversion project, but only the maintenance of the servers had been on the responsibility of the service provider. The server outsourcing project was recently finished. Some of the information systems shall be transferred away from AYFi's control, to the Aker Yards level.

## 7.3 LAN services

### 7.3.1 User management satisfaction

The service provider is in responsible for supervising the state of the network. Other datacommunication services are agreed separately, and some of them, such as telecommunications services, are bought from other service providers. A notification about problem situations is automatically sent to the IRM person in charge of datacommunication. According to the interviewees, the service provider is able to manage problem situations independently. In more detail, the interviewees consid-

ered that the service provider handles well supervision and management of active equipment, and routing and cross-connection according to the instructions given by IRM.

The interviewees considered that the backup system of network devices functions well. They explained that this is because the devices are standardised and therefore recovery is a simple operation. The removal and purchase of equipment is the responsibility of IRM. The interviewees said that sometimes there are problems with the availability of emergency equipment, but they admitted that this may be due to IRM purchases.

The interviewees wished for expert services from the service provider. They also mentioned that it is challenging to find a reliable partner providing network and telecommunications services.

### 7.3.2 Outcomes compared with objectives

In the request for quotation, it is mentioned that, in the goal state, the service provider has total liability for all LAN services. According to the interviews, at the moment considerable portion is covered by IRM. The surveillance of the network is outsourced to the service provider, and the operations are ordered as a separately-billed service from the service provider or other service providers. The interviewees mentioned that IRM aims at increasing its competence regarding to telecommunication technology.

### 7.3.3 Other views of success

According to the interviewees, practically all of the routine LAN services are outsourced or bought as a separate service from service providers. Whether the financial objectives of outsourcing are being achieved or not did not come up in the interviews.

According to the interviewees, two people at the (principal) service provider are

responsible for most of the LAN services provided. The interviewees were satisfied with their work but were worried about the absence of substitutes.

The interviewees considered that network availability has remained within the limits specified in the SLAs. They mentioned that there have been problems with the telecommunications service provider related to its competence, processes and co-operation skills. Furthermore, problems related to the sharing of responsibilities between the telecommunications service provider and the (principal) service provider have arisen. The interviewees considered, however, that the situation is continuously improving. They also mentioned that the IRM is seeking a suitable service provider which could provide the LAN services required.

## 7.4 Service manager service

### 7.4.1 User management satisfaction

The service manager of the service provider has recently been changed. According to the interviews, the new service manager divides the opinions of the IRM personnel. Some interviewees criticised the service provider for being too inexperienced for working in the service sector, for not being workmanlike and for taking too many liberties with decisions. On the other hand, other interviewees praised the service manager for being more professionally and technically skilled than the former service manager.

According to the interviewees, the everyday routine tasks and prioritisation of tasks are well taken care by the service manager. Some interviewees mentioned that the development tasks should be prioritised higher. They also wanted the service provider to improve the efficiency of routine tasks.

The interviewees were sufficiently informed about the activities of the service provider. The number of reports is sufficient, but the information should be better

analysed. The interviewees were worried about IRM losing touch with the end users, and they suggested that the service provider, being in close contact with the end users, could indicate the end user feelings to the IRM. The interviewees also hoped for improvement on the communications in problem situations, that is, about the progress of the situation.

The interviewees considered the contract between AYFi and the service provider confusing and unclear. They felt that the contract is based upon the service provider's selection of services more than the IRM requirements. From their point of view, the contract is inflexible, and changing or making additions to it is difficult unless both parties initially agree on the change or addition.

### 7.4.2 Outcomes compared with objectives

According to the interviewees, the co-operation with the service provider and the service manager works well enough. However, no improvement or development proposals are made by the service manager representing the service provider, and neither is the service provider able to support the IRM in execution of projects. The support service is not included in the contract, but the service provider is, according to the interviewees, often too busy or unable to provide the professional assistance requested even as a separately paid service.

It was mentioned in the request for quotation that the service manager should acquaint him or herself with AYFi's projects and service management. The interviewees considered that the service provider had only limited knowledge regarding AYFi's business and that the service provider does not share the view of AYFi but makes observations only from its own point of view.

### 7.4.3 Other views of success

The service manager is an inseparable part of the outsourcing service. This is why it is not possible to measure the cost savings related to the service manager service. Neither are there service levels set for the service manager. Since the current service manager has only recently started his work as a service manager, it is not yet relevant to discuss renewal of the contract, which also depends on the service provider and the continuation of the outsourcing contract between AYFi and the service provider.

The interviewees said that because the service manager has recently started working for the service provider and as the service manager for AYFi, he has no background information about the discussions in the contract negotiations. They say, that this is why currently the contract has to be interpreted every time the service provider invoices AYFi for the services provided. The interviewees considered, however, that in practice, the vagueness of the contract does not affect the actions or the service and that everything can be discussed with the service manager.

The interviewees felt that generally the service provider reacts to the service requests rapidly enough. They also considered that the service provider has a sufficient understanding of the criticality of IT services in the shipbuilding business, and therefore is aware of the necessity to react to upcoming situations.

## 7.5 Other issues discussed in the interviews

The interviewees were asked about what they believe is the role of IRM in Aker Yards, Finland. In general, the interviewees considered that IRM's purpose is to co-ordinate the company's IT and IT services. In their opinion, IRM is an internal service provider which provides the company with the services that contribute to shipbuilding. In more detail, the interviewees explained that IRM's purpose is: to provide the company, including its network companies, with the required and

up-to-date information systems, IT equipment and telecommunication services; to ensure their availability; and to maintain and develop them according to the strategy defined by the company management.

The interviewees were asked to estimate how large a portion of IRM is outsourced. The estimates were varying: 80–90 % measuring the amount of work; 90 % of personnel when compared to the Aker Yards shipyard in France where no outsourcing has taken place; 80 % measuring the costs of IT function; 90–95 % measuring the amount of services.

When enquiring about what the objectives were for outsourcing, the interviewees said that by outsourcing, greater flexibility can be achieved. They specify that in the short term, it would be more inexpensive to produce the services internally, but in the long term, cost savings can be achieved by outsourcing due to economic fluctuations and changes in load. The interviewees also considered that by outsourcing, the company does not need to train or hire IT experts, but the service provider ensures that the required expertise is available.

In general, the interviewees considered that the aims of the outsourcing have not been achieved. They said that the current contract is mainly fixed-price and therefore is not as flexible as they wish. They also considered that outsourcing has not solved the problem of availability of professional resources. In their opinion, the essential knowledge is a scarce resource also in large companies. However, the interviewees felt that the outsourcing has relieved IRM of outdating hardware and that it has forced, for example, the workstation acquisition process to become more organised.

The interviewees were asked about which services have in theory been outsourced but, in practice, have not been. According to the interviewees, the support service for information systems and mobile phones could be carried out by the service provider

but is at the moment performed by AYFi personnel. Furthermore, developing mobile and telecommunication interfaces for workstations is, they claim, not outsourced, though it could be. In addition, as mentioned in Section 7.2.2, some of the special purpose network devices and hardware had to be left in AYFi's server room since the transfer to the service provider's facilities proved to be too difficult. As mentioned in Section 7.3.1, the interviewees also wished for expert services which are not available from the service provider.

According to the interviewees, some of the services have not yet been outsourced although they could be. These are printing services, phone services and training services. The interviewees explained that considerable amount of management of printer relocations and installations is done by IRM. They also mentioned that services related to mobile phones and desk telephones and their delivery and life cycle could be outsourced, but so far no satisfactory agreement has been offered. The training service would, according to the interviewees, involve observing the training needs of the AYFi employees and organising these training based on the observations.

The interviewees were asked about whether there is expertise that should be insourced or that IRM lacks but should have. According to the interviewees, there are no services that should not have been outsourced. However, the interviewees considered that IRM lacks profound expertise about Active Directory, which they see as a central and increasingly important system. The other significant system in which no one has specialised is, according to the interviews, the core of database services and the data warehouse. Apart from these services, the interviewees considered that IRM has sufficient expertise to manage the services it is responsible for.

## 7.6 SERVQUAL

The interviewees were asked to fill the SERVQUAL-questionnaire presented in Appendix D. The results are summarised in Appendix E.

The results reveal that the respondents considered reliability, responsiveness and assurance to be the most important features (dimensions) of the service provider. Almost all of the respondents ranked reliability as the most important feature and tangibles as the least important feature of the service provider. The average score calculated for each dimension concerning the expectations of at perfect service provider gives similar results (tangibles: 4.38; reliability: 6.60; responsiveness: 6.06; assurance: 5.75; empathy: 5.25).

The tangibles and empathy dimensions gained the best average perception score (tangibles: 4.22; empathy: 4.20) from the respondents, while reliability received the lowest score (3.48). In general, the average perception scores, that is, the feelings about the real service provider, were lower than average expectation scores. The average SERVQUAL score calculated for each dimension reveals that tangibles has the smallest (-0.31) difference between the average perception and expectation scores. The smaller the absolute value of difference, the better the actual service corresponds to the expected service. The highest (-3.13) average SERVQUAL score is for the reliability feature. A big negative score means that the expectations of the service are lot higher than the actual perceived service. Correspondingly, a positive score would mean that the service exceeds the expectations of the respondents.

If the expectation and perception scores are examined statement by statement, it can be seen that the highest expectation score (6.88) is given to Statement 5 (When IT service providers promise to do something by a certain time, they will do so). The corresponding perception score (3.00) is one of the three lowest, and

the difference between the perception and expectation values is one of the highest (-3.88). The variance of the expectation values (0.13) is small, while the variance of the perception values is bigger (1.71), which is still smaller than the average perception value variance (2.39). The average variance of expectation values is 1.30. Based on this, the respondents shared the opinion that the service provider has a considerable room for improving the realisation of its promises.

Statement 8 (IT service providers provide their services at the time they promise to do so) receives the biggest difference score (-4.13) between the perception and expectation values. The average perception value given (2.63) is one of the lowest and the expectation value (6.75) one of the highest. The variance of expecation values is small (0.21) and the variance of perception values (1.98) is under average. Therefore, the customers' perceptions vary considerably from their expectations of the service.

Statement 7 (IT service providers perform the service right the first time) has as high an expectation score (6.75) as Statement 8, but the difference between the perception and expectation values (-3.38) is smaller. The variance of expectation values (0.50) is small, while the variance of perception values (3.13) is relatively high. The respondents' perceptions of the service therefore vary considerably.

Statement 10 (Employees in IT service providers tell customers exactly when services will be performed) has received the lowest perception score (2.38), while the expectation score (6.25) is relatively high. The difference between the scores (-3.88) is one of the greatest. The variance of the expectation values is small (0.5) but the variance of the perception values (2.55) is so high that no common opinion seems to exist.

Six Statements (1, 2, 3, 16, 18, 20) received scores smaller than 0.50 by their absolute value. Statements 16 (Employees in IT service providers are consistently

courteous with customers), 18 (IT service providers give customers individual attention) and 20 (IT service providers have employees who give customers personal attention) all have small difference scores (16: -0.5 ; 18: -0.5 ; 20: -0.13), but at the same time all of these have a higher than 1.70 variance in expectation score and a higher than 3.40 variance in perception score. Therefore, it is hard to evaluate using these statistics whether the respondents are satisfied with the service or not. In any case, on average, the perception score that Statement 20 reveives is the highest of all of the statements, and the other two perception scores are among the highest as well.

Statement 2 (The physical facilities at the IT service providers are visually appealing) has the smallest difference score (-0.02) of all of the statements. Roughly, it means that the respondents' expectations tally well with their perceptions. However, although the variance of expectation values (0.7) is small, the variance of perception values (3.48) is so high that no generalisation can be made. The expectation score of the Statement (3.88) is the lowest of all the statements.

Statement 3 (Employees at IT service providers are neat-appearing) gains a difference score of -0.38. The variance of expectation values is relatively high (1.71), while variance of perception values (0.98) is relatively low. The respondents therefore agree well on the perceived service quality, but their expectations vary a lot.

Statement 1 (IT service providers have modern-looking equipment) receives the best difference score (+0.50). The respondents consider that the service received is better than the expected service. On the other hand, the expectation score given for the statement (4.00) is the second lowest and there is considerable variation in the expectation values (variance 3.43). The variance of the perception score (1.71) is under average.

Statement 12 (Employees in IT service providers are always willing to help cus-

tomers) receives the best perception score (5.00). The expectation score (6.63) is also among the highest scores and of the four statements that received the highest expectation values, the Statement has best difference score (-1.63). The variance of expectation values is low (0.27), and the variance of perception values is under average (1.71).

# 8 Discussion

## 8.1 Conclusions on results

### 8.1.1 General success of outsourcing

It was presented in Section 4.2 that IRM is considered a support function in Aker Yards, Finland. The results of the interviews presented in Section 7.5 support this view. The outsourcing objectives presented in Section 5.1 also correspond to the opinions of the interviewees in Section 7.5. That is, the objective of outsourcing is to achieve greater flexibility at a competitive price.

The reasons to outsource were discussed in Section 3.2. They were cost reductions, access to increased knowledge and focus on core business. All of these reasons can be seen as present in the IT outsourcing of AYFi. The impulse for outsourcing has been the company-level strategic decision to concentrate on the core competencies. In the background of this decision are the long term cost savings achieved through minimising the fixed costs. Contrary to Section 3.2, the cost savings achieved through economies of scale have not been the aim of the company. Instead, easy access to a wide variety of skills has been considered the benefit gained from outsourcing. As discussed in Section 7.5, according to the interviews, the cost reductions and access to increased knowledge have not, however, been achieved yet. The results of client satisfaction survey discussed in Section 5.4 support the observations about the unrealised cost savings but, on the contrary, the results concerning the access to increased knowledge and human resources show that the persons surveyed were relatively satisfied with realisation of those.

Since the aim of the IT outsourcing of AYFi has not been cost savings through economies of scale, the second framework by Lacity et al. (1996) presented in Section 3.3.2 proves to be inapplicable. When the first framework is compared with the

interviews and the information in Section 4.2, it can be stated that some activities of IRM, such as workstation services and other outsourced services, are critical or useful commodities and therefore outsourcing is a good option to acquire the service. On the other hand, some activities of IRM can be considered to be critical differentiators. These are, as discussed in Section 4.2, network registry and consolidation of the operations and systems of the Finnish and French shipyards. According to the framework, these activities should be retained in-house, and that is actually how it is done in AYFi. The third framework will be discussed later in this chapter.

### 8.1.2 Success of separation between outsourced and in-house services

The SGF model was presented in Section 3.3.3. Since IRM at AYFi is an internal service provider which co-ordinates the company's IT services and aims at outsourcing as many of the services as reasonable, its processes presented in Appendix A can well be compared to the processes of the SGF model. As a conclusion, the processes other than service level management, the long term IT plan, sourcing strategy and supplier portfolio management can be found in IRM's process table. Based on the interviews, some kind of service level management process exists in the shipyard's IRM, although it is not specified in the process table. A long term IT plan is, according to the interviews, outlined at the company management level, but IRM does not have a common long term IT plan of its own. On the contrary, sourcing strategy or supplier portfolio management processes may exist, but they have not come up in any context. On the whole, the SGF model thus represents well IRM's processes at AYFi. IRM is still partially responsible for the infra innovation and infra management processes which in the SGF model are the suppliers' responsibility. According to the SGF model, these processes should be outsourced.

It was stated in Section 3.3.4 that planning is the core activity of the IT de-

partment, and the critical areas to be retained in a company are partnership and contract management; planning and developing the company's IT architecture; observing emerging technologies and their potential applications; and making users comfortable with the constant change of IT. The processes for managing partnerships and contracts and planning and developing the company's IT architecture can be found among IRM's processes, presented in Appendix A. In contrast, neither the process listing nor the interviews suggest that IRM is substantially focussing on observing emerging technologies and their potential applications or making users comfortable with the constant change of IT.

### 8.1.3 Success of the outsourcing relationship

It was stated in Section 3.5 that the satisfaction with a service provider can be improved by increasing the service provider's understanding of the company's business. After the service provider has a proper view of the company's business, it is easier for it to ensure that the provided services meet the actual needs of the company and to point out new areas where the service provider's expertise can be applied. According to the interviews, IRM has occasionally instructed the service provider on the main information systems, and the service provider representatives have participated in department meetings to explain about the service provider and to hear about what is going on in AYFi. The interviews, however, pointed out that the service provider still has only limited knowledge about AYFi's business (Section 7.4.2). Since no development or improvement proposals have been made recently by the service provider, as discussed in Section 7.4.2, it can be questioned whether increasing the service provider's knowledge about the company would inspire the service provider to make proposals. The interviewees stated that useful information would be gained simply by analysing in more detail the data collected by the service

provider about, for example, the service requests of the end users.

The absence of improvement or development proposals suggests that the relationship between the service provider and AYFi is more like a client-vendor relationship than a partnership. This view is supported by the case that the only common goal mentioned in the contract (Section 5.3.2) is the decrease of costs over time. Also, while some service level requirements for a service have been agreed in the contract (Section 5.3), these are more like service quality requirements set by a client to a vendor than actual terms to the share the risks and rewards associated with outsourcing. The view of client-vendor-like relationship is also supported by the results of client satisfaction survey represented in Section 5.4. The results reveal that the people surveyed did not even expect that the relationship with the service provider would help in improving competitiveness or in developing new business possibilities, and that there is still room for the innovativeness of the service provider.

The interviews revealed that the service manager of the service provider had recently been changed (Section 7.4). The change may have had an effect on the relationship between the service provider and AYFi since the service manager is, after all, the closest person from the service provider to AYFi's IRM as a whole. The rest of the service aims at being anonymous, but the interviews suggested that IRM members were more satisfied if the responsibility for the follow-through of a service request was taken by a named individual (Sections 7.1 and 7.3). In particular, the lack of information about the progress of the service request was seen as a problem associated with the anonymous service (Section 7.2). In general, as the client satisfaction survey (Section 5.4) indicates, AYFi's IRM is satisfied with the sevice provider's personnel and their skills and attitude.

### 8.1.4 Observed problems and benefits resulted from outsourcing

The interviews indicated that the service provider sometimes has problems finishing the non-routine service requests or tasks within a reasonable time. The SERVQUAL questionnaire results support this opinion. Of the five dimensions, the respondents considered reliability and responsiveness to be the most problematic areas. In addition, the statements about the service provider's ability to provide the service at the promised time received the worst grades when the expectations of the service and the actual perceived service were compared. According to the questionnaire, the respondents felt that the service provider's employees are generally willing to help customers. The interviewees stated in the interviews that the service requests are indeed accepted by the service provider, but the completion of the task, as stated above, may be delayed.

As a whole, IRM considered that there were no critical problems with the outsourced services. The basic routines of all the service areas were handled sufficiently well by the service provider although there were problems with the non-routine tasks. Some problems were caused by the processes which were partly the service provider's and partly IRM's responsibility, such as granting the user permissions, which was mentioned in Section 7.1. Agreeing on new services or changing the contract was also considered difficult.

As mentioned before, the general company-level aims for IT outsourcing have not been achieved yet. There are, however, other benefits that result from outsourcing. In the second framework by Lacity et al. (1996), presented in Section 3.3.2, it is mentioned that it is possible to achieve savings with relatively little effort by implementing some managerial practises before outsourcing. IRM has implemented the practices either during the outsourcing process or after the outsourcing, but in

both cases, the benefits accrue. The workstation acquisition process has been modified and organised to make the service provider participate and finally take all the responsibility for the process. Correspondingly, the information system environment was consolidated while the server room was outsourced, and unused and parallel systems were removed. The interviewees also explained that outsourcing relieved IRM of obsolescent workstation and server-side hardware.

### 8.1.5 Services that could be outsourced or insourced

The interviews revealed a few services that could be outsourced but which currently are not outsourced for various reasons. These services are given as follows: the life cycle service for digital cameras, printers, data projectors and phones; the training service; special purpose network devices; LAN operations; the support service for information systems and mobile phones; the service for developing the mobile and telecommunication interfaces to workstations; and expert service.

Digital cameras, network printers, data projectors and phones are not part of outsourcing contract. The service for them would include purchase according to the limits set by IRM, installation, delivery of the device to the end user, guidance and support, and removal. So far, no satisfactory agreement has been offered although the service is well suitable for outsourcing. Suitability for outsourcing can be verified by the questions by Applegate et al. (1999) and by the classification by Peppard (2003) presented in Section 3.3. The following are the answers to the questions posed by Applegate et al. (1999): the service can be easily separated from the rest of the company because the corresponding service, workstation life cycle service, has successfully been outsourced as well; the service does not require particular specialised competences that should be kept inside the company since the knowledge required can be acquired relatively easily and it does not promote the company's success; the

service is not central to company's value chain but more like a commodity. According to the classification by Peppard (2003), the service belongs mainly to the service factory category: it involves little contact with the user and the degree of customisation is low, that is, the devices and processes are highly standardised. Both the questions and the classification suggest that the service is well suited to outsourcing. According to the third framework by Lacity et al. (1996) presented in Section 3.3, the most suitable sourcing option is to contract the service out: IRM is able to describe the requirements precisely to the vendor, since this far it has been responsible for the service, and the service is only loosely connected with the business processes and technical systems.

Outsourcing the digital cameras and data projectors may, after all, be unnecessary or impractical if the volume of devices and required support is low or if the selection of device models has to be wide. Outsourcing mobile phones may cause problems if the data security of the phones used is not sufficiently taken into account in the removal process, and the costs of printing may rise substantially with outsourcing if the outsourcing contract is not in balance with company's needs.

No satisfactory agreement has been offered for the training service either. The service would involve observing the training needs of the AYFi employees and organising the training based on the observations. So far, IRM has occasionally purchased training services from external service providers. The questions by Applegate et al. (1999) suggest that the service is suitable for outsourcing: the service is already relatively separated from the company; it requires little specialised competencies, and it is not sensible for IRM to spend time on that; it is not central for company's value chain but more like a supplementary service for the end users. When considering the classification by Peppard (2003), the training service belongs to the service boutique category: in this case, the service provider is required to provide a service

customised to AYFi's needs and the service involves a significant amount of contact with the end user. On the other hand, if there is a service provider which has a wide selection of training programmes to choose from, less customisation is needed, and the service can be situated in the service mall category. Either way, the service appears to be well suitable for outsourcing. The framework by Lacity et al. (1996) suggests that the service is bought in: IRM does not know what they want from the service, but it would be the service provider's task to identify this. In addition, the level of integration is low since the training provides only added value for the company. The risks of outsourcing the training service lie in losing touch with the end users and their skills and needs.

Not all of the special purpose network devices have been outsourced. This is due to the difficulties in transferring the hardware to the service provider's facilities. The framework by Lacity et al. (1996) still suggests that the devices should be contracted out, since the level of integration with the business processes and technical systems is low, and, because the service has so far been provided by IRM, the technological knowledge in the company is high. The service would be positioned in the service shop category since it requires customisation according to the customer's needs but can be performed with little user involvement in a process itself. If the need for customised service and contribution of IRM personnel is continual, it may, however, be more comfortable and inexpensive to maintain the service in-house.

So far, telecommunications services and supervising the state of the network are outsourced to the service providers and the operations bought as a separate service. The primary reason for not outsourcing the LAN operations has been the lack of a reliable partner and suitable agreement. Examining the questions by Applegate et al. (1999), the service is suitable for outsourcing: it most likely is easy to separate from the company since the service provider already carries out the operations;

neither does the service require any particular specialised competencies, but the processes are relatively standard; the service itself is not central to the the company but the undisturbed functioning of LAN services is. IRM has wide technological knowledge about LAN services, so it is able to precisely describe the requirements to the service provider, and since the integration level with the business processes and technical systems is low, the best sourcing option according to Lacity et al. (1996) is contracting out the service. Risks related to outsourcing the LAN services lie in the reduced control over data security. For example, industrial espionage or a logic bomb may have serious financial consequences.

The two following services are the support service for information systems and mobile phones and a service for developing the mobile and telecommunication interfaces to workstations. The support service and the service for developing the interfaces are both service shop services: both need some customisation according to the environment of AYFi but there is no need for users to participate in the process. Since the services are loosely integrated with the business processes and the knowledge in the company is high, the suitable sourcing option is contracting out. It should, however, be taken into account that if accumulated knowledge about information systems is lost due to a service provider change, it might be difficult to reproduce that expertise.

The last discussed service is the expert service. So far, if the company has needed assistance, the service has been bought separately from external service providers. The service can be considered a service boutique and therefore requires a significant amount of user contact during the process. It is difficult to outsource the service in the same way as the other services but, considering the options given by Lacity et al. (1996), it is still possible to either buy the required service or acquire the service from the preferred supplier.

The interviewees felt that there is no need to insource any of the outsourced activities. However, knowledge about Active Directory and about the core of database services and the data warehouse was something the interviewees considered to be central and important to have in-house (Section 7.5). At present, IRM lacks such knowledge. These services require technological knowledge the company does not possess, and their level of integration with the business processes is high. According to the Lacity et al. (1996), one option would be contracting out the service to a preferred supplier and making sure that a close relationship with shared goals is created to maintain the integrity of interfaces. Since the interviewees considered these systems be increasingly important in the future, the other option would be insourcing the knowledge by nominating a person in IRM to become acquainted with these systems.

### 8.1.6 Comparison of SERVQUAL results

Watson et al. (1998) have made a case study of how focussing attention on the service quality affects the service quality level. Two large companies were studied once a year over three years using a slightly modified SERVQUAL questionnaire. The main differences with the questionnaire used in this study are the questions concerning the tangibles dimension. Since the respondents in this study also considered the tangibles as the least significant dimension, the tangibles dimension is left outside this inspection. The results of the inspection are represented in Figure 10.

When the reliability score given by AYFi IRM personnel is compared to the reliability scores of the two other companies, the expectation score of IRM (6.60) is a little higher than the other companies scores (6.4 and 6.3). The reliability perception score by IRM (3.48) is, in contrast, substantially lower than the scores given by other companies (about 4.0 and 4.8). The expectation score for responsiveness given by

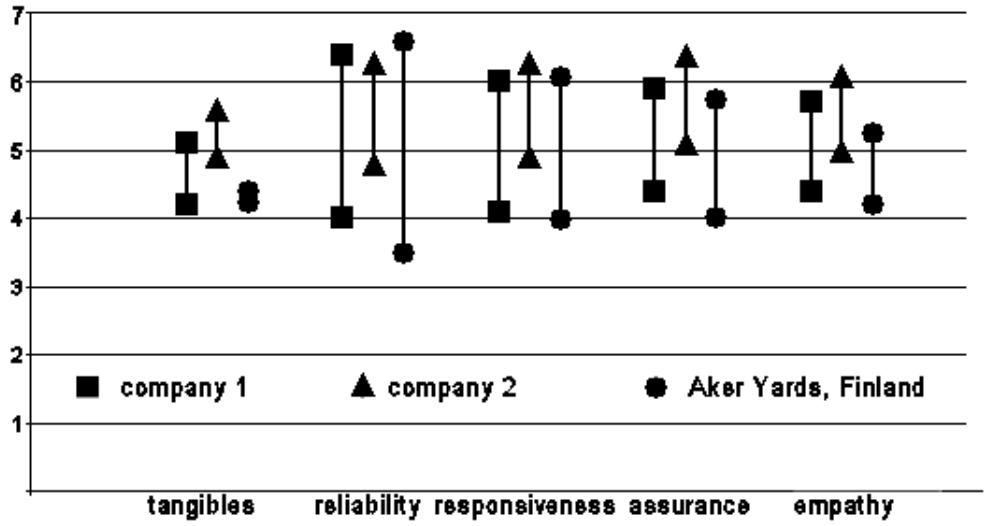


Figure 10: Comparison of SERVQUAL results

IRM (6.06) is about the same as the other companies had given (6.0 and 6.3), while the perception score (3.97) is again a little lower than the other companies (4.1 and 4.9). The assurance expectation score the IRM gave to the service provider (5.75) is slightly lower than the other companies gave (5.9 and 6.4) but the perception score (4.0) is still lower in comparison with the other companies (4.4 and 5.1). Finally, the expectation score for empathy given by IRM (5.25) is at the same level as the other companies' scores(5.7 and 6.1), while the perception score by IRM (4.20) is lower than the score given for the other companies (4.4 and 5.0). As a whole, the results of the study on AYFi conform to the results of the study by Watson et al. (1998). Only the reliability score given by AYFi IRM is remarkably low. According to the actual SERVQUAL results and the comparison between the other companies, reliability appears to be the most problematic feature of the service.

## 8.2 Generalisation of results

The results of the study suggest that more flexibility is needed from service providers when agreeing on outsourcing service. Service providers' inflexibility concerning its own service selection and contract terms may lead to situations where the client would like to outsource more services, but outsourcing to the existing service provider would be impractical. The actual situation may even force the client companies to maintain several outsourcing relationships or leave in-house a part of the services that are suitable for outsourcing. In addition, it appeared in the study that outsourcing costs that vary according to the client company's needs is a difficult objective to attain. It is hard to make an agreement of this type that also satisfies the service provider and its need for stable revenue.

According to the results, if a client company expects a service provider to analyse the service requests with more sophistication in addition to basic reports, it would seem reasonable to include the requirement in the contract. Adding to the contract situations in which service provider should contact client is worth considering. As a whole, it appears that clear separation of the client company's and service providers' tasks and responsibilities helps the companies perform their duties more efficiently.

IRM and its processes are discussed on a high level in this thesis. Due to this, the results of the study can be generalised to other companies that have a corresponding range of IRM services as the case company. Many large companies may apply the results as a whole, and smaller companies, having only a limited set of services, may utilise the results to the appropriate extent.

## 8.3 Possibilities for further study and improving the results

In this thesis, only the view of AYFi and its IRM has been evaluated. Taking the service provider's view into account would most likely lead to different results. The

thesis discussed SERVQUAL Gap 5, that is, customer's expectations compared with customer's perceptions. More profound results could be achieved by studying the other Gaps, too.

The interviewees covered approximately half of the IRM personnel. It is possible that interviewing the remainder of IRM would affect the results, but, since the goal was to interview the most relevant employees regarding outsourcing, the interview results would more probably support the results of this thesis and, if anything, widen the IRM-end-user view, which is not desirable.

To gain a more extensive view of outsourcing success, the end users' view should also be included in the study. Some types of end user satisfaction surveys have already been carried out by the service provider. Extending the study scope to subcontractors' and partner networks' views about AYFi's IT outsourcing would also be possible. Moreover, closer study of the contracts and SLA results would provide interesting information. Comparing the study results with other companies would likely also be instructive.

The SERVQUAL results could be improved by covering each service area separately in the questionnaire. Repeating the enquiry after a certain time and comparing achieved results with the original results would increase the reliability of the enquiry and provide indicative information about the development of IRM's expectations and perceptions of the service. The picture formed by SERVQUAL of the success of outsourcing is, after all, fairly restricted, so it would be important to employ other methods in the study, too.

As a distinct study subject, the effect of service manager change upon the experience of the service provider could be studied. In a wider context this would mean studying the service manager's effect on the success of the outsourcing and on the outsourcing relationship as a whole.

# 9 Summary

The purpose of this thesis was to study how the outsourcing of IT services has succeeded in Aker Yards, Finland. The view of Information Resource Management was emphasised, and temporary outsourcing contracts were left outside of the analysis. The definition of 'success' in this thesis is the realisation of expectations of a service. Since most of the services have been outsourced to a single service provider, the thesis concentrates mainly on that service provider.

The primary method used in study was interviewing of AYFi's IRM personnel. Interviewees were chosen based on their outsourcing-related area of responsibility or their otherwise noteworthy view of outsourcing. Other material used in the study has been the request for quotation for outsourcing services; the final contract between the service provider and AYFi; and questionnaires based on the SERVQUAL method that the interviewees filled out before they were interviewed. The request for quotation was compared with the actual contract to determine the aim of IRM and to see how the contract restricts its realisation. Interview questions were developed based on these documents. The interview questions aimed at determining what the IRM personnel expect from the service provider and how these expectations have been realised, that is, what are IRM's perceptions of the service. The SERVQUAL questionnaires supported the interviews and provided a standardised instrument to measure service quality.

The results showed that the company has not yet reached the goals set for outsourcing. The main reason for outsourcing has been striving for long term cost savings through minimising fixed costs. However, the outsourcing costs do not yet vary sufficiently according to the company's needs.

According to the study results, there are no services that would be worthwhile to

insource, but there are a few services that still could be outsourced. These are the life cycle service for digital cameras, printers, data projectors and phones; the training service; special purpose network devices; some of the LAN operations; the support service for information systems and mobile phones; the service for developing the mobile and telecommunication interfaces to workstations; and expert service. The areas that would be worthwhile for IRM to concentrate more on are, according to the study, management of sourcing strategy and supplier portfolio; long-term IT planning; observing emerging technologies and their potential applications; making users comfortable with the constant change of IT; and acquiring more knowledge about the company databases and Active Directory.

The IRM's expectations and perceptions of outsourced services varied considerably when considering different services. According to the study, the routine tasks are handled sufficiently well, but there are obvious problems with the service requests and situations and carrying these out within a reasonable time or within the time agreed on. Agreeing on new services that do not belong to the service provider's range is difficult, and there have been some major problems with the newly outsourced capacity service. Feelings towards the service provider's employees with whom AYFi personnel are in direct contact, that is, for example, telecommunication experts and on-site support personnel, are positive. The recently changed service manager, however, divides opinions.

As a whole, there are no critical problems with the outsourced services. There is still considerable room for improvement. It is worth considering whether co-operation could be improved by agreeing in writing on particular situations in which the service provider should contact the client company or on how the data of end users' service requests should be analysed. More efficient communication, clarification of the nature of the relationship between AYFi and the service provider, and improvement of the

processes of either party are the keys to a more successful outsourcing relationship. In general, if service providers were more flexible in their contract terms and service selection, it would be easier to expand the scope of outsourcing.

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# Appendixes

## A IRM services of Aker Yards, Finland

```
Johto- ja liiketoimintasuhdepalvelut
    Liiketoimintapalvelut
        Aker Yards ASA ICT-yhteistyö
        AY C&F BA ICT-yhteistyö
        Meriteollisuusklusteriyhteistyö
        AY Fi liiketoiminnan tietotekniikka- ja tietojärjestelmätarpeiden
        kartoitus ja priorisointi
        ICT-palveluiden tuottaminen, ylläpitäminen ja kehittäminen liiketoiminnan
        tavoitteiden mukaisesti (strategia, budjetti, toimintasuunnitelma)
        ICT-investointibudjettien laatiminen ja seuranta
        Tietojärjestelmä- ja -tekniikkahankkeiden suunnittelu, koordinointi
        ja kokonaistoimitusvastuu
    Tiedotuspalvelut (viestintäpalvelut)
        Tietohallinnon alaan liittyvä tiedotus sisäisille asiakkaille
        Tietohallinnon alaan liittyvä tiedotus ulkoisille asiakkaille
    Henkilöstöasiat
        Rekrytointi- ja palkka-asiat
        Muut henkilöstöasiat
    Ongelmanhallinta
        Problem management (incl. CAB, Change Adv. Board)
Työasemapalvelut
    Työasemapalvelut
        Laite- ja tarvikeostot
        Väli- ja poistovarastointi
        Työasemien ja oheislaitteiden konfigurointi ja asennus
        Päivitys- ja valvontapalvelut
    Tulostuspalvelut
        Tulostimien hallintapalvelut
        Monitoimilaite- ja kopiokonepalvelut
        Fax-palvelut
        AV-laitteistopalvelut (nh-varustus)
    Käyttötukipalvelut
        HelpDesk -palvelut (käyttö- ja vikatilanneopastus asiakkaille puhelimitse)
        Etäasennuspalvelut asiakkaalle
        On-site -palvelut (käyttö- ja vikatilanneopastus ja asennuspalvelu
        asiakkaan luona)
        Ongelmien reititys asiantuntijoille (back office tukeen)
    Verkonkäyttöpalvelut
        Tietoverkon käyttäjäoikeudet
        Verkon käyttövalvonta
```

```
    Palvelinpalvelut
        Kapasiteettisuunnittelu ja -hallinta
        Palvelinkonfiguraatiot
        Palvelimien valvonta ja varmistukset
        Palvelun jatkuvuus- ja saatavuuspalvelut
Sovelluspalvelut
    Järjestelmäpalvelut
        Järjestelmien käyttöoikeudet
        Järjestelmien ylläpito ja pienkehitys
        Työasemien työpöytämääritykset
        Versiopäivitykset
    Sovelluspalvelut
        Toimistosovellukset
        Sähköpostipalvelut
        Tietovarastojärjestelmä
        Tietokantapalvelut
        Verkostorekisteri
        Viestintäportaalit
    Käytön tukipalvelut (sovellustuki)
        Käyttökoulutus
        Käyttäjien ohjeistus
        HelpDesk -ohjeistus
        Back Office -tukipalvelut
        Palvelutason hallinta
        Palvelutasoraportointi
Tietoliikennepalvelut
    Tietoliikennepalvelut
        Yhtymäverkkopalvelut
        Internet-yhteyspalvelut
        Sähköpostireititys
        Etäyhteyspalvelut
    Tietoverkkopalvelut
        Nimipalvelut / määrittely
        Local Area Network (LAN) -palvelut paikkakunnittain
        Rakennusverkkopalvelut
        Langattomat verkkopalvelut
    Puhelinpalvelut
        Puhelinverkkopalvelut
        Puhelinlaitepalvelut
    Muut palvelut
        Back Office -tukipalvelut
```

```
Tietoturvapalvelut
    Tietoturvapalvelut
        Turvallisuustasonhallinta
        Yhteyskäytäntöpalvelut
        Käyttäjän tunnistus
        Virustorjunta
        Sähköpostisuodatus
Projektipalvelut
    Palvelunhallinnan suunnittelu
        Palveludokumentaatio
        Prosessi- ja työohjekuvaukset
        Prosessintarkistusohjeet
    IT-toiminnansuunnittelu
        Ammatillinen kehitys
        Projektointi
        Aikataulutus
    Toimittajahallintapalvelut
        Kehyssopimukset
        Lisenssisopimukset
        Sopimusvalmistelu- ja hallinta
    Taloushallintapalvelut
        Budjetointi ja kusatannusseuranta
        Investointiseuranta
```

| | Success | | | |
|---|---|---|---|---|
| | **1: user management satisfaction (satisfaction)** | **2: outcomes compared to objectives (expectations and their realisation)** | **3: service levels (performance)** | **GAP5: expected and perceived service** |
| **Workstation service** | | **2: sopeutuminen muuttuvaan tarpeeseen, kustannusten aleneminen** | **3: lyhyt vasteaika** | |
| Managing contacts required for support service | 1: riittävä tiedon laajuus onnistuneeseen yhteydenpitoon | | | Osaako PT yhdistää tuen tarvitsijan oikealle henkilölle? Annetaanko PT:lle riittävästi tietoa näistä? Leviääkö tieto riittävästi PT:n sisällä? |
| Configurations, management and maintenance | 1: toimiva kokoonpano | | | Ovatko konfiguraatiomääritykset ajan tasalla ja levitetty kaikkiin tarvittaviin koneisiin? |
| Installation and delivery of workstations | 1: loppukäyttäjän kanssa sujuva työskentely | | 3: käyttöönoton nopeus (asennus - toimitus) | Tapahtuuko sovitussa ajassa? Huolehditaanko myös loppukäyttäjän opastamisesta riittävällä tasolla? Sujuuko loppukäyttäjän kanssa asiointi muutenkin? |
| Security of workstations | 1: tiedon ladukas kulku osapuolten välillä, ajan tasalla oleva henkilöstö | 2: luottamus, yhteistyökyky | | Ovatko työasemat tietoturvallisia? Miten PT:tä voitaisiin hyödyntää tietoturvan tason parantamiseksi? Onko PT ajan tasalla tietoturvauhista ja halukas edistämään tietoturvaa? |
| **Infra & servers** | | **2: sopeutuminen muuttuvaan tarpeeseen, yhtenäinen, etähallinta, suunniteltu** | | |
| Administration: monitoring, controlling, operating | 1: tarkka ja ajantasainen tieto toiminnasta ja operaatioista | 2: luottamus, itsenäisyys | 3: palvelimien ja järjestelmien toiminta-aika, operaatioiden toteutusaika | Suoritetaanko toimenpiteet palvelimille tarpeeksi nopeasti ja virheettömästi? Ovatko järjestelmät riittävän vakaasti toimivia? Tietääkö PT riittävästi järjestelmistä huolehtiakseen niistä itsenäisesti? |
| Security, detection of problems | 1: tiedon ajantasaisuus, tietämys | 2: luottamus, yhteistyökyky | | Seuraako PT tietoturvatiedotteita ja toimii niiden mukaan? Etsiikö itsenäisesti tietoturvaongelmia? Kerrotaanko näistä IRM:lle ja pitäisikö näin tehdä? |
| Safety: backup, recovery and recovery plan | 1: varmistussuunnitelman tarkkuus, ajantasaisuus, täydellisyys | 2: luottamus | 3: toiminta hätätilanteessa | Onko varmistusjärjestelmä hyvin toimiva? Voiko palautuksen ja elpymisen onnistumiseen luottaa? Onko palautussuunnitelma luottamusta herättävä, eli onko se riittävä palautuksen ja elpymisen suorittamiseen? |

| | 1: user management satisfaction (satisfaction) | 2: outcomes compared to objectives (expectations and their realisation) | 3: service levels (performance) | GAP5: expected and perceived service |
|---|---|---|---|---|
| Problem management | 1: riittävät palvelut valvontaan ja hallintaan | 2: itsenäisyys, luottamus | 3: ongelmien ratkaisuaika, viestintä ongelmasta AYFille | Pystyykö PT suoriutumaan itsenäisesti ongelmatilanteista vai tarvitaanko IRM:ää apuun? Onnistuuko tämä sovitussa ajassa? Tiedotetaanko ongelmasta tarpeeksi IRM:lle? Ovatko valvonta- ja hallintajärjestelmät luottamusta herättäviä? |
| Communications: performance measure, reports | 1: tiedon luotettavuus, olennaisuus, tarkkuus, ajankohtaisuus, täydellisyys | 2: yhteydenpito | | Antaako PT riittävästi ajantasaista ja yksityiskohtaista tietoa palvelimista ja järjestelmistä sekä niiden toiminnasta? |
| **LAN-services** | | | **3: palvelujen saatavuus** | |
| Fault management | | 2: itsenäisyys | 3: palautumisaika vikatilanteesta | Selviytyykö PT itsenäisesti vikatilanteista vai tarvitaanko IRM:ää apuun? Raportoidaanko vikatilanteista IRM:lle riittävästi itsenäisesti? |
| Routing and cross-connection | 1: yhteistyökyky, tietämys | 2: itsenäisyys | | Osaako PT hoitaa reitityksen ja olla tarvittaessa yhteydessä tietoliikennepalveluntarjoajaan? |
| Management, backup | 1: tietämys toiminnoista | 2: itsenäisyys, yhteistyön toimivuus, luottamus | 3: verkon toiminta-aika | Onko PT:llä varalaitevarasto, jonka sisältöön voi luottaa? Onko varmistusjärjestelmä asianmukainen? Riittääkö PT:n tietämys asioiden hoitamiseen? |
| Active equipment | | 2: itsenäisyys | 3: aktiivilaitteiden toiminta-aika | Herättääkö aktiivilaitteiden valvontajärjestelmä luottamusta? Hoitaako PT itsenäisesti hallinnan? |
| Reporting, maintaining documentation | 1: tietämys, dokumentaation tarkkuus, ajantasaisuus, täydellisyys | 2: yhteistyön toimivuus | | Onko verkosta olemassa ajantasainen ja riittävä dokumentaatio? Raportoidaanko verkon toiminnasta säännöllisesti ja onko raportissa toivottuja asioita? |
| **Service manager** | 1: tiedon kulku, tietämys (myös liiketoimintatiedon hyödyntäminen) | 2: yhteistyön parantaminen, sopimuksen noudattamisen valvominen | | |
| Management of service provider | | 2: yhteistyön toimivuus, tehtävien toimittaminen ja priorisointi | | Selviytyykö PT itsenäisesti päivittäisten asioiden hoitamisesta? Priorisoidaanko tehtäviä oikein? Noudatetaanko sopimusta? |
| Agreements with AYFi | 1: tiedon luotettavuus, olennaisuus, tarkkuus, ajankohtaisuus, täydellisyys | 2: yhteistyön toimivuus | | Onko sopimusten solmiminen tarpeeksi yksinkertaista? Saadaanko sopimus helposti aikaan? |

| | 1: user management satisfaction (satisfaction) | 2: outcomes compared to objectives (expectations and their realisation) | 3: service levels (performance) | GAP5: expected and perceived service |
|---|---|---|---|---|
| **General** | | | | |
| Support | 1: ratkaisujen laatu | | 3: suorituskyky, loppuun seuraaminen | Mitä IRM odottaa tuelta? (Esim. PT seuraa ongelmia niiden ratkaisuun asti ja informoi etenemisestä) Saavatko IRM:n yhteistyökumppanit riittävästi tukea PT:ltä? |
| Co-operation with other suppliers | 1: ostajalle näkymätön yhteistoiminta | 2: itsenäisyys, yhteistyön sujuvuus muiden kanssa | | Tarvitseeko PT:a auttaa selviämään yhteistyöstä muiden palveluntarjoajien kanssa? Vai onnistuuko toiminta ilman IRM:n apua? Valvooko IRM tarpeettomasti PT:a? Odotetaanko PT:n toimivan itsenäisesti? |
| Access rights (systems, network) | 1: oikeuksien paikkansapitävyys, kaikilla oikeat oikeudet | | 3: oikeuksien antamisen ja poistamisen nopeus | Muutetaanko oikeudet sovitussa ajassa? Toimiiko oikeuksien keskitetty jakaminen PT:n kautta? Onko tilanteita, joissa henkilölle on annettu väärin oikeudet tai oikeuksia ei ole poistettu? |
| Property management | 1: rekisterien tarkkuus | 2: rekisterien paikkansapitävyys | | Hoitaako PT hyvin omaisuuskirjanpitoa ja asennusrekisteriä? Ovatko ne ajan tasalla ja riittävän tarkkoja? |
| Procurement | 1: tietämys hankittavista laitteista ja olemassaolevasta teknologiasta | 2: yhteistyön toimivuus, luottamus | | Saako PT:ltä riittävästi tietoa ja tukea laitteita hankittaessa? Millaista tukea tarvitaan? |
| Standards for IT environment | | 2: kustannustehokkaat ja sopivat ehdotukset (tietämys ympäristöstä) | | Onko IT-ympäristö kustannustehokas ja AYFin tarpeita vastaava? Mistä se tiedetään? |
| Communications to end users | 1: ohjeistuksen riittävyys, laadukkuus (olennaisuus, tarkkuus, ajantasaisuus) | 2: suhde loppukäyttäjiin | | Tekeekö PT ohjeita loppukäyttäjille myös itsenäisesti tarpeen vaatiessa? Pitäisikö näin olla vai olisiko jotakin parannettavaa? |
| Training, indicating the need | 1: tarpeiden olennaisuus, tarkkuus, ajankohtaisuus | | | Tuoko PT ilmi tarvetta kouluttaa käyttäjiä jossakin tietyissä asioissa? |
| Reporting: user satisfaction, service levels | 1: tiedon luotettavuus, olennaisuus, tarkkuus, ajankohtaisuus, täydellisyys | 2: riittävä yhteydenpito | | Saadaanko PT:ltä riittävästi tietoa IT-ympäristön tapahtumista? Onko tämä tieto luotettavaa, tarpeeksi tarkkaa, yksityiskohtaista ja kattavaa? Tarvitsisiko PT:n olla enemmän tai monipuolisemmin yhteydessä IRM:ään? |
| Management of service provider | 1: palvelukäsikirjan luotettavuus, tarkkuus, ajantasaisuus, riittävyys | 2: itsenäisyys, yhteistyön toimivuus | | Onko PT:llä ajantasainen ja riittävä palvelukäsikirja? Toimiiko PT tarpeeksi itsenäisesti? Tarvitaanko IRM:n apua tarpeettomasti tai liikaa? Missä asioissa PT:n tarvitsee tukeutua IRM:ään? Mistä aiheesta saat eniten yhteydenottoja PT:ltä? |

| | 1: user management satisfaction (satisfaction) | 2: outcomes compared to objectives (expectations and their realisation) | 3: service levels (performance) | GAP5: expected and perceived service |
|---|---|---|---|---|
| Development plan (IT environment) | 1: tietämys, kehityssuunnitelman luotettavuus, tarkkuus, ajantasaisuus | 2: tiedottaminen kehityssuunnitelmasta | | Onko kehityssuunnitelma tehty PT:n avulla ja saatu siitä käyttökelpoinen? Onko PT kokonaisuutena tietoinen kehityssuunnitelmista ja toimii sen mukaisesti? |
| Removal | 1: yhteistyökyky | 2: luottamus | | Sujuuko laitteiden poisto yhteistyökumppanien kanssa ilman IRM:n tukea? |
| Development, ideas | 1: tiedon luotettavuus, olennaisuus, tarkkuus, ajankohtaisuus, täydellisyys | | | Antaako PT kehitysajatuksia, tulisiko sen niin tehdä? Ovatko ideat täytääntöönpanokelpoisia? Mitä voisi vielä ulkoistaa tai toimintaa kehittää? |
| Communications to IRM | 1: tiedon saatavuus | 2: yhteistyön toimivuus | | Saatko PT:ltä riittävästi tietoa PT:n toiminnasta, päivittäisistä tapahtumista, menestymisestä pitkällä aikavälillä? Mistä kaipaisit enemmän tietoa? Onko PT tarpeeksi aktiivisesti yhteydessä IRM:ään ja minkälaisissa asioissa? Onko yhteyshenkilö riittävä kontakti asioiden selvittämiseen? |

# C Interview questions

Mikä on tietohallinnon tehtävä AY:ssä? Mitä siltä odotetaan ja mitkä ovat sen tärkeimmät toiminnot? (Miten se on muuttunut ja muuttuu tulevaisuudessa? Miten IT:tä voitaisiin vielä käyttää hyödyttämään yritystä? Kuinka suuri osa IT:stä on ulkoistettu: raha, palvelujen määrä, henkilöt)

Mitkä ovat olleet ulkoistamisen tavoitteet? Onko ne saavutettu? Ovatko ne muuttuneet matkan varrella ja miten?

**Työasemapalvelut**

Helpdeskin tukipalvelun vaatimien yhteystietojen hallinnointi:

- Osaako PT yhdistää tuen tarvitsijan oikealle henkilölle?
- Annetaanko PT:lle riittävästi tietoa yhteystiedoista?
  - esim. reitityskohteista (Mars, Safran)
- Leviääkö tieto riittävästi PT:n sisällä?

Konfiguraatioiden (SW, HW) hallinnointi ja ylläpito

- Ovatko konfiguraatiomääritykset ajan tasalla?
- Onko konfiguraatiot levitetty kaikkiin tarvittaviin koneisiin?
- Seurataanko konfiguraatioita koneissa säännöllisesti?

Työasemien asennus ja toimittaminen loppukäyttäjille

- Tapahtuuko asennus ja toimitus sovitussa ajassa?
- Huolehditaanko loppukäyttäjän opastamisesta riittävästi?
- Sujuuko loppukäyttäjän kanssa asiointi miellyttävästi?

Työasemien tietoturva

- Ovatko työasemat tietoturvallisia?
- Ymmärtääkö PT tietoturvavaatimukset?
- Miten PT:aa voitaisiin hyödyntää tietoturvan tason parantamiseksi?
- Onko PT ajan tasalla tietoturvauhista?
- Onko PT halukas edistämään tietoturvaa?

Onko jotakin ulkoistettu, mutta ulkoistus ei ole toteutunut käytännön tasolla?

- esim. neuvotteluhuoneiden tekninen PC-varustus

Kuinka paljon palvelujen toimittamiseksi tarvitsee tehdä yhteistyötä AY:n kanssa? (Pystyvätkö tekemään itsenäisesti vain alkuopastuksella vai tarvitaanko jatkuvasti AY:n panosta?)

Kuinka tarkasti (teknisesti) IT-tarpeet osataan kuvata PT:lle?

Onko palvelujen sisällöillä muutoksenhallintaa? (Millainen, missä kuvattu, hyväksyjät, proseduuri, viestintä osapuolten kesken?)

Mitkä palvelut ovat kilpailuetua antavia? Mikä ovat välttämättömiä toiminnalle, mitkä mukavuustekijöitä?

Miten työasemapalvelujen ulkoistus on onnistunut? Oliko ulkoistus vaikeaa? Mitä voitaisiin vielä parantaa? (Milloin palvelu tuli IT:n vastuulle, milloin ulkoistettu, miten päätettiin ulkoistaa - oliko arviointia, onko sopiva ulkoistettavaksi?)

**Infra ja palvelimet**

Hallinnointi: valvonta, toimenpiteet

- Seurataanko palvelinten toimintaa riittävästi ja tehokkaasti?
- Suoritetaanko palvelimille tehtävät toimenpiteet tarpeeksi nopeasti ja virheettömästi?
- Toimivatko järjestelmät riittävän vakaasti? Miten vakautta mitataan?
- Tietääkö PT riittävästi järjestelmistä huolehtiakseen niistä itsenäisesti? Tarvitaanko apua AY:lta?

Tietoturva ja ongelmien havaitseminen

- Seuraako PT tietoturvatiedotteita?
- Toimiiko se niiden mukaisesti?
- Etsiikö PT itsenäisesti tietoturvaongelmia?
- Kertooko PT näistä riittävissä määrin AY:lle?

Varmistus, palautus ja palautussuunnitelma

- Onko varmistusjärjestelmä luotettava ja toimiva? (vrt. exchange-palvelimen kaatuminen)
- Voiko palautuksen ja elpymisen onnistumiseen luottaa? Esimerkkejä?
- Onko palautussuunnitelma luottamusta herättävä eli riittävä palautuksen ja elpymisen suorittamiseen?

Ongelmanhallinta

- Pystyykö PT suoriutumaan itsenäisesti ongelmatilanteissa vai tarvitaanko apua AY:ltä?
- Onnistuuko ongelmatilanteiden ratkaiseminen sovitussa ajassa?
- Tiedotetaanko ongelmista tarpeeksi AY:lle?
- Ovatko valvonta- ja hallintajärjestelmät luottamusta herättäviä?

Tietoliikenne: suorituskyvyn mittaaminen ja raportointi

- Antaako PT riittävästi ajantasaista ja yksityiskohtaista tietoa palvelimista ja järjestelmistä sekä niiden toiminnasta?
- ...lähiverkon komponenteista ja liittymäpinnoista yhtiöverkkoon (WAN)

Onko jotakin ulkoistettu, mutta ulkoistus ei ole toteutunut käytännön tasolla?

Kuinka paljon palvelujen toimittamiseksi tarvitsee tehdä yhteistyötä AY:n kanssa? (Pystyvätkö tekemään itsenäisesti vain alkuopastuksella vai tarvitaanko jatkuvasti AY:n panosta?)

Kuinka tarkasti (teknisesti) IT-tarpeet osataan kuvata PT:lle?

Onko palvelujen sisällöillä muutoksenhallintaa? (Millainen, missä kuvattu, hyväksyjät, proseduuri, viestintä osapuolten kesken?)

Mitkä palvelut ovat kilpailuetua antavia? Mikä ovat välttämättömiä toiminnalle, mitkä mukavuustekijöitä?

Miten infran ja palvelimien ulkoistus on onnistunut? Oliko ulkoistus vaikeaa? Mitä voitaisiin vielä parantaa? (Milloin palvelu tuli IT:n vastuulle, milloin ulkoistettu, miten päätettiin ulkoistaa - oliko arviointia, onko sopiva ulkoistettavaksi?)

**LAN-palvelut**

Vikatilanteiden hallinta

- Selviytyykö PT itsenäisesti vikatilanteista vai tarvitaanko apua AY:ltä?
- Raportoidaanko vikatilanteista AY:lle riittävästi itsenäisesti?

Reititys ja ristiinkytkennät

- Osaako PT hoitaa reitityksen ja olla tarvittaessa yhteydessä tietoliikennepalveluntarjoajaan?
- Onko prosessit kuvattu? (Kuka kuvannut, missä ovat?)

Hallinnointi, varmistus

- Onko PT:llä varalaitevarasto, jonka sisältöön voi luottaa?
- Onko varmistusjärjestelmä asianmukainen?
- Riittääkö PT:n tietämys asioiden hoitamiseen?
- Miten rajapinta LANin (Fujitsu) ja WANin (Elisa) välillä toimii?
  - Sujuuko näiden kahden PT:n välinen toiminta?

Aktiivilaitteet

- Herättääkö aktiivilaitteiden valvontajärjestelmä luottamusta?
- Hoitaako PT itsenäisesti hallinnan?

Onko jotakin ulkoistettu, mutta ulkoistus ei ole toteutunut käytännön tasolla?

- esim. rakennusverkkojen seuranta

Kuinka paljon palvelujen toimittamiseksi tarvitsee tehdä yhteistyötä AY:n kanssa? (Pystyvätkö tekemään itsenäisesti vain alkuopastuksella vai tarvitaanko jatkuvasti AY:n panosta?)

Kuinka tarkasti (teknisesti) IT-tarpeet osataan kuvata PT:lle?

Onko palvelujen sisällöillä muutoksenhallintaa? (Millainen, missä kuvattu, hyväksyjät, proseduuri, viestintä osapuolten kesken?)

Mitkä palvelut ovat kilpailuetua antavia? Mikä ovat välttämättömiä toiminnalle, mitkä mukavuustekijöitä?

Miten LAN-palvelujen ulkoistus on onnistunut? Oliko ulkoistus vaikeaa? Mitä voitaisiin vielä parantaa? (Milloin palvelu tuli IT:n vastuulle, milloin ulkoistettu, miten päätettiin ulkoistaa - oliko arviointia, onko sopiva ulkoistettavaksi?)

**Palvelupäällikkö**

PT:n johtaminen

- Selviytyykö PT itsenäisesti päivittäisten asioiden hoitamisesta?
  - sujuuko tehtävien ja vastuiden jakaminen eteenpäin ratkaisuun asti, viestintä
- Priorisoidaanko tehtäviä oikein?
- Noudatetaanko sopimusta?
- Oletko lukenut sopimuksen?

Sopimukset

- Onko sopimusten solmiminen tarpeeksi yksinkertaista?
- Onko muutoksenhallinta huomioitu sopimuksessa? Onko proseduuri muutoksenhallinnalle?
- Saadaanko sopimus helposti aikaan?
- Onko paljon suullisia sopimuksia? Miksi?

**Yleistä**

Tuki

- Mitä odotat PT:n tuelta eli missä asioissa PT:n pitäisi antaa AY:lle tukea? Miten nämä odotukset toteutuvat? Ymmärtääkö PT nämä vaatimukset?
  - Muutkin kuin loppukäyttäjät: muut palveluntarjoajat, järjestelmäntoimittajat, pääkäyttäjät
  - Esim. tietoteknisen kehityksen seuranta, tekninen tuki,
  - Pitäisikö PT:n esimerkiksi seurata ongelmia niiden ratkaisuun asti ja informoida etenemisestä?
- Saavatko AY:n yhteistyökumppanit riittävästi tukea PT:lta? (Missä rajapinta tuen antamisessa?)

Yhteistyö toisten palveluntarjoajien kanssa

- Tarvitseeko PT:aa auttaa selviämään yhteistyöstä muiden palveluntarjoajien kanssa?
- Vai onnistuuko toiminta ilman AY:n apua?
- Valvooko AY (tarpeettomasti) PT:aa?
- Odotetaanko PT:n toimivan itsenäisesti? Missä tilanteissa PT:n tulee ottaa yhteyttä?
- Onko näitä yhteystarpeita kuvattu? Missä? => Muutoksenhallinta huomioitu?

Käyttäjäoikeudet järjestelmiin ja verkkoon

- Muutetaanko ja annetaanko oikeudet sovitussa ajassa?
- Toimiiko oikeuksien keskitetty jakaminen PT:n kautta? Missä tilanteissa näin ei tehdä?
- Onko tilanteita, joissa henkilölle on annettu väärin oikeudet tai oikeuksia ei ole poistettu?
  - Missä on prosessin kuvaus?

Omaisuudenhallinta

- Hoitaako PT hyvin omaisuuskirjanpitoa ja asennusrekisteriä? (Asseri)
- Ovatko ne ajan tasalla ja riittävän tarkkoja?
- Onko lisenssien hallinnasta olemassa kuvausta? Miten eri osapuolien välinen yhteistyö sujuu?

Hankinta

- Saako AY riittävästi tietoa ja tukea PT:lta laitteita hankittaessa?
  - Missä hankinnat päätetään? Vastuunjako, kuvaukset?
- Millaista tukea erityisesti tarvitaan?

IT-ympäristön standardit

- Onko IT-ympäristölle luotu standardeja? Noudatetaanko niitä?
- Onko IT-ympäristö kustannustehokas? Mistä se tiedetään?
- Vastaako se AY:tarpeita? Mistä se tiedetään?

Yhteydenpito loppukäyttäjiin

- Tekeekö PT ohjeita loppukäyttäjille myös itsenäisesti tarpeen vaatiessa? (Miksi ei tee?)
- Pitäisikö näin olla vai olisiko jotakin parannettavaa?

Koulutus ja sen tarpeesta kertominen

- Tuoko PT ilmi tarvetta kouluttaa käyttäjiä joissakin tietyissä asioissa? Kuinka usein, missä asioissa?
- Seuraako PT tavanomaisia ongelmatilanteita ja raportoi niistä asiakkaalle asioiden korjaamiseksi?

Raportointi: käyttäjätyytyväisyys, palvelutasot

- Saadaanko PT:ltä riittävästi tietoa IT-ympäristön tapahtumista?
- Onko tämä tieto luotettavaa?
- ...tarpeeksi tarkkaa?
- ...yksityiskohtaista?
- ...kattavaa?
- ...sellaista, että siitä saadaan ehdotuksia korjaaviksi toimenpiteiksi?
- Tarvitsisiko PT:n olla enemmän tai monipuolisemmin yhteydessä AY:hin?
- Ovatko oikeat tahot AY:llä yhteydessä PT:aan?

Palveluntarjoajajan hallinto

- Onko PT:lla ajantasainen ja riittävä palvelukäsikirja? Missä? Onko asiakkaan saatavilla?
  - palveluntarjoajan työntekijöiden vaihtuvuus ja uusien kouluttaminen
- Toimiiko PT tarpeeksi itsenäisesti?
- Tarvitaanko AY:n apua tarpeettomasti tai liikaa?
- Missä asioissa PT:n tarvitsee tukeutua AY:hin?
- Mistä aiheesta saat eniten yhteydenottoja PT:lta?

IT-ympäristön kehityssuunnitelma

- Onko kehityssuunnitelma olemassa tai keskustellaanko aiheesta?
  - Missä laaditaan suunnitelma tulevaisuuteen varautumisesta?
- Onko kehityssuunnitelma tehty PT:n avulla?
- Onko se käyttökelponen?
- Onko PT kokonaisuutena tietoinen kehityssuunnitelmasta ja toimii sen mukaisesti?

Poisto

- Sujuuko laitteiden poisto yhteistyökumppanien kanssa ilman AY:n tukea?
- Tehdäänkö poistomerkinnät rekistereihin asianmukaisesti?

Yhteydenpito AY:hyn

- Saatko PT:ltä riittävästi tietoa PT:n toiminnasta?
- ...päivittäisistä tapahtumista?
- ...menestymisestä pitkällä aikavälillä (esim. SLA)? (Pitäisikö olla sanktioita?)
- Mistä kaipaisit enemmän tietoa?
- Onko PT tarpeeksi aktiivisesti yhteydessä AY:hyn?
- Minkälaisissa asioissa PT on yhteydessä AY:hyn?
- Onko yhteyshenkilö riittävä kontakti asioiden selvittämiseen?
- Millainen on AY:n ja PT:n suhde? Minkälaisia ongelmia on erityisesti? Miten suhde saataisiin toimimaan paremmin?

Yhteydenpito PT:aan

- Miten AY (IT) voi antaa palautetta PT:lle? Entä loppukäyttäjä?
- Onnistuuko yhteyden saaminen PT:aan riittävän nopeasti ja helposti?
  - Reagoiko PT riittävän nopeasti yhteydenoton jälkeen (paikalle tuleminen, asian korjaaminen)

Kehitysideat

- Antaako PT kehitysajatuksia? Tulisiko sen tehdä niin?
- Ovatko ajatukset täytäntöönpanokelpoisia?
- Seurataanko kehitysajatuksia ja niiden toteuttamista?
- Saadaanko PT:n ehdotuksista kustannus- tai prosessietuja?
- Ymmärtääkö PT riittävästi AY:n liiketoimintaa realistisia ehdotuksia tehdäkseen?
- Mitä voisi vielä ulkoistaa?
- Onko jotain, mitä ei olisi pitänyt ulkoistaa? Karkaako olennainen tietämys yrityksestä?
- Pitäisikö jotakin siis sisäistää?
- Onko joitakin muita ulkoistamiseen liittyviä ongelmia?

Onko jotakin ulkoistettu, mutta ulkoistus ei ole toteutunut käytännön tasolla?

Onko jotakin merkittäviä palveluntarjoajan tehtäviä, joita tässä ei ole tullut vielä esille?

Onko PT:n toiminta ITIL-käytäntöjen ja ISO20000-standardin mukaista? Entä AY:n? Entä yhdessä?

# D SERVQUAL

Formulas and the English questionnaire are quoted from Zeithaml et al. (1990). The Finnish translation of the questionnaire is made by the author and used in the study.

SERVQUAL score = Perception Score – Expectation Score

Average SERVQUAL score, N customers

1. For each customer, add the SERVQUAL scores on the statements pertaining to the dimension and divide the sum by the number of statements making up the dimension.

2. Add the quantity obtained in step 1 across all N customers and divide the total by N.

Overall weighted SERVQUAL score

1. For each customer, compute the average SERVQUAL score for each of the five dimensions.

2. For each customer, multiply the SERVQUAL score for each dimension (obtained in step 1) by the importance weight assigned by the customer to that dimension (the importance weight is the points the customer allocated to the dimension divided by 100).

3. For each customer, add the weighted SERVQUAL scores (obtained in step 2) across all five dimensions to obtain a combined weighted SERVQUAL score.

4. Add the scores obtained in step 3 across all N customers and divide the total by N.

Based on your experiences as a consumer of ____ services, please think about the kind of ____ company that would deliver excellent quality of service. Think about the kind of ____ company with which you would be pleased to do business. Please show the extent to which you think such a ____ company would possess the feature described by each statement. If you feel a feature is not at all essential for excellent ____ companies such as the one you have in mind, circle the number 1. If you feel a feature is absolutely essential for excellent ____ companies, circle 7. If your feelings are less strong, circle one of the numbers in the middle. There are no right or wrong answers - all we are interested in is a number that truly reflects your feelings regarding companies that would deliver excellent quality of service.

| | strongly disagree | | | | | | strongly agree |
|---|---|---|---|---|---|---|---|
| 1. Excellent ____ companies will have modern-looking equipment. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. The physical facilities at excellent ____ companies will be visually appealing | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. Employees at excellent ____ companies will be neat-appearing. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. Materials associated with the service (such as pamphlets or statements) will be visually appealing in an excellent ____ company. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. When excellent ____ companies promise to do something by a certain time, they will do so. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 6. When a customer has a problem, excellent ____ companies will show a sincere interest in solving it. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 7. Excellent ____ companies will perform the service right the first time. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8. Excellent ____ companies will provide their services at the time they promise to do so. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 9. Excellent ____ companies will insist on error-free records. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 10. Employees in excellent ____ companies will tell customers exactly when services will be performed. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 11. Employees in excellent ____ companies will give prompt service to customers. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 12. Employees in excellent ____ companies will always be willing to help customers. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 13. Employees in excellent ____ companies will never be too busy to respond to customers' requests. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 14. The behavior of employees in excellent ____companies will instill confidence in customers. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 15. Customers of excellent ____ companies will feel safe in their transactions. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 16. Employees in excellent ____ companies will be consistently courteous with customers. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 17. Employees in excellent ____ companies will have the knowledge to answer customers' questions. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 18. Excellent ____ companies will give customers individual attention. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 19. Excellent ____ companies will have operating hours convenient to all their customers. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 20. Excellent ____ companies will have employees who give customers personal attention. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 21. Excellent ____ companies will have the customer's best interests at heart. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 22. The employees of excellent ____ companies will understand the specific needs of their customers. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Listed below are five features pertaining to ____ companies and the services they offer. We would like to know how important each of these features is to you when you evaluate a ____ company's quality of service. Please allocate a total of 100 points among the five features according to how important each feature is to you - the more important a feature is to you, the more points you should allocate to it. Please ensure that the points you allocate to the five features add up to 100.

| | |
|---|---|
| 1. The appearance of the ____ company's physical facilities, equipment, personnel, and communication materials | _____ p. |
| 2. The ____ company's ability to perform the promised service dependably and accurately | _____ p. |
| 3. The ____ company's willingness to help customers and provide prompt service | _____ p. |
| 4. The knowledge and courtesy of the ____ company's employees and their ability to convey trust and confidence | _____ p. |
| 5. The caring, individualized attention the ____ company provides its customers | _____ p. |
| Total | 100 p. |

Which one feature among the above five is most important to you? No _____
Which feature is second most important to you? No _____
Which feature is least important to you? No _____

The following set of statements relate to you feelings about XYZ Company. For each statement, please show the extent to which you believe XYZ Company has the feature described by the statement. Once again, circling a 1 means that you strongly disagree that XYZ Company has that feature, and circling a 7 means that you strongly agree. You may circle any of the numbers in the middle that show how strong your feelings are. There are no right or wrong answers - all we are interested in is a number that best shows your perceptions about XYZ Company.

| | strongly disagree | | | | | | strongly agree |
|---|---|---|---|---|---|---|---|
| 1. XYZ Company has modern-looking equipment. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. XYZ Company's physical facilities are visually appealing. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. XYZ Company's employees are neat-appearing. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. Materials associated with the service (such as pamphlets or statements) are visually appealing at XYZ Company. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. When XYZ Company promises to do something by a certain time, it will do so. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 6. When you have a problem, XYZ Company shows a sincere interest in solving it. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 7. XYZ Company performs the service right the first time. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8. XYZ Company provides its services at the time it promises to do so. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 9. XYZ Company insists on error-free records. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 10. Employees in XYZ Company tell you exactly when services will be performed. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 11. Employees in XYZ Company give you prompt service. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 12. Employees in XYZ Company are always willing to help you. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 13. Employees in XYZ Company are never too busy to respond to your requests. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 14. The behavior of employees in XYZ Company instill confidence in you. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 15. You feel safe in your transactions with XYZ Company. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 16. Employees in XYZ Company are consistently courteous with you. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 17. Employees in XYZ Company have the knowledge to answer your questions. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 18. XYZ Company gives you individual attention | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 19. XYZ Company has operating hours convenient to all its customers | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 20. XYZ Company has employees who give you personal attention. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 21. XYZ Company has your best interests at heart. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 22. Employees of XYZ Company understand your specific needs. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Ajattele omien IT-ulkoistuskokemuksiesi pohjalta **erinomaista** IT-palveluja tarjoavaa yritystä. Ajattele IT-palveluntarjoajaa. jonka kanssa toimisit mielelläsi. Määrittele, missä määrin tällaisella IT-palveluntarjoajalla on alla kuvattuja ominaisuuksia. Jos ominaisuus **ei mielestäsi ole lainkaan tärkeä** kuvittelemallesi erinomaiselle IT-palveluntarjoajalle, ympyröi **numero 1**. Jos mielestäsi ominaisuus on **ehdottoman tärkeä** erinomaiselle IT-palveluntarjoajalle, ympyröi **numero 7**. Jos mielipiteesi eivät ole näin voimakkaita, ympyröi jokin välissä olevista numeroista. Ei ole oikeita eikä vääriä vastauksia - olen kiinnostunut vain numerosta, joka todella heijastaa tuntemuksiasi erinomaista palvelua tarjoavasta yrityksestä.

| | ei lainkaan tärkeä | | | | | | ehdottoman tärkeä |
|---|---|---|---|---|---|---|---|
| 1. Erinomaisten IT-palveluntarjoajien laitteet ja välineet ovat nykyaikaisen näköisiä. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. Erinomaisten IT-palveluntarjoajien sisustus on visuaalisesti miellyttävä. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. Erinomaisten IT-palveluntarjoajien työntekijät ovat ulkonäöltään huoliteltuja. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. Erinomaisilla IT-palveluntarjoajilla palveluun liittyvät materiaalit, kuten esitteet ja tiedotteet, ovat visuaalisesti miellyttäviä. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. Kun erinomaiset IT-palveluntarjoajat lupaavat tehdä jotakin tiettyyn aikaan mennessä, niin myös tapahtuu. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 6. Kun asiakkaalla on ongelma, erinomaiset IT-palveluntarjoajat ovat aidosti kiinnostuneita sen ratkaisemisesta. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 7. Erinomaiset IT-palveluntarjoajat tekevät työn ensimmäisellä kerralla kunnolla. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8. Erinomaisten IT-palveluntarjoajien aikataulut pitävät. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 9. Erinomaiset IT-palveluntarjoajat pyrkivät virheettömyyteen. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 10. Erinomaisten IT-palveluntarjoajien työntekijät kertovat asiakkaille, milloin tarkalleen palvelut suoritetaan. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 11. Erinomaisten IT-palveluntarjoajien työntekijät antavat asiakkaille pikaista palvelua. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 12. Erinomaisten IT-palveluntarjoajien työntekijät ovat aina halukkaita auttamaan asiakkaita. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 13. Erinomaisten IT-palveluntarjoajien työntekijät eivät koskaan ole liian kiireisiä vastatakseen asiakkaiden toivomuksiin. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 14. Erinomaisten IT-palveluntarjoajien työntekijöiden käyttäytyminen herättää asiakkaissa luottamusta. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 15. Erinomaisten IT-palveluntarjoajien asiakkaat tuntevat olonsa turvalliseksi asioidessaan IT-palveluntarjoajan kanssa. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 16. Erinomaisten IT-palveluntarjoajien työntekijät ovat kautta linjan hienotunteisia asiakkaita kohtaan. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 17. Erinomaisten IT-palveluntarjoajien työntekijöillä on riittävä tietämys asiakkaiden kysymyksiin vastaamiseksi. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 18. Erinomaiset IT-palveluntarjoajat huomioivat asiakkaat yksilöllisesti. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 19. Erinomaisten IT-palveluntarjoajien palveluajat sopivat kaikille heidän asiakkailleen. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 20. Erinomaisilla IT-palveluntarjoajilla on työntekijöitä, jotka huomioivat asiakkaat henkilökohtaisesti. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 21. Erinomaisten IT-palveluntarjoajien sydämenasiana on asiakkaan etu. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 22. Erinomaisten IT-palveluntarjoajien työntekijät ymmärtävät asiakkaidensa erityisiä tarpeita. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Alla on lueteltu viisi ominaisuutta, jotka koskevat IT-palveluntarjoajia ja näiden tarjoamia palveluta. Tahtoisin tietää, kuinka tärkeä kukin näistä ominaisuuksista on sinulle, kun arvioit IT-palveluntarjoajan tarjoamien palvelujen laatua. Jaa yhteensä 100 pistettä näiden viiden ominaisuuden kesken sen mukaan, kuinka tärkeä kukin ominaisuus on sinulle. Mitä tärkeämpi ominaisuus on sinulle, anna sitä enemmän pisteitä sille. Varmista vielä, että antamiesi pisteiden summa on sata.

| | |
|---|---|
| 1. IT-palveluntarjoajan sisustuksen, välineiden, henkilöstön ja viestintämateriaalin ulkoasu | _____ p. |
| 2. IT-palveluntarjoajan kyky suorittaa luvattu palvelu luotettavasti ja tarkasti | _____ p. |
| 3. IT-palveluntarjoajan halukkuus auttaa asiakkaita ja tarjota pikaista palvelua | _____ p. |
| 4. IT-palveluntarjoajan työntekijöiden osaaminen, huomaavaisuus ja heidän kykynsä herättää luottamusta | _____ p. |
| 5. IT-palveluntarjoajan asiakkailleen osoittama yksilöity huomio ja huolenpito | _____ p. |
| Yht. | 100 p. |

Mikä yllä olevista ominaisuuksista on sinulle tärkein? Nro _____
Mikä ominaisuuksista on toiseksi tärkein sinulle? Nro _____
Mikä ominaisuuksista on sinulle vähiten tärkeä? Nro _____

Seuraavat väittämät liittyvät tuntemuksiisi Fujitsu Servicesta (jatkossa Fujitsu). Määrittele, missä määrin koet väittämän kuvaavan Fujitsua. **Numeron 1** ympyröiminen tarkoittaa, että olet **täysin eri mieltä** väittämän osuvuudesta, ja **numeron 7** ympyröiminen tarkoittaa, että olet **täysin samaa mieltä**. Voit ympyröidä minkä tahansa välissä olevista numeroista kuvataksesi tunteidesi vahvuutta. Jos et osaa vastata, jätä kohta tyhjäksi.

| | täysin eri mieltä | | | | | | täysin samaa mieltä |
|---|---|---|---|---|---|---|---|
| 1. Fujitsun laitteet ja välineet ovat nykyaikaisen näköisiä. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. Fujitsun sisustus on visuaalisesti miellyttävä. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. Fujitsun työntekijät ovat ulkonäöltään huoliteltuja. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. Fujitsun palveluun liittyvät materiaalit, kuten esitteet ja tiedotteet, ovat visuaalisesti miellyttäviä. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. Kun Fujitsu lupaa tehdä jotakin tiettyyn aikaan mennessä, niin myös tapahtuu. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 6. Kun sinulla on ongelma, Fujitsun työntekijät ovat aidosti kiinnostuneita sen ratkaisemisesta. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 7. Fujitsu tekee työn ensimmäisellä kerralla kunnolla. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8. Fujitsun aikataulut pitävät. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 9. Fujitsu pyrkii virheettömyyteen. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 10. Fujitsun työntekijät kertovat sinulle, milloin tarkalleen palvelut suoritetaan. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 11. Fujitsun työntekijät antavat sinulle pikaista palvelua. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 12. Fujitsun työntekijät ovat aina halukkaita auttamaan sinua. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 13. Fujitsun työntekijät eivät koskaan ole liian kiireisiä vastatakseen toivomuksiisi. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 14. Fujitsun työntekijöiden käyttäytyminen herättää sinussa luottamusta. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 15. Tunnet olosi turvalliseksi asioidessasi Fujitsun kanssa. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 16. Fujitsun työntekijät ovat kautta linjan hienotunteisia sinua kohtaan. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 17. Fujitsun työntekijöillä on riittävä tietämys sinun kysymyksiisi vastaamiseksi. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 18. Fujitsu huomioi sinut yksilöllisesti. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 19. Fujitsun palveluajat sopivat kaikille heidän asiakkailleen. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 20. Fujitsulla on työntekijöitä, jotka huomioivat sinut henkilökohtaisesti. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 21. Fujitsun sydämenasiana on sinun etusi. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 22. Fujitsun työntekijät ymmärtävät sinun erityisiä tarpeitasi. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

# E SERVQUAL results

**Expectation score (excellent IT service provider)**

| dim. | No. | R1 | R2 | R3 | R4 | R5 | R6 | R7 | R8 | variance | average | dim. variance | dim. average |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| tangibles | 1 | 5 | 2 | 2 | 6 | 4 | 7 | 3 | 3 | 3.43 | 4.00 | 0.98 | 4.38 |
| | 2 | 4 | 3 | 3 | 4 | 5 | 5 | 4 | 3 | 0.70 | 3.88 | | |
| | 3 | 5 | 4 | 2 | 6 | 5 | 6 | 4 | 4 | 1.71 | 4.50 | | |
| | 4 | 6 | 5 | 4 | 3 | 5 | 6 | 5 | 7 | 1.55 | 5.13 | | |
| reliability | 5 | 7 | 7 | 7 | 7 | 6 | 7 | 7 | 7 | 0.13 | 6.88 | 0.14 | 6.60 |
| | 6 | 6 | 7 | 5 | 7 | 7 | 6 | 7 | 7 | 0.57 | 6.50 | | |
| | 7 | 7 | 7 | 7 | 7 | 5 | 7 | 7 | 7 | 0.50 | 6.75 | | |
| | 8 | 7 | 7 | 7 | 7 | 6 | 7 | 6 | 7 | 0.21 | 6.75 | | |
| | 9 | 6 | 7 | 7 | 5 | 5 | 6 | 6 | 7 | 0.70 | 6.13 | | |
| responsiveness | 10 | 5 | 6 | 6 | 7 | 7 | 6 | 6 | 7 | 0.50 | 6.25 | 0.25 | 6.06 |
| | 11 | 5 | 6 | 5 | 7 | 3 | 6 | 7 | 6 | 1.70 | 5.63 | | |
| | 12 | 6 | 7 | 7 | 7 | 6 | 7 | 6 | 7 | 0.27 | 6.63 | | |
| | 13 | 5 | 7 | 5 | 5 | 6 | 6 | 6 | 6 | 0.50 | 5.75 | | |
| assurance | 14 | 6 | 6 | 4 | 6 | 6 | 6 | 6 | 7 | 0.70 | 5.88 | 0.59 | 5.75 |
| | 15 | 6 | 6 | 3 | 7 | 6 | 7 | 6 | 7 | 1.71 | 6.00 | | |
| | 16 | 5 | 5 | 3 | 3 | 6 | 6 | 6 | 6 | 1.71 | 5.00 | | |
| | 17 | 6 | 6 | 7 | 5 | 5 | 7 | 6 | 7 | 0.70 | 6.13 | | |
| empathy | 18 | 6 | 5 | 6 | 3 | 3 | 6 | 5 | 7 | 2.13 | 5.13 | 1.30 | 5.25 |
| | 19 | 5 | 6 | 2 | 3 | 2 | 7 | 5 | 6 | 3.71 | 4.50 | | |
| | 20 | 6 | 5 | 7 | 4 | 3 | 5 | 3 | 7 | 2.57 | 5.00 | | |
| | 21 | 5 | 6 | 5 | 7 | 4 | 7 | 6 | 7 | 1.27 | 5.88 | | |
| | 22 | 6 | 7 | 7 | 5 | 4 | 6 | 4 | 7 | 1.64 | 5.75 | | |
| | | | | | | | | | | 1.30 | 5.64 | | 5.61 |

**Allocated 100 importance points**

| | R1 | R2 | R3 | R4 | R5 | R6 | R7 | R8 | average |
|---|---|---|---|---|---|---|---|---|---|
| **tangibles** | 10 | 10 | 5 | 10 | 10 | 10 | 10 | 10 | 9.38 |
| **reliability** | 40 | 30 | 40 | 50 | 30 | 25 | 30 | 30 | 34.38 |
| **responsiveness** | 20 | 30 | 10 | 20 | 40 | 25 | 25 | 20 | 23.75 |
| **assurance** | 15 | 20 | 25 | 10 | 10 | 25 | 25 | 25 | 19.38 |
| **empathy** | 15 | 10 | 20 | 10 | 10 | 15 | 10 | 15 | 13.13 |

## Importance ranking

| | R1 | R2 | R3 | R4 | R5 | R6 | R7 | R8 |
|---|---|---|---|---|---|---|---|---|
| most important | 2 | 2 | 2 | 2 | 3 | 2 | 2 | 2 |
| 2nd most important | 3 | 3 | 4 | 3 | 2 | 3 | 4 | 4 |
| least important | 1 | 1 | 1 | 1 | 5 | 1 | 3 | 1 |

1 = tangibles
2 = reliability
3 = responsiveness
4 = assurance
5 = empathy

## Perception score (Fujitsu Services)

| dim. | No. | R1 | R2 | R3 | R4 | R5 | R6 | R7 | R8 | variance | average | dim. variance | dim. average |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| tanglibles | 1 | 5 | 5 | 4 | 6 | 4 | 4 | 6 | 2 | 1.71 | 4.50 | 0.54 | 4.22 |
| | 2 | 5 | | 6 | 3 | 3 | 1 | 6 | 3 | 3.48 | 3.86 | | |
| | 3 | 4 | 5 | 3 | 3 | 5 | 3 | 5 | 5 | 0.98 | 4.13 | | |
| | 4 | 5 | 5 | 4 | 3 | 6 | 4 | 3 | 4 | 1.07 | 4.25 | | |
| reliability | 5 | 3 | 5 | 4 | 4 | 2 | 2 | 3 | 1 | 1.71 | 3.00 | 1.65 | 3.48 |
| | 6 | 5 | 6 | 4 | 5 | 6 | 1 | 4 | 3 | 2.79 | 4.25 | | |
| | 7 | 3 | 5 | 4 | 6 | 3 | 1 | 4 | 1 | 3.13 | 3.38 | | |
| | 8 | 2 | 5 | 3 | 4 | 3 | 1 | 2 | 1 | 1.98 | 2.63 | | |
| | 9 | 5 | 4 | 5 | 5 | 5 | 3 | 4 | 2 | 1.27 | 4.13 | | |
| responsiveness | 10 | 3 | 3 | 5 | 1 | 1 | 1 | 4 | 1 | 2.55 | 2.38 | 1.20 | 3.97 |
| | 11 | 5 | 5 | 5 | 5 | 5 | 3 | 5 | 3 | 0.86 | 4.50 | | |
| | 12 | 6 | 5 | 5 | 5 | 6 | 2 | 6 | 5 | 1.71 | 5.00 | | |
| | 13 | 5 | 3 | 4 | 5 | 6 | 1 | 5 | 3 | 2.57 | 4.00 | | |
| assurance | 14 | 5 | 5 | 2 | 4 | 6 | 2 | 6 | 3 | 2.70 | 4.13 | 1.89 | 4.00 |
| | 15 | 5 | 5 | 2 | 5 | 5 | 1 | 4 | 1 | 3.43 | 3.50 | | |
| | 16 | 6 | 4 | 4 | 4 | 3 | 1 | 7 | 7 | 4.29 | 4.50 | | |
| | 17 | 5 | 5 | 3 | 5 | 4 | 2 | 5 | 2 | 1.84 | 3.88 | | |
| empathy | 18 | 6 | 4 | 5 | 3 | 6 | 1 | 6 | 6 | 3.41 | 4.63 | 1.79 | 4.20 |
| | 19 | 4 | 5 | 4 | 4 | 4 | 3 | 4 | 1 | 1.41 | 3.63 | | |
| | 20 | 6 | 4 | 5 | 4 | 7 | 1 | 5 | 7 | 3.84 | 4.88 | | |
| | 21 | 4 | 5 | 3 | 4 | 6 | 1 | 5 | 2 | 2.79 | 3.75 | | |
| | 22 | 5 | 5 | 4 | 4 | 7 | 1 | 4 | 3 | 2.98 | 4.13 | | |
| | | | | | | | | | | 2.39 | 3.95 | | 3.97 |

## SERVQUAL scores

| | perception score | expectation score | SERVQUAL score | average SERVQUAL score |
|---|---|---|---|---|
| tangibles | 4.50 | 4.00 | 0.50 | -0.31 |
| | 3.86 | 3.88 | -0.02 | |
| | 4.13 | 4.50 | -0.38 | |
| | 4.25 | 5.13 | -0.88 | |
| reliability | 3.00 | 6.88 | -3.88 | -3.13 |
| | 4.25 | 6.50 | -2.25 | |
| | 3.38 | 6.75 | -3.38 | |
| | 2.63 | 6.75 | -4.13 | |
| | 4.13 | 6.13 | -2.00 | |
| responsiveness | 2.38 | 6.25 | -3.88 | -2.09 |
| | 4.50 | 5.63 | -1.13 | |
| | 5.00 | 6.63 | -1.63 | |
| | 4.00 | 5.75 | -1.75 | |
| assurance | 4.13 | 5.88 | -1.75 | -1.75 |
| | 3.50 | 6.00 | -2.50 | |
| | 4.50 | 5.00 | -0.50 | |
| | 3.88 | 6.13 | -2.25 | |
| empathy | 4.63 | 5.13 | -0.50 | -1.05 |
| | 3.63 | 4.50 | -0.88 | |
| | 4.88 | 5.00 | -0.13 | |
| | 3.75 | 5.88 | -2.13 | |
| | 4.13 | 5.75 | -1.63 | |
| | | | -1.68 | -1.67 |
| | | | **Overall weighted SERVQUAL score:** | -2.12 |