

LAPPEENRANTA UNIVERSITY OF TECHNOLOGY  
Faculty of Technology Management  
Industrial Management

**IT FINANCIAL MANAGEMENT IN A LARGE INDUSTRIAL COMPANY**

Examiners: Professor Timo Kärri and Professor Tuomo Uotila  
Supervisor: M.Sc. Juha Tuominen

Hollola 10.5.2011

Tomi Jusslin

## ABSTRACT

<b>Author:</b> Tomi Jusslin	
<b>Name of thesis:</b> IT Financial Management In a Large Industrial Company	
<b>Department:</b> Industrial Management	
<b>Year:</b> 2011	<b>Place:</b> Hollola
Master's thesis. Lappeenranta University of Technology. 81 pages, 18 figures and 4 appendices. Examiners: Professor Timo Kärri and Professor Tuomo Uotila	
<b>Keywords:</b> IT Financial Management, IT Service Management, ITIL, CobiT, ISO 20 000	
<p>IT Service Management plays a key role in many IT organizations today. First IT Service Management principles founded in the early 1980s but the real adaption emerged in the end 2000s. IT Financial Management is one of IT Service Management's processes.</p> <p>The main purpose of this thesis was study how IT Financial Management approach can be improved in a case company. Budgeting, accounting and charging are IT Financial Management functions. These functions are researched in this thesis. Thesis materials consist of both qualitative and quantitative material. The theoretical part consists mostly of IT Service Management literature while interviews and the case company's information systems are researched in the empirical part.</p> <p>Thesis also reviews different kind of the systems which supports and automates IT Financial Management functions. The biggest challenge is the cost allocation with the current ERP system in the case company. It is worth to take group based system for allocation in use before there is a holistic system in a market. The case company should also develop its IT service processes forward.</p>	

## TIIVISTELMÄ

<b>Tekijä:</b> Tomi Jusslin	
<b>Työn nimi:</b> IT taloushallinta suuressa teollisuusyrityksessä	
<b>Laitos:</b> Tuotantotalous	
<b>Vuosi:</b> 2011	<b>Paikka:</b> Hollola
Diplomityö. Lappeenrannan teknillinen yliopisto. 81 sivua, 18 kuvaa ja 4 liitettä Tarkastajat: Professori Timo Kärri ja Professori Tuomo Uotila	
<b>Hakusanat:</b> IT taloushallinta, IT palvelunhallinta, ITIL, CobiT, ISO 20 000	
<p>IT palvelunhallinta on keskeisessä roolissa nykyisin monessa IT organisaatiossa. Ensimmäiset askeleet kohti IT palvelunhallintaa otettiin 1980-luvun alkupuolella, mutta vasta 2000-luvun loppupuolella alettiin IT palvelunhallintaan siirtyä enemmän. IT palvelunhallinnan eräänä osa-alueena on IT taloushallinta, joka on oma prosessinsa.</p> <p>Työn tavoitteena oli tutkia, kuinka erään yrityksen IT taloushallintaa voidaan parantaa. IT taloushallinta koostuu kolmesta eri toiminnosta: budjetoinnista, laskennasta ja veloituksesta. Näitä kaikkia toimintoja on tutkittu tässä työssä. Työn materiaali koostuu sekä kvalitatiivisesta että kvantitatiivisesta materiaalista. Teoriaviitekehys on muodostettu IT palvelunhallinnan mukaisesta ja empiiria osuutta varten on tutkittu yrityksen tietojärjestelmiä sekä tehty haastatteluja.</p> <p>Työssä on myös tarkasteltu eri sovelluksia, joiden avulla näitä IT taloushallinnan toimintoja voidaan toteuttaa ja automatisoida. Suurimpana haasteena kohdeyrityksessä voidaan pitää kustannusten allokointia nykyisellä toiminnanohjausjärjestelmällä. Ratkaisu tähän olisi ottaa käyttöön konsernitasolla tehty sovellus, kunnes markkinoilta löytyy parempi kokonaisvaltainen järjestelmä. Kohdeyrityksen kannattaa myös jatkaa muiden IT palveluprosessien kehittämistä.</p>	

## **ACKNOWLEDGEMENTS**

The topic of this thesis is very challenging but at the same time very interesting. I want to thank many persons for supporting me to do this thesis. Special thanks to the following persons for helping me carry out this thesis:

Examiner, professor Timo Kärri, who offered me valuable instructions and hints concerning this thesis.

I would like to thank my supervisor Mr. Juha Tuominen, for his guidance and for the possibility to do this master's thesis.

My parents and sisters who supported and encouraged throughout my studies. And of course, I would also to thank my friends.

Hollola 10.5.2011

Tomi Jusslin

## TABLE OF CONTENTS

1	INTRODUCTION .....	1
1.1	Background.....	1
1.2	Research objectives and limitations.....	3
1.3	Research methodology.....	4
1.4	Structure of the thesis .....	5
2	IT SERVICE MANAGEMENT .....	7
2.1	Introduction of ITIL.....	10
2.2	Service Strategy .....	12
2.3	Service Design .....	13
2.4	Service Transition .....	14
2.5	Service Operation .....	15
2.6	Another framework - CobiT .....	16
3	IT FINANCIAL MANAGEMENT .....	18
3.1	Management accounting, financial accounting and cost accounting.....	20
3.2	Budgeting.....	22
3.3	Accounting.....	24
3.3.1	Cost types and cost classification .....	26
3.3.2	Fixed and variable costs.....	28
3.4	Charging .....	29
3.4.1	Pricing methods .....	32
3.4.2	Allocation .....	34
3.4.3	Service department allocations .....	35
3.4.4	Transfer pricing .....	36
3.5	CobiT approach to IT Financial Management.....	37
3.6	Risk management.....	38
3.7	Certification of IT Financial Management .....	39
4	IT SERVICE MANAGEMENT IN A CASE COMPANY .....	41
4.1	IT customers and service content .....	42
4.2	Future .....	45

5	IT FINANCIAL MANAGEMENT IN A CASE COMPANY .....	47
5.1	Budgeting.....	49
5.1.1	Realization .....	49
5.1.2	Data collection.....	51
5.2	IT Accounting.....	52
5.2.1	Cost accounting .....	53
5.2.2	Financial reporting.....	57
5.2.3	Management reporting.....	58
5.2.4	Customer reporting .....	59
5.3	Charging .....	60
5.3.1	Invoicing.....	60
5.3.2	Allocation .....	61
6	IT FINANCIAL MANAGEMENT SYSTEMS .....	63
6.1	ITBilling .....	64
6.2	Others.....	65
6.3	Comparison.....	69
7	CONCLUSIONS .....	71
	REFERENCES .....	77
	APPENDICES	

## **ABBREVIATIONS**

ABC = Activity based costing

COBIT = Control Objectives for Information and Related Technology.

ERP = Enterprise resource planning

GITIM = Government Information Technology Infrastructure Management

IT = Information technology

ITIFM = IT Information Management Forum

ITIL = IT infrastructure library

ITSM = IT Service Management

itSMF = IT Service Management forum

ISO 20 000 = International standard for Information Technology Service Management

ROI = Return on investment

SaaS = Service as a software

VCD = Variable cost dynamics

## LIST OF FIGURES

Figure 1 Business research approaches .....	4
Figure 2 The structure of the thesis .....	6
Figure 3 Service lifecycle .....	8
Figure 4 Structure of CobiT.....	17
Figure 5 Connections between IT accounting, charging and budgeting .....	19
Figure 6 Roadmap of IT Financial Management.....	20
Figure 7 How accounting aids planning and controls .....	21
Figure 8 Time effect to categorization of costs .....	25
Figure 9 Cost formation.....	29
Figure 10 Customers.....	43
Figure 11 Service description.....	44
Figure 12 Financial actions.....	48
Figure 13 IT budget allocation 2011 .....	50
Figure 14 IT cost structure 2011.....	50
Figure 15 From service calculation to allocation .....	54
Figure 16 CRM cost structure .....	55
Figure 17 Service-now.com financial sheet overview.....	67
Figure 18 Comparison of the different systems.....	69

## LIST OF TABLES

Table 1 Service design processes .....	14
Table 2 Cost types of IT .....	27



# 1 INTRODUCTION

All business is moving toward the service oriented world. IT Service Management provides that opportunity for the IT operations. IT Service Management is a growing framework that is used by the many companies. IT Service Management strives to divide IT functions into the services. With this approach companies want to bring more transparency to their IT functions. IT Financial Management is one part of IT Service Management. IT Financial Management's main problem is how the service department's costs should be allocated to other departments or units and how much effort is worthwhile to put this process? However, there is only an internal money transaction between company's departments. Request to study implementation possibilities of IT Financial Management came from the case company.

The case company wants to get more information and visibility to its IT costs. Information is particular needed at times of economic recessions. IT has moved from back-office support function closer to a critical business unit. The demand for faster response times, more information and updated equipment are driving IT spending upward. IT Service Management is one possible framework to manage these demands.

Master's thesis introduces the ITSM processes, main functions and concentrates on the financial perspective. Money is anyway ending up in a dominant position. Companies usually want to reduce their costs while improving efficiency and effectiveness. Also the same principles affects to the IT department.

## 1.1 *Background*

Company's IT department is a non-profit service department. IT department provides the IT services to the profit-making business divisions. IT department

mission is to ensure that all the business critical systems are in operation. IT organizes necessary software, licenses, hardware, user support and development of the IT systems. IT department's purpose is to provide the IT services on a turnkey basis to the users.

IT department is usually seen as a unit, which only creates costs. This way of thinking is slowly going away and IT is becoming more business as a business. It is rather a value-added entity today. Become the value-added entity, IT actions have to come more visible and cost allocation must be based on the real usage. It is not possible to reduce IT costs without actual monitoring and without monitoring it is impossible to draw attention to the most important functions.

Business users are demanding more cost transparency and financial analysis in order to understand the true costs of IT. They want to see how the IT costs consist of and affect the amount of their costs. One difficulty is to present the IT services in understandable form to the customers.

In a case company IT Service Management has been used now little bit over one year. It has been implemented in parts and the purpose was to bring IT Financial Management at the later stage. However, the company noticed that IT Financial Management is already now forced to take in to make this approach work.

Financial Management is closely related to the financial reporting. The financial reporting is often used as a management tool. The financial reporting should give realistic view of the IT costs. It should show IT cost structure and give essential information for managers to their decision-making. Managers' needs and company's systems set requirements for the reports.

It is worth to remember that accounting and reporting are not taken too detailed level. IT department is a service department and its main task is to provide the IT services for business users. The aim is not to make profit and the payers are company's internal departments.

## 1.2 *Research objectives and limitations*

The aim of this thesis is to research different ways to implement IT Financial Management to the case company. The former way does not provide enough visibility and financial information. The main research question is:

***“How IT Financial Management can be improved in a case company?”***

This main research question can be divided into the following sub questions:

***How an IT service pricing and charging should be done?***

***Have all costs taken into account in the budgeting?***

***How to ensure the contract of a delivery and how it will be published and archived?***

***How financial, management and customer reporting should be organized?***

***What financial reports should contain?***

These sub questions aim to answer main research question's problem. The main focus on the thesis is in the allocations. But also other IT Financial Management functions as budgeting and accounting are taken into account in the master's thesis. Without all IT Financial Management functions it is almost impossible to detect where and how the IT costs consist of.

The research approaches the problem from ITIL (IT Infrastructure library) perspective. The case company's IT operations are aimed to organize according to the ITIL principles. Therefore, IT Financial Management would also be good to organize with these same principles.

The aim of this thesis is not in technical implementation, but the content is the dominant factor. Different technical solutions are taken into account and they will be compared. These solutions should have integration to the company's ERP system. There should found a full interface to the ERP system.

### 1.3 *Research methodology*

There are a number of different kinds of research areas and problems in business and industrial economy. These problems can be researched by different scientific background. The research method depends on the nature of problem, availability and the level of information and aimed objectives. Business economy research methods can be divided into theoretical, empirical, descriptive and normative research methods. Descriptive research is descriptive, analyzing, explaining and understanding, while normative is modeling, prescriptive and recommending method. (Olkkonen. 1994. p. 59-75) Relationships between these four methods are shown in figure 1.

	Theoretical	Empirical
Descriptive	Conceptual Approach	Nomothetical Approach
Normative	Decision-oriented Approach	<div style="border: 1px solid black; border-radius: 50%; padding: 5px; display: inline-block;">Action-oriented Approach</div> Constructive Approach

**Figure 1** Business research approaches (Kasanen et al. 1993, p. 257)

This thesis' methodology is action-oriented which is very close to constructive approach. In both approaches, the direct and pragmatic empirical connections are in the key role. Action-oriented and constructive approaches presuppose a thorough understanding of organizational processes in order to make changes accomplished in practice. On the other hand, both models presuppose that the researcher is a person who supports the participants of the organization in their learning processes. The most important difference between methodologies is that the action-oriented approach does not aim to create any explicit managerial

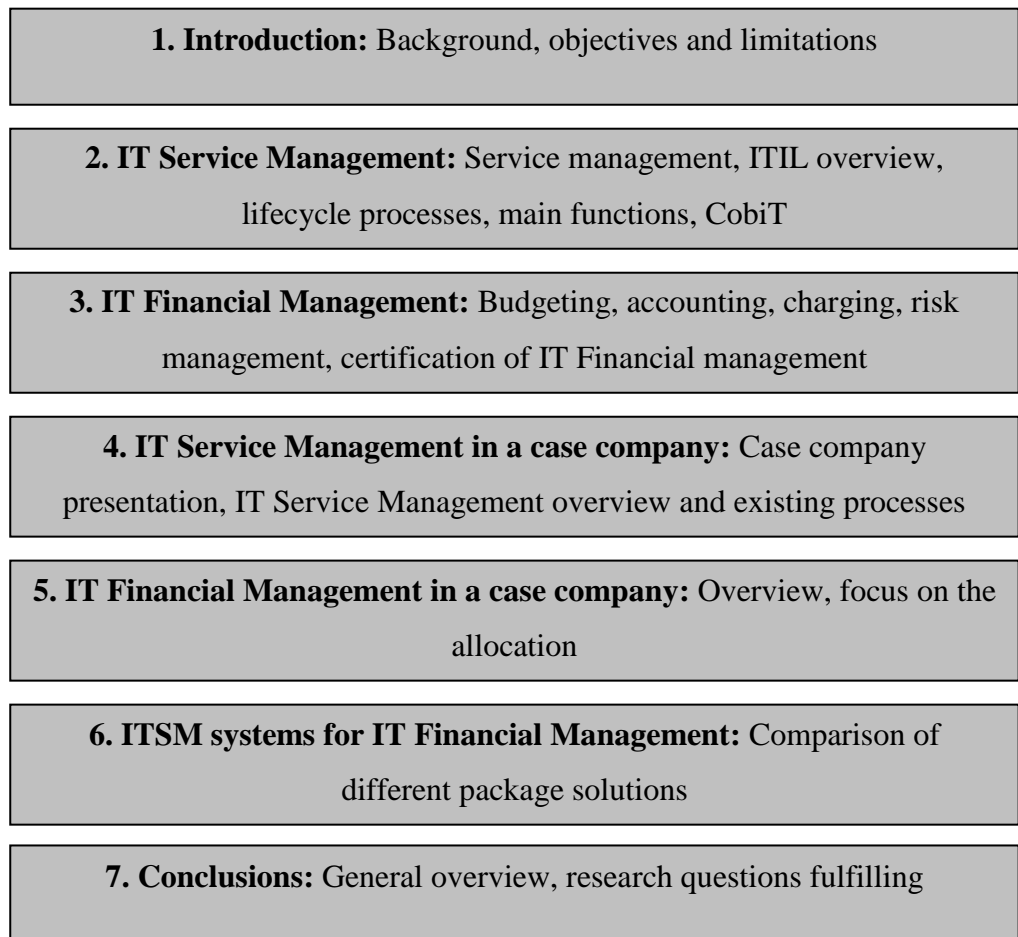
constructions.

This thesis research material is based on the case company's internal material. Research material is collected in qualitative and quantitative methods. Qualitative empirical material gets with interviews. Interviews were open and interviewed persons were business controllers, IT managers and accounting assistant. Quantitative material is collected from case company's internal information systems.

#### 1.4 *Structure of the thesis*

This thesis consists of two separate parts. The first part is a theoretical part. It is primarily based on literature, articles and standards related to IT Financial Management. The second is an empirical part that concentrates on the case company's IT Financial Management and provides suggestions for the future. Empirical part information is gathered from internal material and from interviews conducted during the research phase.

The theoretical part, chapters 2-6, introduces IT Service Management and IT Financial Management. IT Financial Management is a process in IT Service Management. IT Service Management is introduced from viewpoint of ITIL, but IT Financial Management introduces also viewpoints of CobiT and ISO 20 000. The empirical part introduces development of IT Financial Management in the case company. Figure 2 presents the structure and aim of each chapter in this thesis.



**Figure 2** The structure of the thesis

## 2 IT SERVICE MANAGEMENT

IT Service Management is a one framework to provide the IT operations-related activities and the interactions of IT technical personnel with the business customer and the user processes. (Galup et al. 2009. p. 125) In the figure 3 is shown how the ITIL defines IT Service Management today. ITIL is a short term from Information Technology Infrastructure Library. It contains codes of practice for quality management of the IT services and infrastructure and also defines quality as matched to business needs and user requirements as these evolve. ITIL is a quite young framework such as the whole IT branch is and it is changing all the time. ITIL has, however, gained most stable foothold at the moment. In the figure 3 can also be seen the core books of the ITIL and the topics of the books. Many other frameworks define also IT Service Management, but the basic principles are the same. Here IT Service Management is discussed, through the ITIL because it is the framework, which is implemented to the case company.

There are many different definitions, what is a service. Kotler & Keller wrote that the service has four distinctive characteristics: intangibility, inseparability, variability and perishability. It can be concluded that the services are often abstract. However, a service provider must be able to transform them into concrete benefits and a well-defined experience. (Kotler et al. 2009. p. 387) ITIL defines service as a following: *A Service means of delivering value to customers by facilitating outcomes customers want to achieve without the ownership of specific costs and risks.* (ITIL V3 a. 2007. p. 5)

In article An Overview of IT Service Management is determined the service from Service Science perspective. Term service is seen as the deed, process, performance sense, by incorporating people, processes, and technologies that interact to deliver service. IT Service Management is a subset of Service Science. (Galup et al. 2009. p. 124)

Service Management is the set of specialized organizational capabilities for providing value to customers in the form of the services. Service Management understands how to manage a business in service competition and it is a market-oriented approach. Service management can be described in the following ways:

- Understanding the value that customers receive from the service.
- Understanding customer relationship to the total quality and it changes over time.
- Understanding how an organization's resources are capable to produce and deliver this quality and support customers' value-creation.
- Understanding how organization should be developed and managed.
- Making organization to operate such a way that this perceived quality and value are achieved and the objectives of the organization, customers and other parties are met. (Grönroos. 2007. p. 223)



**Figure 3** Service lifecycle (Syntel. 2011)



IT Service Management helps to change IT from the technology-centric cost center role to the customer-centric service provider. This allows better demand management and encourages a competitive attitude that drives business goals. (Genetin et al. 2008. p. 3)

Service Strategy is core of the Service Lifecycle. Service Strategy provides a guidance to see the service management as a strategic asset. Topics in the Service Strategy are the development of the service markets, characteristics of internal and external provider types, service assets, the service portfolio and implementation of strategy through the Service Lifecycle. Service Strategy aims to ensure that organizations understand the risks and the costs of the services. (ITIL V3 a. 2007. p. 11)

After creating the core, can be moved forward to implement IT Service Management. ITIL uses here next steps: Service Design, Service Transition and Service Operation. Service Design is a phase in the lifecycle that turns Service Strategy into the blueprint for delivering the business objectives. Service Design provides guidance on how Service Strategies are developed and managed in practice. In other words how to convert strategic objectives into portfolios of services and service assets. (ITIL V3 a. 2007. p. 11)

Service Transition operates between Service Design and Service Operation. Service Transition provides guidance on how the requirements of Service Strategy encoded in Service Design are effectively realized in Service Operation while managing the risks of failure and disruption. After Service Transition phase can be moved to Service Operation. (ITIL V3 a. 2007. p. 12)

Service Operation gives proposals how to manage service's daily operation. In addition, Service Operation provides guidance on achieving effectiveness and efficiency in the delivery and support of services to ensure value for the customer and the service provider. (ITIL V3 a. 2007. p. 12)

Although Continual Service Improvement is the last one and in outer ring, it does not mean that it would not affect the whole time. It aims to create and maintain value for customers through better design, transition and operation of services. It also provides guidance on service measurement. (ITIL V3 a. 2007. p. 12)

## 2.1 ***Introduction of ITIL***

ITIL framework essentially defines how to organize the system and network management departments within individual organizations. The concepts within ITIL support the IT service providers in the planning of consistent, documented, and repeatable processes that improve the service delivery to the business. ITIL addresses the organizational structure and skill requirements for an IT organization by presenting a comprehensive set of management procedures with which an organization can manage its IT operations. (ITIL Central. 2010)

The ITIL concept emerged in the 1980s. At the time British government determined that the level of IT service quality provided to them was not sufficient. The Central Computer and Telecommunications Agency (CCTA), current the Office of Government Commerce (OGC), was commissioned to develop a framework for efficient and financially responsible use of the IT resources within the British government and the private sector. (ITIL Central. 2010)

As has been previously presented the ITIL was developed in the United Kingdom. UK's government had a need for finding the best practises for organizations to approach service management. ITIL version 1 focused on various processes for managing the IT Systems. ITIL version 1 consisted of many books which were designed to support business users. This library was called the IT Infrastructure Library – abbreviated ITIL. Library grew to over 40 books and began to interest IT service community in the UK. (ITIL V3 a. 2007. p. 3)

The first version of the ITIL was actually originally called GITIM, Government Information Technology Infrastructure Management and therefore it is often thought that ITIL has developed later. Obviously this GITIM was very different as the current ITIL, but conceptually very similar, focusing around service support and delivery. (ITIL Central. 2010)

In 1991 founded a user forum to ITIL users and it was called IT Information Management Forum (ITIFM). The purpose of the forum was to provide a place for the ITIL users, where they can exchange ideas and learn from each other. Name changed later to IT Service Management forum (itSMF) and nowadays itSMF has members worldwide. (ITIL V3 a. 2007. p. 3)

In 2001, version 2 of ITIL was released. The Service Support and Service Delivery books were redeveloped into more concise usable volumes and they were two core books in ITIL version 2. ITIL version 2 consists of ten books. Other books were Introduction to ITIL, Planning to implement Service Management, Security Management, Business perspective, ICT Infrastructure Management, Application Management, Software Asset Management and ITIL V2 Small-Scale Implementation. (Best Management Practice. 2011)

ITIL version 2 was a more targeted product. ITIL version 2 main focus was on processes based approach for service management. It attempted to break the gap between technology and business. Processes played a key role in here, since they aimed to make services more effective to the business customers. (ITIL V3 a. 2007. p. 3)

In year 2007 version 3 of ITIL was published. This adopted more of a lifecycle approach to service management, with greater emphasis on IT business integration. Version 3 consists of five core books which are service strategy, service design, service transition, service operation and continual service improvement. (ITIL training zone. 2010)

ITIL version 3 is the most widely adopted framework for IT Service Management in the world. ITIL version 3 focuses on lifecycle service management. Lifecycle starts with the identification of customer needs and drivers of IT requirements, through to the design and implementation of the service into operation and finally monitoring and improvement phase of the service. (ITIL V3 a. 2007. p. 3)

## 2.2 *Service Strategy*

Service Strategy provides guidance on how to design, develop and implement Service Management, not only an organizational capability but as a strategic asset. Especially Service Strategy wants to encourage people to think why something is to be done before thinking of how. (Wakaru. 2009. p. 56)

Service Strategy scope covers the following principles, processes and considerations: development of internal and external markets, Service assets, Service catalog, implementation of strategy, IT Financial Management, Demand Management, Service Portfolio Management, Organizational development and strategic risks. With these activities Service Strategy aims to achieve the following objectives:

- Service determination
- Stand out from competing alternatives
- Identifying value creation for the customers and stakeholders
- Create a foundation case for strategic investment
- Increase financial transparency and create a financial control over value-creation
- Define service quality
- Efficient allocation of resources.

(Wakaru. 2009. p. 57)

IT Financial Management is presented in Service Strategy. There is an own section in Service Strategy where this topic has been presented. From that section, you can find traditional Financial Management's processes as budgeting, accounting and charging, but approach to these is value creating to the customer and stakeholder.

### 2.3 *Service Design*

The main goal of Service Design is to design a new or changed service introduction into the live environment. Service Design includes in services' architectures, processes, policies and documentation when designing IT services, to meet current and future agreed business requirements, functionality and quality. Service Design also ensures consistency and integration within all activities and processes across the entire IT technology. (Wakaru. 2009. p. 75)

Service Design gathers the service needs and maps them to the requirements for integrated services, and creates the design specifications for the service assets needed to provide services. Service Design needs to be effective so that the service is not needed to be improved the entire lifecycle. Service Design activities can be periodic or even exception-based when they may be triggered by a specific business need or event. (ITIL V3 c. 2007. p. 3-4)

The processes in Service Design are collected in the table 1. The most important process is the Service Level Management. It is somehow part of almost all other processes in Service Design. Mostly needs of other processes are detected through Service Level Management.

**Table 1** Service design processes (Wakaru. 2009. p. 83-99)

Process	Main functions
Service Level Management	<ul style="list-style-type: none"> <li>- Detect the needs of business</li> <li>- Document and manage SLAs</li> <li>- Reduce service risk and improve service quality</li> <li>- Proactive prevention of service failures</li> </ul>
Service Catalogue Management	<ul style="list-style-type: none"> <li>- Agree and document a service definition</li> <li>- Maintain a service catalogue in conjunction with the Service Portfolio</li> </ul>
Availability Management	<ul style="list-style-type: none"> <li>- Ensure that the level of service availability meets the business needs</li> </ul>
Information Security Management	<ul style="list-style-type: none"> <li>- Align to the business IT security</li> <li>- Ensure that information security is effectively managed</li> </ul>
Supplier Management	<ul style="list-style-type: none"> <li>- Manage suppliers</li> <li>- Ensure that supplier contracts and agreements with suppliers are aligned to business needs</li> </ul>
Capacity Management	<ul style="list-style-type: none"> <li>- Ensure cost justifiable IT capacity in all areas of IT</li> </ul>
IT Service Continuity Management	<ul style="list-style-type: none"> <li>- Support the overall Business Continuity Management process</li> <li>- Ensure that the necessary IT technology and service facilities exist</li> </ul>

## 2.4 *Service Transition*

Service Transition is an interface between Service Design and Service Operation. Service Transition starts after getting input from Service Design. Service Transition coordinates the release of a new service between the business and IT and tries to reduce the known errors and the risks associated with the transition. Service Transition also test that service meets customer and stakeholder requirements. (Wakaru. 2009. p. 110-111)

The most important presented process in Service Transition is change management. Change management's main task is to ensure that all changes are recorded. And changes are managed according to the record. There are three kinds of changes: normal change, standard change and emergency change. Normal change follows the normal procedure. Standard change is a well-known change and contains only low risk. Emergency change is only made if the situation requires it. It is important to remember documenting in emergency change

situation. (Wakaru. 2009. p. 114)

Other processes described in Service Transition are transition planning and support, service asset and configuration management, release and deployment management, service validation and testing, evaluation of a change or service and knowledge management. These processes make possible to transfer the service in production. (ITIL V3 d. 2007. p. 35)

## ***2.5 Service Operation***

Service Operation is responsible for supporting and delivering services. Service Operation maintains the status quo and adapts the changes in the business and technological environments. Service Operation is Service Management's step, which deals with day-to-day IT services. (Wakaru. 2009. p. 136-137)

Service Operation presents five different processes: event management, incident management, request fulfillment, problem management and access management. Event management monitors and controls services. If an exception condition is detected, then it needs to be escalated. Incident management is responsible for ensuring that service is restored to a normal operation as soon as possible, in order to minimize business impact. Request fulfillment fulfills customer's requests. These requests should be handled differently than incidents, but these can be handled by incident management system. Problem management involves proactive activities to detect and prevent problems and root-cause analysis for incidents and events to determine and resolve the cause of them. Access management is process that controls users' access to different services. It grants authorized users the right to use a service and restricts access to non-authorized users. (ITIL V3 e. 2007. p. 35)

## 2.6 **Another framework - CobiT**

Another important existing framework for IT Service Management is CobiT. CobiT consists of the words **C**ontrol **O**bjectives for **I**nformation and Related **T**echnology. First version of CobiT was released in year 1996. The IT Governance Institute (ITGI) created it. ITGI is an umbrella organization to the Information Systems Audit and Control Association (ISACA). CobiT is an IT governance framework and supporting toolset that allows managers to bridge the gap between control requirements, technical issues and business risks. Latest version of COBIT is 4.1 and the next one CobiT 5.0 will be published next year. (ISACA. 2010)

CobiT is presented much shorter than ITIL because the principles are same in both. CobiT focuses on only to present what should be in processes. CobiT is not giving for examples as ITIL. ITIL is also a main framework in a case company and for that reason the subject is approached via ITIL.

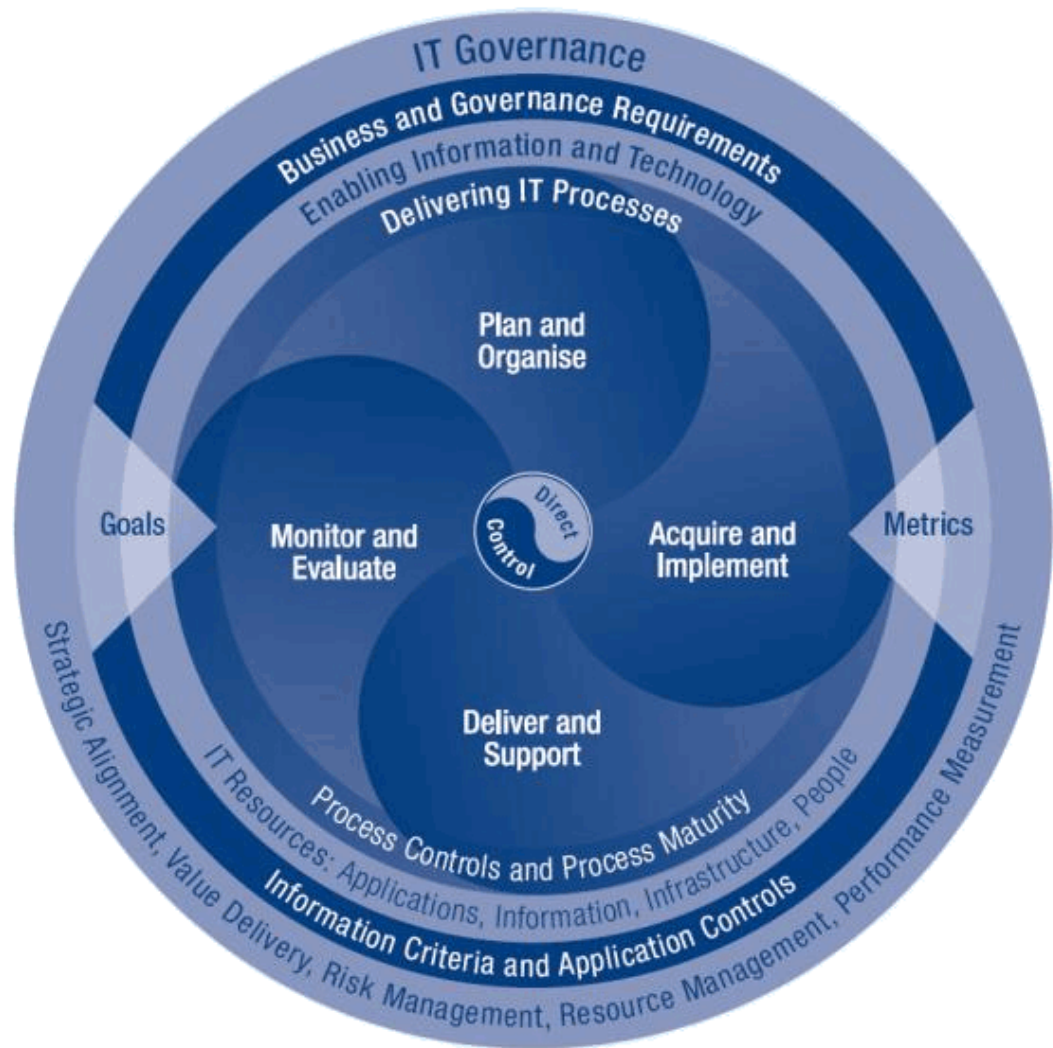
CobiT was originally made for organization's management use as a benchmarking tool consisting of the best practices related to IT controls. Due CobiT's strong control focus, both internal and external auditors have applied CobiT to financial statement audits as well as to operational and compliance audits. (Tuttle & Vandervelde. 2007. p. 2)

CobiT has been divided into four domains: Planning & Organization (PO), Acquisition & Implementation (AI), Delivery & Support (DS) and Monitor & Evaluate (ME). IT accounting aspect is dealt with in PO5 and DS6. In figure 9 has shown how structure of CobiT is built up. RACI charts are very common in CobiT and they are used in order to determine who is responsible, accountable, consulted and/or informed. (ISACA. 2010)

Structure of CobiT is shown in figure 4. The above-mentioned four domains are in a central position. Those domains contain different processes and their definition.



CobiT also presents IT Service Management as a lifecycle as ITIL. This can be seen a circle-shaped model. Everything is continuous and connected to each other.



**Figure 4** Structure of CobiT (CobiT. 2007. p. 26)

### 3 IT FINANCIAL MANAGEMENT

IT Financial Management is foremost management accounting. IT Financial Management is much more than just a financial management. ITIL version 3 (b. 2007. p. 97) defines IT Financial Management as follows: *“Financial Management provides the business and IT with the quantification, in financial terms, of the value of IT Services, the value of the assets underlying the provisioning of those services, and the qualification of operational forecasting.”* There are included both financial accounting and management accounting in ITIL. IT cost recovery is a key role between IT and business because it provides visibility to the costs and value. (Genetin et al. 2008. p. 2)

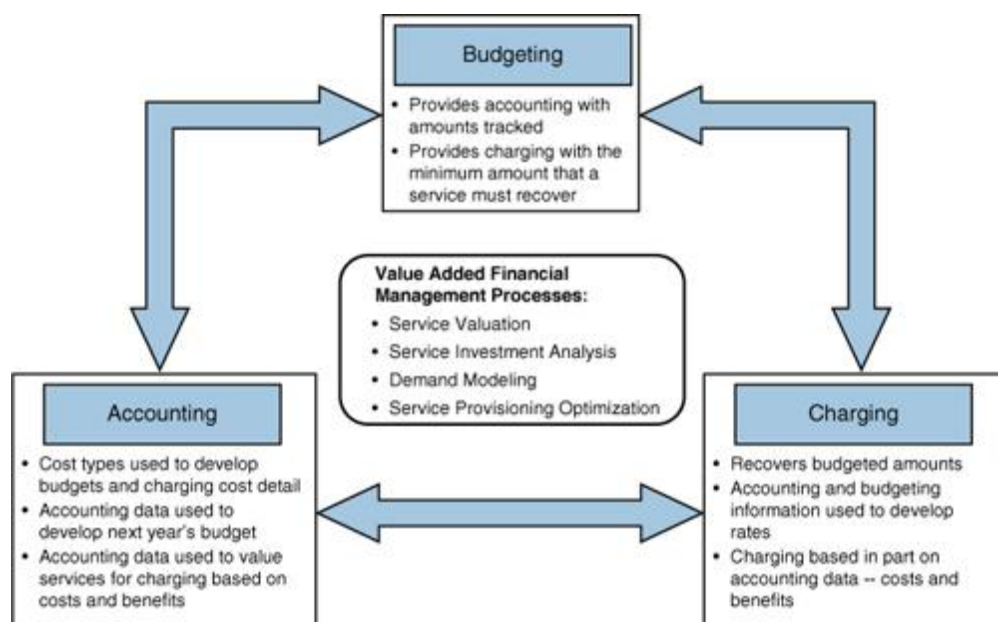
IT Financial Management wants to provide services as cost-effectively as possible and at the same time maximize visibility into related cost structures. IT uses financial management to provide service with cost transparency that can be clearly understood by the business. Cost visibility can be increased, for example via service catalog. One of the service catalog’s strength is that it provides critical information for service demand modeling, decision-making, and control. (ITIL V3 b. 2007. p. 98, 100)

Service catalog provides an opportunity to bring the prices of services to customers’ awareness. This allows influencing the demand and consumption of services. The pricing of a service is the cost-to-value process. The primary goal of this valuation is to make service values such that business perceives they as fair and the secondary goal is to better management of demand and consumption behavior. (ITIL V3 b. 2007. p. 98)

IT Financial Management is a key input to the service portfolio management. By understanding the cost structure of service, a company can benchmark its services against other providers. This helps companies to invest its resources to the services that are produced more profitably. In this case, the company has the

opportunity to work effectively. (ITIL V3 b. 2007. p. 100)

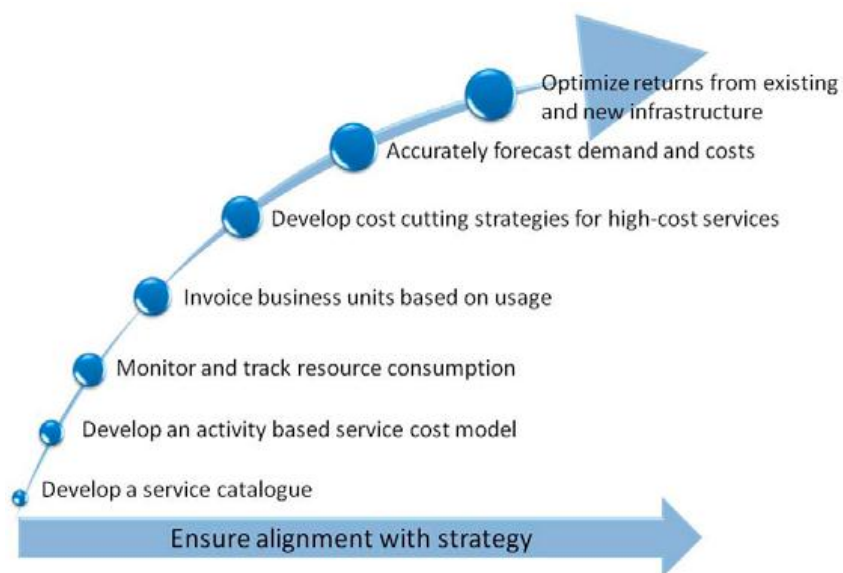
IT Financial Management cannot operate without a continuous information flow between its processes and they are tightly bound together. Figure 4 shows how budgeting, accounting and charging are linked together. Future costs are estimated in budgeting, usually IT expenses are estimated for a given period and generally this period is one year. Accounting is the process that collects financial information – both costs and benefits. These budgeted and accounted costs are finally charged. Charging's one activity is billing. (Ryan et al. 2009. p. 2-3)



**Figure 5** Connections between IT accounting, charging and budgeting (Ryan et al. 2009. p. 4)

IT Financial Management's goals can be seen in the figure 5. Figure shows some cornerstones that must be achieved to use IT Financial Management's benefits as well as a possible. The first step is to develop a service catalog. The catalog must present in a way that customers understand and use it. The second step is to understand the resources and activities that are required to deliver catalog's services. A cost model is needed to build up basis on these steps and it reflects the work done by IT and the costs required to provide the services demanded by the

business. The third step is to measure and monitor the usage of IT resources. On the fourth stage is focused on the charging. IT cost model should generate accurate and equitable charges for each business unit based on their consumption of the service catalog. Steps from fifth to seventh are focused on the strategies, forecasting and maximizing returns of the investments. These steps can be achieved only after the first four steps are working perfectly. (Morton et al. 2010. p. 8-9)



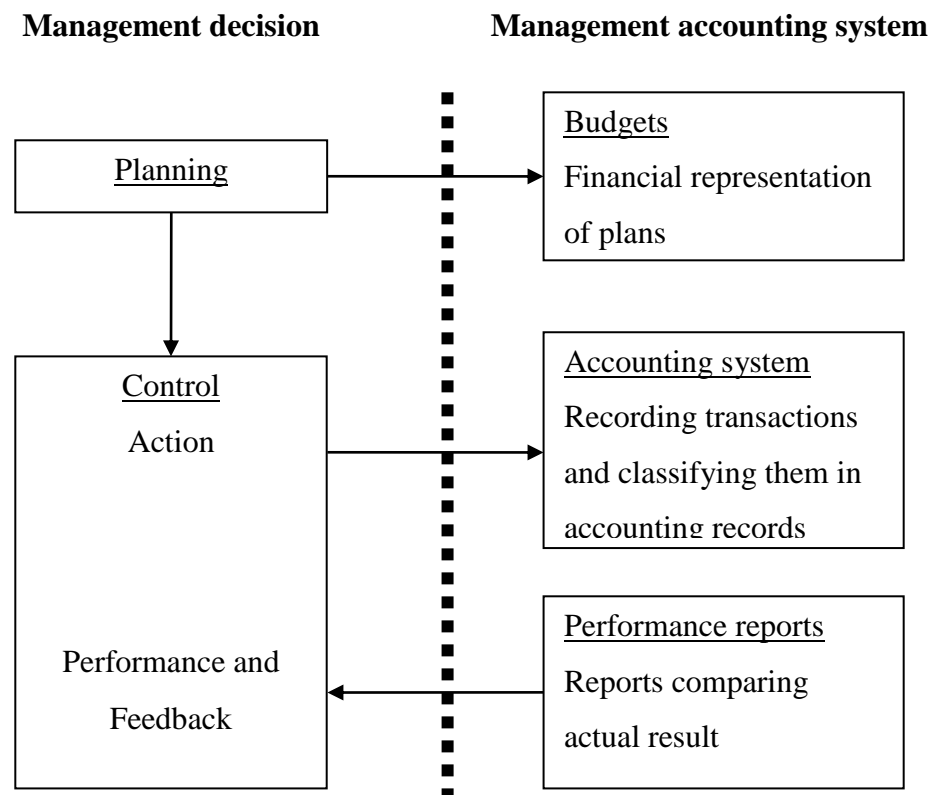
**Figure 6** Roadmap of IT Financial Management (Morton et al. 2010. p. 8)

### 3.1 *Management accounting, financial accounting and cost accounting*

What is the difference between management accounting, financial accounting and cost accounting? In short, management accounting uses financial and nonfinancial information to help managers make decisions. Financial accounting is used for to measure and to record the financial business transactions. Cost accounting provides information for both of them. It measures, analyzes, and reports financial and nonfinancial information relating to the costs. (Horngren et al. 2006. p. 2)

Financial accounting is usually past-oriented and offers information to the different external stakeholders such as investors, banks, regulators, and suppliers. While management accounting helps managers to make future decisions and thereby helps to achieve an organization's goals. (Horngren et al. 2006. p. 3)

However, financial accounting and management accounting are very closely linked together. Management accounting needs also to know past, in order to make plans for the future. Figure 6 shows how different management decision requires different accounting systems. At the planning stage managers will make a decision of the organization goals, evaluates different ways of achieving those goals and decides how to attain the desired goals. Control monitors implemented actions, decides how to evaluate performance, and provides feedback for future decision-making. (Horngren et al. 2006. p. 7)



**Figure 7** How accounting aids planning and controls (Horngren et al. 2006. p. 9)

### 3.2 *Budgeting*

The budget is a financial presentation of a proposed plan of action by management for a specific period and a coordinating tool what needs to be done to implement that plan. (Horngren et al. 2006. p. 181) It cannot be only estimation or forecast. Budget should reflect the best expectations of an organization's future operating activities. (Riistama & Jyrkkiö. 2002. p. 210-211)

Effective budgeting requires that all future costs will be identified. Budget aims to ensure proper funding for the delivery and consumption of the services. IT budgeting combines the previous contracts, such as the hardware and the software maintenance, and the new possible expenses. It is also important in IT budgeting that input data is collected from all areas of the IT organization and the business. IT planning can be divided into three main areas: operating and capital, demand, and regulatory and environmental. (Ryan et al. 2009. p. 3, ITIL V3 b. 2007. p.101)

Traditional budgeting is used to planning resources for an organizational unit. Managers look at history and create an annual budget based on it. It is typical that managers just increase budget according to some percentage. Traditional budgeting is not the approach when you want to make organization cost structure more visible. (Brimson et al. 1994. p. 263-264)

Dividing costs in operating and capital are commonly standardized in the companies. The aim is to translate IT expenditures into corporate financial systems and make it part of the corporate planning cycle. Usually the capital planning underestimates the impact of the IT services and is only interested in IT services if the status of an IT asset changes. (ITIL V3 b. 2007. p.101)

Demand modeling uses financial information in order to optimize usage of services and to meet IT resources. Critical demand data from capacity management and the service catalog are needed to get financial requirements

transparency. Service catalog also provides customers the capability to regulate their demand and prepare budgets. (ITIL V3 b. 2007. p.100)

Regulatory and environmental planning needs the triggers from the business. Data confidence is an important factor when making regulatory and environmental-related planning. The critical data can affect changes to the objectives of financial management. Other meaningful reason for data confidence is the possibility that incorrect data can undermine decision-making. (ITIL V3 b. 2007. p.101)

As any other investment, IT budgeting has also to take concern on money time value. Investments need to bring positive financial return to the organization in order to use organizational resources as effectively as possible. Financial returns for investments are typically projected out for several years. (Ryan et al. 2009. p. 3)

Budgeting is a part of the resource management. Various resource costs will be predicted at the budgeting process as accurately as possible. The budgeting process may require substantial effort especially in the case of the multi-steps organization. There are some applications that offer tools for budgeting and make process easier. Changing circumstances and needs create also challenges for the budgeting and the forecasting. This requires flexibility from budgeting software. Flexibility is especially needed for the data storage and the reporting. Making the budgeting more transparency also creates own challenges. (Granlund & Malmi. 2004. p. 76)

Resource management is also responsible for that the assets are identifiable, the usage metrics are available and business understands all cost drivers. Also the fundamental economic concepts of supply and demand influence the cost of resources. Resource management often protect against unplanned expenses and additional demand with extra level of the capacity in the budget. (Genetin et al. 2008. p. 6-7)

Best way to develop budget is to improve budget information. The introduction of activity-based accounting also allows budget development. They also observe that significant budget development is how to use budget data rather than improving quality of budget information. (Järvenpää et al. 2001. p. 155, 157) Activity based budgeting can be divided into the five phases (Kaplan et al. 1998. p. 304-307):

1. Next period's sales and production volumes estimation.
2. Forecast the demand for activities.
3. Resource need to perform the activities.
4. Determine the actual resource supply to meet the demands.
5. Determine activity capacity.

Innes et al. (2000. p. 350-361) made a research in United Kingdom. They found that activity based budgeting brings the following benefits:

- More realistic budgets
- Better identification of resource needs
- Increases visibility between costs and output
- Costs link better with other activities
- Easier to identify budget faults

### 3.3 *Accounting*

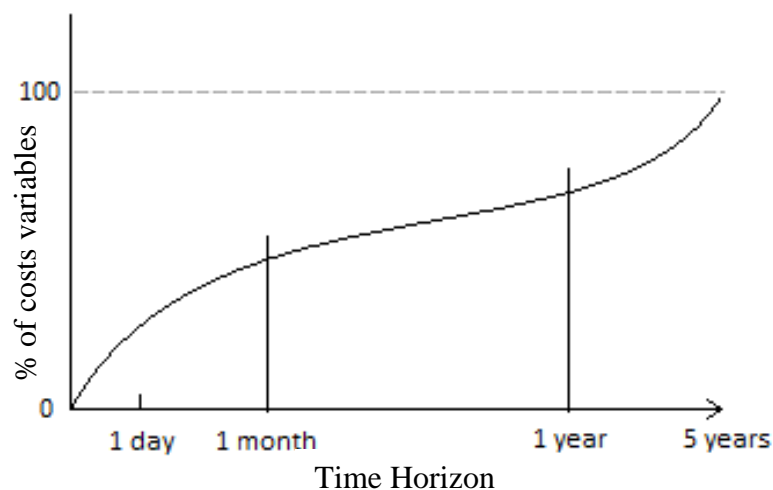
IT Financial Management accounting differs from traditional accounting. There must be defined additional category and characteristics that allows the identification and tracking of service-oriented costs and capital items. Financial management acts between the corporate financial system and the service management. Service-oriented accounting gives more details and understanding about the service provisioning and consumption. These data can be directly used in the planning process and finally in budgeting. (ITIL V3 b. 2007. p.102)

IT accounting is a function that helps the organization to determine the financial cost, benefits, and risks of an IT service. IT accounting translates financial



accounting information in a framework of IT services. Assets, liabilities, revenue and expenses are transferred in a form that also IT department and business units benefit them. (Ryan et al. 2009. p. 2)

Major function of the management accounting and also the IT accounting, which is part of it, is to support the managerial decisions making that strives to maximize the financial benefits. Usually costs are divided in fixed and variable costs, especially when making short-term decisions. However, the difference between variable and fixed costs depend lot of the time scale. Figure 8 presents how all costs become variable in a long term. (Emmanuel et al. 1990. p. 129)



**Figure 8** Time effect to categorization of costs (Emmanuel et al. 1990. p. 129)

Many frameworks put the expenses into three different kinds of groups according to their characteristics:

- Cost and benefit types. (The category of expenses, such as hardware, software, administration and staff; and benefits, such as contribution to net income).
- Cost classification. The end use or purpose of the expense, such as capital expense, operational expense direct or indirect cost.
- Customer/service recording. The assignment of an expense or cost to a specific customer or service.

(Ryan et al. 2009. p. 2)

ITIL continues this list further with two other groups:

- Fixed and variable costs. This segregation divides costs based on time or price. Overall, the main goal is to optimize fixed service costs and minimize the variable.
- Cost units. A cost unit is identified and accounted unit for a particular service or service asset.

(ITIL V3 b. 2007. p.102)

This slightly different approach to accounting creates the IT cost structure more visible and enables to measure performance of the IT organization. Moving, from cost accounting to the service accounting, changes dramatically the dynamics and visibility of traditional accounting. Finally, this allows a higher level of service strategy development and execution. (ITIL V3 b. 2007. p.102)

IT accounting should provide exact costs that can be put into IT costing model. As a result, the organization can benchmark its service costs against competitors. The purpose is to produce value of service and finally pricing may be variable if a customer wants better quality of service (quicker response time, more backups etc.) for some reason. (Ryan et al. 2009. p. 21)

### **3.3.1 Cost types and cost classification**

There should be basic cost types that can be applied consistently across services when cost types are created first time. These costs are hardware, software, maintenance, personnel, miscellaneous personnel costs, building and facilities costs, internal and external overheads, and supplies. The contents of these costs are shown in table 2. (Ryan et al. 2009. p. 10)

**Table 2** Cost types of IT (Ryan et al. 2009. p. 11)

<b>Cost type</b>	<b>Potential costs</b>
Hardware	<ul style="list-style-type: none"> <li>- Purchase</li> <li>- Depreciation</li> <li>- Maintenance</li> <li>- Installation</li> <li>- Upgrades</li> <li>- (Also servers, mainframes, storage, printers, load balancers, other devices)</li> </ul>
Software	<ul style="list-style-type: none"> <li>- Software or application costs</li> <li>- Operating system</li> <li>- Database and data management</li> <li>- Messaging</li> <li>- Middleware</li> <li>- Ongoing patches</li> <li>- Upgrades</li> </ul>
Infrastructure and environmental costs	<ul style="list-style-type: none"> <li>- Workspace rent</li> <li>- Power</li> <li>- Upkeep/Maintenance</li> <li>- Security</li> <li>- Networking and internet bandwidth</li> <li>- Supplies</li> </ul>
Labor costs	<ul style="list-style-type: none"> <li>- Estimation of time consume to a specific activity</li> <li>- Training</li> <li>- Traveling</li> </ul>
Overhead	<ul style="list-style-type: none"> <li>- Management salaries</li> <li>- Costs that are not allocated to other cost categories</li> </ul>

This cost grouping is done by cost classification in ITIL. Direct and indirect costs, fixed and variable costs and capitalized costs are classified in different groups. Direct costs are attributed to a specific service and indirect costs cannot be attributed exactly to a specific service. Indirect costs can be included in an organization's overhead. Capitalized costs are useful cost accounting method to spread IT costs over time. Tracking these capitalized costs requires closely work

with financial department. (Ryan et al. 2009. p. 11)

### **3.3.2 Fixed and variable costs**

Costs are either variable or fixed with a respect to a specific activity in a certain period. Variable costs changes in a given period due to the changes in activity or volume. Fixed costs remain at the same level despite the changes in activity or volume. (Horngren et al. 2006. p. 30)

Fixed costs are usually hardware costs in IT. Some other fixed costs are for example, server cost and maintenance cost. Variable costs are mainly consisting of IT staff costs, which changes depending on the level of utilization. (Ryan et al. 2009. p. 11)

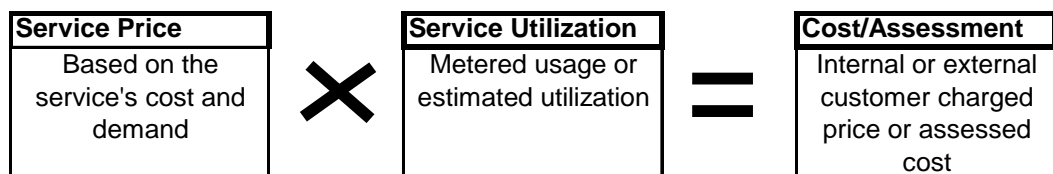
Variable cost dynamics (VCD) is also one that is presented in ITIL. Variable cost dynamics concentrates on analyzing and understanding of variable costs and their impact to the service price. VCD analysis can also be used to identify unit cost changes by adding or subtracting variables of service. VCD analysis might be very challenging because the number and type of variable elements can range greatly depending on the type of the service being analyzed and therefore the sensitivity analytics can become quite complex. (ITIL V3 b. 2007. p.102)

There is defined a short list of possible variable cost components in ITIL version 3 (b. 2007. p. 102):

- Number and type of users.
- Number of software licenses.
- Cost/operating footprint of data centre.
- Delivery mechanisms.
- Number and type of resources.
- The cost of adding one more storage device.
- The cost of adding one more end-user license.

### 3.4 Charging

Charging is the process of billing internal and external customers' usage of services. Two key principles are needed to arrange charging: rates and usage information. Figure 9 shows how the service charges build up. Service prices are based on accounting information, demand forecasting and other relevant information. Usage information should be based on the actual measurements and estimates. (Ryan et al. 2009. p. 16)



**Figure 9** Cost formation (Ryan et al. 2009. p. 17)

The service price consists of the service's costs. Traditionally there are three major elements in the cost of a service: direct supplies, direct labor and service and/or administrative overhead. Direct supplies can be identified as a part of the service and can be traced to the service. Direct labor costs consist of the wages that can be associated directly with a service. Overheads are all other costs than direct supplies or direct labor costs that are associated with the service. (Brimson. 1994. p. 219-220)

Service utilization measuring should be specific, measurable, relevant and timely. In addition, the following differences should be clarified in IT before charging can be implemented:

- Identified cost drivers
- Built controlling and collecting system for metrics
- Defined policy and rules around the aggregation and presentation of metrics
- Opened and explained measures calculation

(Genetin et al. 2008. p. 3)

It is important to cooperate with business to get them also to understand value or service of IT. Otherwise IT accounting and charging is only explaining why perceived costs vary. Charging should be done to encourage customers to use only services that they really need. Charging must add value to the business and it have to be so simply that business also understands it. (ITIL V3 b. 2007. p.110)

There are many different chargeback models and they vary depending on the simplicity of the calculation and the business ability to understand them. ITIL (V3 b. 2007. p. 110-111) provides a few chargeback models:

- Notional charging is a technique whereby a customer is informed of what the charge would be for the service used, although no actual funds change hands.
- Tiered subscription contains different levels of service. Each level is separately priced and customer can choose which level he wants to use.
- Metered usage charging requires ability of the company to capture real-time usage. On this basis, can charging implemented then based on hours, days, weeks etc.
- Direct plus is a less complex model where service's direct costs are charged accordingly with some percentage of indirect costs shared amongst all.
- Fixed or user cost is the simplest chargeback model. An agreed denominator divides costs such as number of users. This is easy way to allocate costs, but does not give visibility of the costs.

David McCann (2010) presents chargeback models in his article *The New Star of IT Cost Allocation*. He presents lump sum and granular models and their combination. Lump-sum model allocates costs at once based on the revenue or head count of the various units. Granular model provides usage-based chargeback. Usually companies are using combination of these. The most important is to find small number of the service categories and link costs them. Categories can be for example network connectivity, desktop computers, laptops, mobile devices, e-

mail and collaboration tools, financial systems, customer management systems, databases, and reporting tools. The general rule is that the more understandable categories are, the more controllable they are.

Patricia Genetin and David Messino (2008. p. 7-8, 10) have built, in their article IT Financial Management and Cost Recovery, practical steps for the implementing chargeback methodology. However, in many organizations it is not easy to achieve full understanding of IT costs because of tight budget untying and shortcomings when taking these steps. Ten steps to the chargeback modeling are the following:

1. Define IT services and develop a catalog for them. The catalog must contain business-oriented descriptions, scope, service levels, measurements, owners, customers and users.
2. Determine the components of the services. The components are for example labor, hardware, operating systems and application software.
3. Identify the cost elements of the services.
  - Search and categorize direct and indirect costs to the service.
  - Review the contracts.
  - Categorize the fixed and variable costs.
4. Determine how the low-level services are linked to the higher-level offerings.
  - Analyze the usage patterns.
  - Identify the cost drivers.
5. Develop a chargeback strategy for each service.
6. Consider the corporate financial functions such as budgeting, controlling, procurement, tax and general accounting.
  - Determine how accounting coding translates allocation as automated as possible.
  - Consider the standards and the naming conventions for identifying the cost attributes such as fixed, variable, direct and indirect.
7. Share information about the chargeback methodology.
  - Keep business updated.

- Educate and communicate.
  - Do not forget the change management.
8. Get approvals and ensure buy-in.
  9. Implement the chargeback methodology. Baseline reporting and the key performance indicators must be involved in.
  10. Measure and report on savings and after that solicit feedback. Do not forget to develop the process continuously.

To make IT as a positive return on investment (ROI) or a business partner in the organization, charging process has to be improved continuously. More accurate usage and costs information are needed to capture by IT organization. Often this is taken with the automated tools that track IT resources and link them to the costs. The service charging should also be based on the usage, not an approximate consumption so that services can be improved. (Ryan et al. 2009. p. 20-21)

### **3.4.1 Pricing methods**

There are many different ways to solve the charging. Without the service pricing it is almost impossible to carry out IT Service Management approach. Mark J. Denne (2007) has presented four different ways to implement pricing in his article of Chargeback Demonstrates IT Value in the enterprise. He underlines that usage-based chargeback is the best way to build a price-to-value relationship between IT and business and he also sees that usage-based chargeback is one of the cornerstones for running IT as a business within a business. All of these chargeback scenarios aim to make the IT costs transparency and make consumers to see benefits of IT. He presents in his article the following four basic methods for the pricing IT services: subscription pricing, peak-level pricing, user-based pricing and ticket-based pricing.

Subscription pricing is the simplest chargeback model. In subscription pricing the pricing is not been made based on the use. The pricing is made with a pay-per-use model in which prices are determined beforehand. This pay-per-use model



requires much more monitoring and measuring. The operational costs of IT are calculated and amortized across a subscription period and then the price is formed by dividing these costs between all the users of the service. Disadvantages of the subscription pricing are lacks of monitoring and cost justification. Model assumes that all users use the service at the same time and at the same level. Therefore, there are no penalties for the excessive consumption or peak time usage. Because of the actual level of consumption cannot be measured and calculated, it is impossible to explain the cost justification to the skeptical customers. (Denne. 2007)

Peak-level pricing is as a like subscription pricing and moreover it adds a mechanism to monitor and record the peak consumption. Customers are billed based on the peak consumption, not the average consumption as in a subscription pricing. This pricing method is easy to measure and it brings the clear cost justification. Only the peak level usage has to be measured and recorded. It is also easy to show when consumers are using more than the basic level resources. However, this approach penalizes those units who have only few peaks in a given period. Fairness can be improved reducing the analysis period. (Denne. 2007)

User-based pricing is useful if the user management is a bigger cost issue for IT than the hardware usage. Thus, the users are charged based on the usage. This method is quite easy to implement, especially if a single sign-on system is in place. There is also a clear cost justification, because the authentication records provide the basis for the cost justification. Negative thing is that this model ignores the system loads. It does not recognize the heavy users. (Denne. 2007)

If the quality of the service is critical, the ticket-based pricing should be used. The ticket-based pricing is simple, cost justificatory, pinpoint to monitor and can be used to regulate consumption. It is easy to keep track of consumption and reduce the peaks with the tickets. The ticket hoarding can be seen as a disadvantage. To avoid this stockpiling it is worthwhile to create “use-by” dates on the tickets. (Denne. 2007)

Chargeback is a one way to give better understands and value of IT services to the businesspeople. As a result, IT is bought and consumed like other services; IT can become a business within the business. (Denne. 2007)

### **3.4.2 Allocation**

Cost allocation is the process of identifying and assigning the costs of services for the business units. The cost allocation is less concerned with the actual amount of the cost as a cost rating, but it is more focused on allocating or assigning the cost to the correct unit or division. Cost allocation can be seen as a tool that helps track all costs associated with the ongoing operation more efficiently, since each cost is associated with specific departments or groups of departments within the organization. (WiseGEEK. 2010)

There are two kinds of departments in companies – operating departments and support departments. A support department provides services to the operating departments which are making the products. Managers have two main problems that come to allocating costs from the support department to operating departments or divisions:

1. Will support department's fixed costs be allocated to the operating divisions?
2. If fixed costs are allocated, will they be handled in the same way as variable costs?

(Horngren et al. 2006. p. 532)

Evans Hugh and Deporah Wall (2008. p. 39-40) wrote on their article about cost allocation from service-based approach. Well planned and built allocation rules can help to drive the effective consumption of the services. The service-based approach brings six key benefits to the allocation. First, it establishes a common language between business and IT. Business come awareness of their consumption and costs of it. Secondly, IT enables creation of service-level agreements and introducing them into incorporate level. Third, demand and

supply tensions come more visible between the functions and the business units. Fourth, business targets come closer to services. Fifth, the central visibility of service consumption enables more bargaining power and sixth benefit is that it gives ability to distinguish components between fixed and variable costs.

Many companies are still using an allocation method in which operating costs are distributed at once based on the revenue or the head count of the various units. This method does not provide a clear link between the costs and the volume of services consumed and for that reason usage of IT services would not decrease because departments do not detect lower in their charges. (McCann. 2010)

Allocating shared IT resources is challenging. For example, virtual server might be used by many different IT services. One possible solution is, first to group these shared costs and then allocate them proportionally based on the respective service's share. (Ryan et al. 2009. p. 11)

If business understands fully service costs and allocation processes, it helps them to use cost models while designing and planning future. Understanding also provides insight into cost structure and creates an opportunity to optimize money used in IT. (Genetin et al. 2008. p. 8)

### **3.4.3 Service department allocations**

Service departments are the departments that exist to provide services to other units within the organization. Service departments are also sometimes called support departments. Service departments provide services for production departments as well as for other service departments. Difficulties arise because each service department accumulates the charges from the other service departments from received services and finally these costs must be reallocated back to the user department. (Drury. 2004. p. 70, 82) The activity based costing (ABC) provides a better way to allocate the indirect product costs because it search the use of cause and effect the cost relationship to these causes, but cost

allocation is still problem also for ABC because of the service departments cost allocation to the other service departments. (Jacobs et al. 1993, p. 20)

Colin Drury (2004. p. 83-86) presents four different methods to allocate the service department costs:

1. *Repeated distribution method* – In this method the service department costs are allocated in the specified percentages until the figures become almost insignificant.
2. *Simultaneous equation method* – Method calculates the total costs of the service department and allocates those costs further in the specified percentages. The service department costs include in also the other service department costs.
3. *Specific order of closing method* – Method allocates overheads to the production department in a certain order. The service department that does the largest proportion of work for other service department is closed first – and so on.
4. *Direct allocation method* – Method ignores the inter-service department service reallocations and therefore the service department costs are reallocated only to the production departments.

#### **3.4.4 Transfer pricing**

Transfer pricing in a term can refer to the several different definition. Karjalainen and Raunio discuss this term as a pricing of transactions between nearby companies from tax viewpoint in their book *Siirtohinnoittelu*. Transfer pricing is essentially a question of tax revenue sharing between two countries. (2007. p. 14, 17)

There are two kinds of transfer pricing methods: traditional methods and profit-based methods. Traditional methods are comparable to the uncontrolled price method (CUP), the resale price method (RPM) and the cost plus method (CP). Profit-based methods are the transactional net margin method (TNMM) and the

profit split method. OECD recommendation of the primary transfer pricing method is the uncontrolled price method that must be used when it is possible. (Karjalainen & Raunio. 2007. p. 65-66)

The CUP method provides the best evidence of an arm's length price. In this method, the price is compared to the market price. In the resale price method comparison is made at the level of gross margin. The resale price method is most appropriate in a situation where the seller adds relatively little value to the goods. The cost plus method uses margins calculated after direct and indirect costs of production. The transfer price is formed by adding a profit mark up to the costs. The TNMM is almost as the cost plus or the resale price method but it compares gross profit margins. The profit split method may be applied when the operations of two or more non-arm's length actions are highly integrated, making it difficult to evaluate their transactions on an individual basis. (International tax institute. 2010)

### ***3.5 CobiT approach to IT Financial Management***

The aim is to build a framework that will facilitate defining the costs, benefits, prioritization within the budget, a formal budgeting process and management against the budget. Framework is built in collaboration with the stakeholders, so that all the costs and benefits are aligned with the IT strategy and tactical plans. Stakeholders are both IT and business stakeholders, which enables the effective and efficient use of IT resources. This also increases IT's transparency and cost control, as well as the business-side benefits become more visible. (CobiT. 2007. p. 47)

The financial management framework, prioritization within IT budget, IT budgeting process, cost management and benefit management are the control objects in order to manage IT investment. Eight different input documents have to be noticed when making IT investment. These input documents produces the following outputs: cost-benefit reports, IT budgets, updated IT service portfolio

and updated IT project portfolio. (CobiT. 2007. p. 48-49)

CobiT's delivery and support part 6 is the second dimension, where is discussed about IT financial perspective. This section focuses on IT's existing costs and their allocation. IT costs must be measured accurately that it can be created a fair and equitable system to allocate IT costs to the business. In addition, the business users must approve allocations. Process includes building and operating a system to capture, allocate and report IT costs to the users of services. (CobiT. 2007. p. 121)

CobiT urges first to identify all IT costs and align them to the IT services. This will help to build up a transparent cost model that enables IT services linking to business processes. Allocation can be planned only after identifying the costs. Costs should be allocated according to the enterprise cost model. If there are differences between the forecasts and the actual costs, they should be analyzed and reported forward. (CobiT. 2007. p. 122)

In order to get cost modeling and charging reliable has to be developed an IT costing model that support the calculation of the chargeback rates per service, it has to be identifiable measurable and predictable by the users to encourage the proper use of the resources. The cost model must be regularly reviewed to meet the changing business and IT activities. (CobiT. 2007. p. 122)

### **3.6 *Risk management***

The risk is an unexpected event that is threat for the normal function. Services reduce customers' risks but at the same time they transfer the risks to the producer. Risk premium is usually taken into account in the service price. There are varieties of risks, but IT risks are usually such as technical problems, loss of the control in operations, breaches in information security, delays in launching services, failure to comply with the regulations, and the financial shortfalls. The

risk exposure is often measured in financial terms and in terms of the loss of goodwill among the customers, suppliers and partners. (ITIL V3 b. 2007. p.199-200)

IT risk management aims to protect IT assets such as data, hardware, software, personnel and facilities from the external (e.g. natural disasters) and internal (e.g. technical failures, sabotage, unauthorized access) threats. Purpose is to minimize this kind of threats and at least minimize costs if threats are occurred. (Bandyopadhyay et al. 1999 p. 437)

Bandyopadhyay et al. (1999. p. 437-442) present in their article how risk management should be organized. They divide risk management in four components: identification, analysis, risk-reducing measures and monitoring. To identify the risks IT manager should first define the IT environment. After identification should the analysis be done and the risk impacts calculated. At the final stage is risk monitoring. Risks must be monitored and see how their management has succeeded.

IT can also transfer the risks to its vendors. If vendor costs are fixed, IT should encourage minimize the usage and hence to reduce the costs from financial perspective. But on the other hand when the costs are variable, IT should warn the users that expanding usage usually leads to increased costs. (Genetin et al. 2008. p. 6)

### ***3.7 Certification of IT Financial Management***

Companies have an opportunity to get a certificate, which certifies that IT Service Management is used in their company. This certificate is ISO 20 000 and it consist of two parts. Companies can use ITIL or some other framework to achieve this certificate to their company. Here is only focused on IT Financial Management solutions that ISO 20 000 requires.

ISO 20 000-2:2005 covers only budgeting and accounting for IT services, because

charging is seen as an optional activity. ISO 20 000-2:2005 specifies that companies should have a policy, which defines the following issues to IT Financial Management:

1. Accounted cost types.
2. Allocation of the overhead costs, e.g. flat rate, fixed percentage, or based on the size of the variable element.
3. Business customers' structure clarified, e.g. business unit as one unit, subdivided into the department, or by the locations.
4. Rules for the budget change management, e.g. size of variance of the budget that will be escalated to the senior management.
5. Compatibility to the service level management.

(ISO/IEC. 2005. p. 13)

According to ISO 20 000 budgeting should take into account the planned service changes during the budget period and plan for the management of shortfalls should exist for the prospective budget overruns. The budget overruns should be early warned by the cost tracking and there should found a process in which the implications of variances are managed against the budget. (ISO/IEC. 2005. p. 14)

Cost accounting must able to track the costs at the agreed level over the agreed time. Built-up cost models should give the correct view of the different service costs. Accounts should demonstrate recovery level of service and show is it over or under-spent. Moreover, the cost model should allow the reader to understand the costs of low service levels or loss of service. (ISO/IEC. 2005. p. 14)



## **4 IT SERVICE MANAGEMENT IN A CASE COMPANY**

Case company is a part of Group that operates in a global scale. The Group Company is a worldwide supplier of plants and services in several industrial branches. Company has a global presence with over 100 locations including production and service sites. Group employs over 10 000 employees. (Company. 2010)

Group's strategy is to serve markets with long-term and sustained growth potential in all its business areas and the main goal is to become the world market leader in all of the markets it serves. Within these markets, the Group focuses on fast growing segments. One important goal is extending the service portfolio in order to help customers achieve their goals in terms of productivity, profitability, and sustainability. The Group invests heavily in research and development. The main goal in research and development is to develop customized technologies that enhance productivity of customer's plants, minimize operating costs, and maximize energy efficiency and environmental protection. (Company. 2010)

Case company is Group's Finnish subsidiary. Case company's competence centers are located in five different towns and headquarter is located in metropolitan area. IT staff is not located in one central location. They are also located in all of these six locations. Case company is also responsible for whole North European region IT operations. (Company. 2010)

In year 2008, the case company was forced to make, as many other companies, cuts in the staff costs. The company's IT department did also not survive without a reduction in personnel. Before this staff reduction IT's allocations were only made based on the overall costs. Company's IT manager felt himself desperate in employer-employee negotiations, because he did not know how the costs were built up in reality. After this event the company's IT manager saw that something

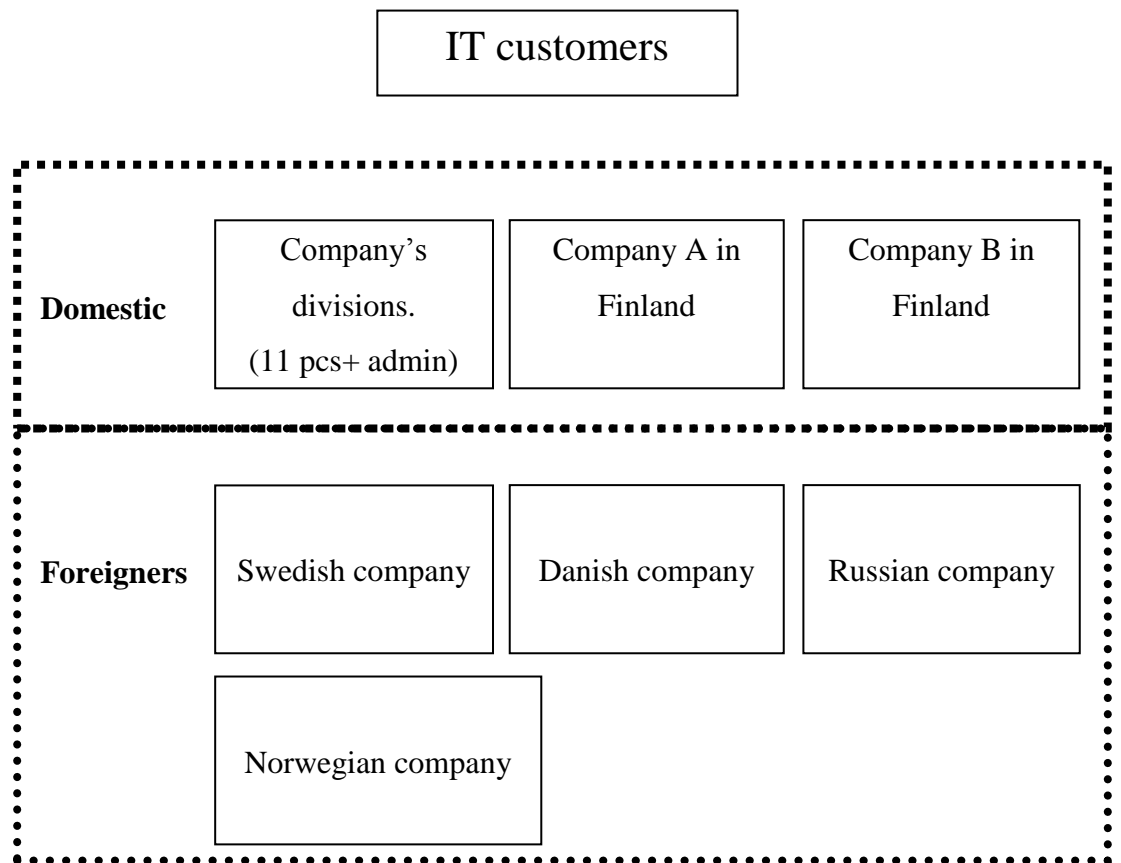
must be done and he started to take forward ITSM perspective in the company.

ITSM perspective has now advanced to the stage in a case company that company's IT services are gathered in IT service catalog. At the begin company's IT services formation was made on the IT infrastructure side and now application management side is also included in. This has resulted in a one common IT service catalog where the company's most important IT functions are expressed in different kind of services. Part of this catalog is overviewed in appendix II. The catalog contains the services, categorization of the services and prices.

It has been decided in a company's Group level that in first phase following processes are included in a scope of IT Service Management approach in a Global level: Demand management, Service Portfolio management, Service Catalog management, Information Security management, Change management, Release and Deployment management, Incident management, Request fulfillment and also one function has established – Service desk. These phases have defined in a Global level and Finnish subsidiary has also already closely involved in IT Financial Management process.

#### ***4.1 IT customers and service content***

Company is offering its IT services to many different customers. The biggest ones are company's own divisions for what the Finnish IT department exist but also services are sold in a global scale to other Group's companies. Transfer pricing rules are used when IT services are sold outside the Finnish subsidiary. In figure 10 is shown some of the IT department's customers.



**Figure 10** Customers

Today IT services are sold to the customers with help of the service description. The service description defines service's content and operation range. Also service supporting hours and responsible persons are told in the service description. Service description is a document for the customer in which he can check what are in the scope of service. Service description is also a good source of information for IT department if it is done as accurately as possible. Service description describes the responsibilities of IT department and if some actions go out of the scope it has to be added to the service price or cost must be billed separately. In figure 11 is company's currently used service description template.

SERVICE DESCRIPTION			
Service name	Push Mail		
Version	1.1		
Valid from	2011-01-01	Valid until	2011-12-31
Scope	Finland, Sweden, Norway, Denmark, Russia		
<b>Service description</b>			
<p><b>Push Mail service</b> consists of Push Mail and Antivirus for mobile phones (GSM phones)</p> <p><u>Push Mail</u> is mainly a system that brings email to user's mobile phone making email always available. Users can read, send, reply etc. emails from their mobile phones anywhere and anytime. Service includes MS Outlook contact and calendar synchronisation with mobile device.</p> <p><u>Antivirus</u> software is a necessary for keeping mobile email usage safe. Antivirus software runs in background automatically.</p>			
<b>Service charging</b>			
Pricing: 11€/device/month			
<b>Penalty</b>			
-			
<b>Responsibilities and escalation</b>			
Business responsible	-		
Application responsible	IT Infra Services (Finland)		
System responsible	Department: IT Infra Services (Finland) Responsible person: Matti Meikäläinen e-mail: <a href="mailto:matti.meikalainen@company.com">matti.meikalainen@company.com</a> tel.: +358 40 111 2222		
Hotline	Helpdesk Support Hours: During office hours: Mon-Fri 6:00-22:00 (GMT+2) Tel.: +358 20 111 5000 e-mail: <a href="mailto:helpdesk@company.com">helpdesk@company.com</a> URL: <a href="http://helpline/helpLinePortal">http://helpline/helpLinePortal</a> Support Language: English and Finnish		
Escalation	Department: IT Infra Services (Finland) Responsible person: Maija Mehiläinen e-mail: <a href="mailto:majja.mehilainen@company.com">majja.mehilainen@company.com</a> tel.: +358 40 111 2221		
<b>Related documents</b>			
Service Specification (PushMail_ServiceSpecification.doc)			

**Figure 11** Service description

Figure 11 shows that there is first basic information about the service and then description of the service. After that, there are service charging and penalty boxes and then the responsible persons. Also other related documents are told. In this template service charging presents the price of the service. It should be perhaps

better to present what is included in the service price here. For example if there is some license costs, support services, hardware etc.

Penalty box is quite unnecessary because the company sells only to internal customers. There is no sense that IT department will make limits for itself. Penalty line is needed when the company begins to sell outside customers. Then customer can require compensation when the agreed issues are not reached but in this case penalty is not needed because customers are internal and they have to pay in any case.

Transfer pricing is used in a company whenever it is needed to write the bill. This means that also company A and B are charged with extra five percent. In practice, there is always a five percent margin for outside offered services although these outside companies are also part of the group. Therefore, it is important that the same services will not be charged twice with these five percent margin. There should found a clear definition what group offered services are and what they contain. These services must be charged directly from customers by Group in order to avoid double billing of this five percent. Company can only charge these Group services if there are some additional costs.

IT service's costs are usually budgeted half year before and charged costs are those budgeted costs. This model does not take into account possible changes in the use and does not encourage customers to report changes in use.

## 4.2 ***Future***

Next possible step is to create a catalog for business users. This catalog should consist of business IT services. Business IT service can consists of one or more IT services. The most important thing is that business IT service is such as the business user understands it. Business IT service is the one that should be charged

not the IT service.

Moreover, it is important to commit IT employees work around services. Today employees easily think only their own tasks and do not see IT as a service provider. They want rather to focus on to solve problems than improve the processes. The processes and services would be improved to the satisfactory level. It would help to make people act basis on these and that could reduce the misunderstandings. Today people make easily unnecessary work because they do not have a common method of communication.

In order to make IT Service Management to work in the case company its processes must be made familiar to all IT employees. Without this act it is easy to just overlook this approach and continue operate as before. IT Financial Management can be arranged through the services without linking it to IT Service Management but the real benefits are achieved only after everyone is acting according to IT Service Management.

One possible solution to get people behaves and thinks according to services is to make all IT management systems operate basis on the services. Modification of the existing systems can be difficult but there are already ready-make systems at the market. There is a wide range of such systems but ending up this ready-make system it is worth to pay attention that system supports all IT Service Management's processes.

## 5 IT FINANCIAL MANAGEMENT IN A CASE COMPANY

Case company's IT Financial Management is now managed by IT managers and also by the financial department. IT managers make the budgets and present the billable services to the financial department. IT managers also provide the usage figures for allocation. Financial department anyway operates only with the cost accounting and that does not fully support IT manager's decision-making. Accounting activities are based on the cost centers.

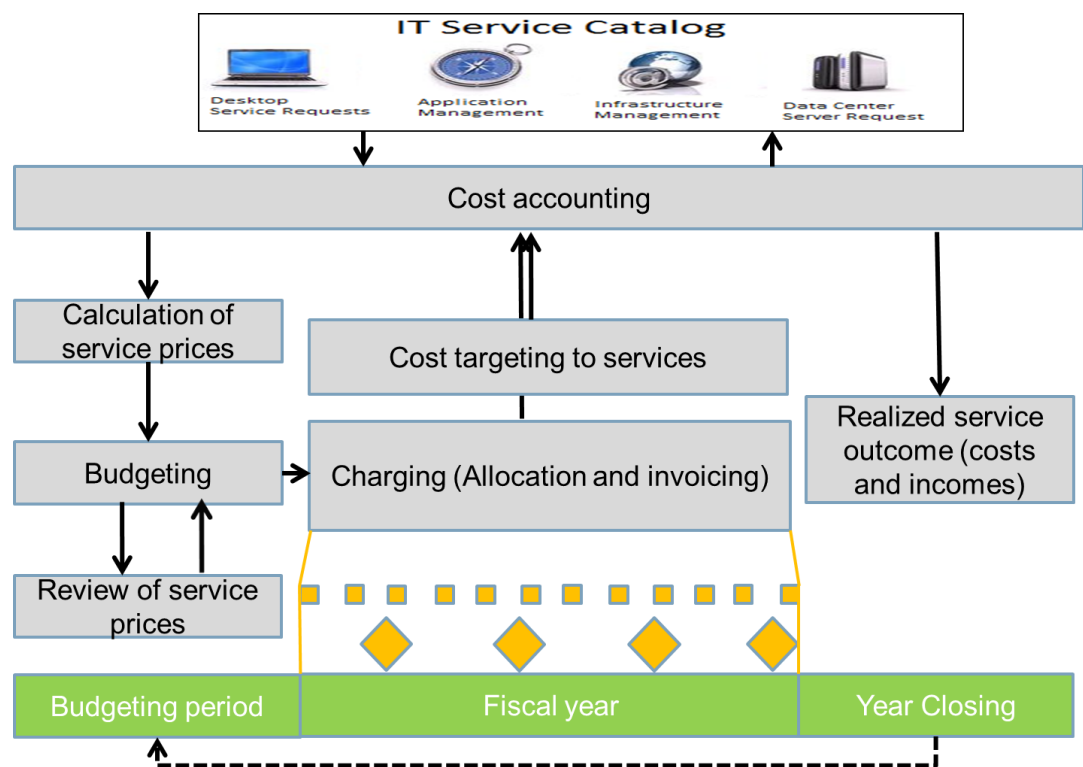
IT Financial Management is part of the administration accounting but it is nevertheless a significant expenditure in a company. Customers would like to see better how their IT costs consist of. Nowadays the invoiced customers get better specification from purchased services than company's divisions. Company's divisions see only the cost center costs and also couple of service costs. This level is seen as too inadequate and the allocation criteria should particularly take under review that is more detailed.

Currently budgeting does not meet with accounting and especially allocations. It is needed to make changes in order to make these meet and to operate according to the same model. Company's ERP system also brings challenges to this case because it operates mainly with cost centers. IT department has decided to bring work breakdown structure in the use from ERP system in order to monitor better costs per service.

As the theory presents IT Financial Management consists of three different functions: budgeting, accounting and charging. Figure 12 presents these functions linked to the financial year actions. Budgeting period usually starts half year before the fiscal year. Budget should be done based on the previous fiscal year's figures. Cost accounting generates figures for calculation of service prices. After that budgeting are made based on these prices and after budgeting should be made

review of prices. After setting the prices starts the fiscal year. During the fiscal year is charging and service cost targeting made as automatic as possible. When company reach the end of the fiscal year should IT costs reported. These reports should present the costs and incomes by service. Cost accounting is involved in all the time and it generates the financial information when it is needed. IT service catalog has been taken in this model at the top level above the cost accounting. Cost accounting provides the financial information of the services and possibly causes changes to them. It also provides significant information for budgeting and year closing.

This model can be seen as a continuous cycle and steps in it should be done annually. Some functions are overlapped during a calendar year. However, the most important thing is to see IT Financial Management as part of IT Service Management and thereby as a one factor that can cause changes.



**Figure 12** Financial actions



## 5.1 *Budgeting*

Company's budgeting period start at the summer, usually IT budgeting is made in august. This brings challenges because predicting the next year is needed to do half year beforehand. IT budgeting is traditionally made based on the accounts and the basic information has obtained from the financial department and ERP system. This approach has given very little visibility to IT managers and it provides very few opportunities to observe and make changes.

IT budgeting needs input data from the IT organization and also from the business. IT budgeting data from the IT organization is quite easy to obtain but business needs are much more difficult to detect. Business usually presents their needs when they need something and this is not taken into account in IT budget.

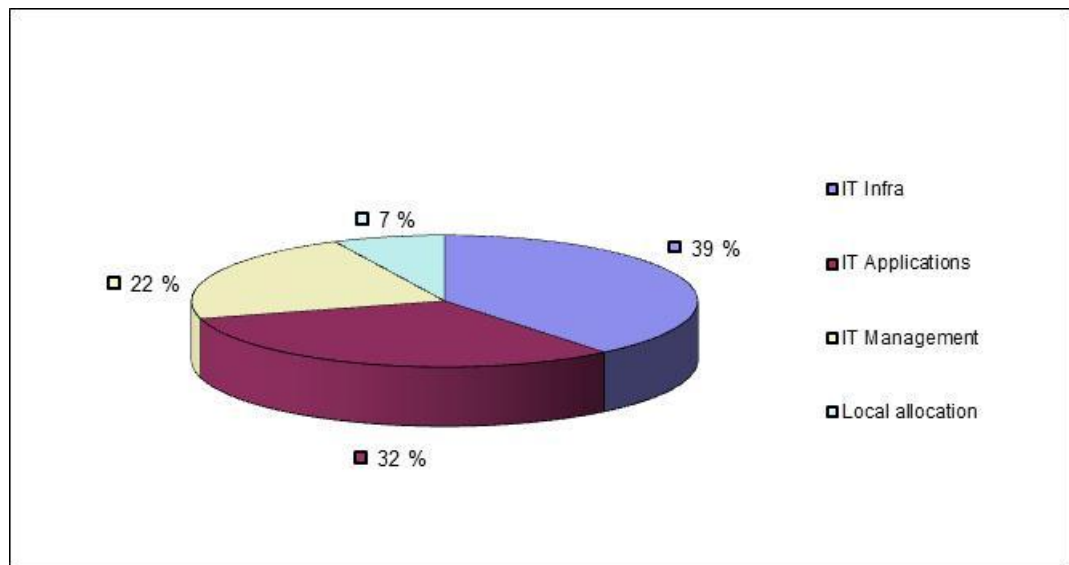
Traditionally company's IT budget was made based on the history and the figures are increased in according some percentage. This way it was easy to predict next year IT costs but it does not present how the costs were actually build up. Therefore, case company has already made budgeting based on the service catalog.

### 5.1.1 **Realization**

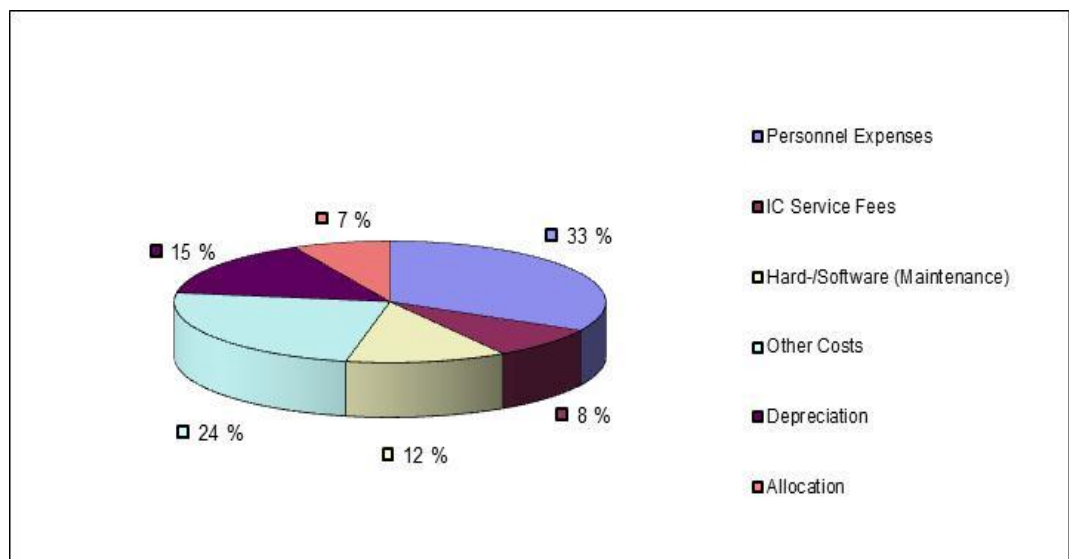
In figures 13 and 14 are shown how the company's costs have been budgeted in the year 2011. IT Department has three separate units, which creates costs. These units are IT Infra, IT Applications and IT Management. In addition, also local allocations bring costs to the IT Department.

IT Infra and IT Applications budgeting have been made based on IT service catalog. Services maintenance and development costs are both taken into account in the budget and they can be reported separately. Larger development projects are reviewed more accurate and therefore can be found this IT Management unit.

In this way the project actual cost can be seen better.



**Figure 13** IT budget allocation 2011 (Internal material)



**Figure 14** IT cost structure 2011 (Internal material)

In the figure 14 is shown company's IT cost structure. Personnel costs are the largest item of expenditure. It is one of third the size of the total costs. Personnel costs cover IT department's all labor costs.

Other costs are also a major expenditure. It consists of the many different cost-batches and here are few of them: travel expenses, data transfer, consultant expenses, external services, purchase services and training. The other costs also contain minor cost items, but the previously mentioned costs cover more than 80 percent of the other costs.

Depreciations are also an important cost item in IT budget. They are even higher than hardware and software maintenance costs. IT's depreciations are relatively short-term (3-5 years), but they still represent a significant cost in IT. In a large company hardware and software is updated continuously, so it is worth noting depreciations also in a budget stage.

Allocation costs consist of the costs from the other entities. Such costs are for example HR costs, payroll, office rent, accounting costs and admin costs. Allocation costs are based on the number of the IT labor and the office space usage.

### **5.1.2 Data collection**

Budget data is mainly collected from the last year's budget and actual costs. This is a poor order for the data collection because it should be done mainly based on the actual costs and secondly based on the old budget data. In the future, this actual cost data should be collected before the budget period and therefore budgeting focus is easier to keep in the possible changes. Earlier this budgeting was made by the cost centers and the cost accounts. The last year budgeting was first time made based on some parts to the IT service catalogs.

In the future data be should collected as shown in the figure 12. The cost data should be collected from the ERP system's work breakdown structure. The work breakdown structure data should be able to target to the services and budgeting should be done at the service level. This means that the work breakdown structure should be built so that it is together with the service catalog.

In addition, on the budget stage should know if there are coming some changes to the services. For example, if number of the service users increases, it means that you have to buy more licenses, servers, etc. Labor resource budgeting is also in a significant role because they are one-third of total costs and play an important role in some services' costs. This information can also be collected from the work breakdown structure.

One possibility would also to be collect budget data from the team leaders. IT department has seven different teams, which are shown in appendix I. The teams are responsible for produce services. The team leaders should best know how their subordinates use their working hours. They also know best if there are coming some changes to the services. The team leaders are very technically oriented people so the financial responsibility should be kept in the other hands.

Business demands are difficult to detect also with this approach. This approach however gives visibility to business what happen if their demand increases. In IT budget this means that they need to build some buffers against the unrealistic demands.

The service price calculation needs to be done for first time before the budgeting period. The previous year's prices should be compared to the costs and the new prices should be determined based on the last fiscal year's costs. After budgeting, prices will be modified if there are becoming some changes to the costs.

## ***5.2 IT Accounting***

The financial department now organizes IT accounting. Information that they provide is not enough detailed to IT managers. Information is not service-oriented and does not provide added value to IT.

At the best, IT accounting translates the financial information in a framework of

IT services. This means that IT costs are targeted to the services. IT accounting supports the managerial decisions making. The decision-making does not work if the managers do not get visibility to the costs.

Other IT costs than depreciations are seen as short-term costs in IT and usually they are expected to affect one year. As many time already mentioned, IT accounting can be managed by the work breakdown structure in a case company. The work breakdown structure allows getting more detailed cost information about services and therefore the prices may be replaced from the estimated prices to the actual cost prices.

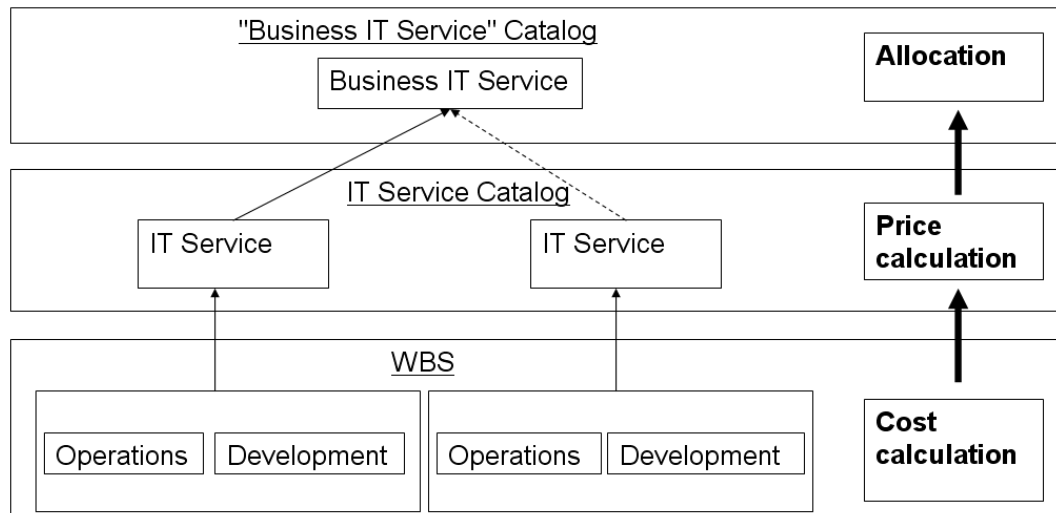
IT accounting requires also processing of ERP system's information in the future to get it a desired form. This requires manual work and therefore it increases the risk of human error. Therefore, chapter 6 presents some systems which manage all the functions of IT Financial Management.

### **5.2.1 Cost accounting**

Cost accounting has been traditionally made by the financial department and the results are not entirely satisfying IT Managers. Cost accounting needs to be taken closer to the activity-based costing. Company wants to see more specifically activities that cause the costs. The biggest costs in IT department consist of hardware, labor and licenses.

Cost accounting is carried out by the ERP system. Therefore, it is important that possible IT Financial Management solution is integrated to the ERP system. However, cost accounting is still cost center accounting and it should be take closer to activity-based costing. This means that cost accounting has to base on the services as IT Service Management perspective requires.

Case company can execute cost accounting and service price calculation according to figure 15. Cost accounting is done in the lowest level where services are divided in two components: operation and development. Costs are allocated depending on the nature of it. Operation costs are continuous maintenance costs and development costs will come when the service is improved somehow.



**Figure 15** From service calculation to allocation

Figure 15 presents one prospective solution how to calculate the service's total costs. Major costs (hardware, labor and licenses) and other costs are now distributed to the services. For example, CRM services cost structure has shown in figure 16. In this solution it is important to be able to allocate costs to the right services. Now, this cost analysis has been made based on the service owners' costs estimation. For the future it has to build a special work breakdown structure to the ERP system that allows making cost analysis without human assessment. CAPEX costs are divided into different years according to depreciations. CAPEX costs are capital expenditures that are affecting many years. It is five years in CRM case. It is very common that you have to buy more licenses in different years and for that reason CAPEX costs must be shared to different years. Five years or three years are useful lifecycle periods for IT services because they are general depreciation periods for IT technology in Finland.

Service name	CRM	Responsible team		ERP		
		Year				
CAPEX cost name	Purchase date	1	2	3	4	5
Busines Object lisenssi	30.4.2006	4 500	4 500	4 500	4 500	2 000
		4 500				

	Settling	€/year
CAPEX costs	100 %	4 500
OPEX (license maintainanc	100 %	107 749
Labor costs	100 %	12 348
Development	100 %	2 268
ERP team overhead 5%	5 %	7000
Management overhead 3%	3 %	2000
AMS Cost Center 3%	3 %	1000
<b>TOTAL</b>		<b>136 865</b>

**Figure 16** CRM cost structure

This is quite simple model to collect service costs in the same template. It is much easier to calculate services' prices per user after having this total cost calculation. It is still needed to collect and monitor number of service users to calculate how much is price per user in month. This model bunches the costs together in bigger entities but better cost breakdown can be found from the ERP system. These costs are for example hardware, software, infrastructural and environmental costs. Model makes the cost transparency little bit smaller but there is no need for the breakdown yet while calculating prices.

The model should be constructed based on the ERP system's cost control. Long-term costs are included in CAPEX figures. Such costs are hardware and license investments in IT and also potential costs which becomes when implementing of a new service. All other costs are running costs and they are divided into the three different groups: OPEX, labor and development. OPEX figure will include all operating expenses except labor. Labor costs are good to keep separate because they are in a significant role in a professional organization as IT department. Development is also wanted to see separately in a company. Therefore, it can be considered as a separate item in the price formation and its costs can be easily track down. Team, management and cost center overhead costs are needed to pass to the services. Those costs are good to pass according to some percentage to the

services. Other overhead costs such as workspace rent, power, upkeep, security etc. are included in labor hourly rate, which is needed to calculate labor costs.

Case company's ERP system produces the costs reports that are shown appendix IV. There are two cost reports for one IT service because development and operation are controlled separately. These reports are then collected as shown in the figure 16.

$$\text{Monthly price (CRM)} = \frac{\text{Total costs}/12}{\text{Number of users}} = \frac{136\,865\ \text{€}/12}{110} = 104\ \text{€ / month} \quad (1)$$

Service price is formed for example to the CRM service with the previous formula. It is needed to know the service price and denominator. In CRM service case that denominator is the number of users. Denominator can also be the number of computers or the number of workers.

Cost allocation to the outside case company divisions was made first time based on the IT service catalog. However, the case company is very affiliated with the ERP system, so this allocation method is not possible to the divisions. In the ERP system cost allocation has been made based on the number of the computers, the number of people or number of users. More specifically, IT Infra costs are allocated based on the number of computers. IT application management and IT management costs are allocated based on the number of people. Some applications are already also allocated based on the number of users.

Cost allocation to other customers than divisions is now easier to carry out because it is done by invoices. It is important to remember that transfer pricing is used in these invoices, because some of these invoices will be charged from foreign companies. Invoices are carried out by manually. Five percentage additions are always used in the case company's IT invoices so transfer-pricing principles come true.



## 5.2.2 Financial reporting

In a case company IT the financial department organizes financial reporting today. They provide information about IT's costs based on the accounts and the cost centers. This information does not provide enough essential information for IT managers so the information is mainly nice to know. Of course this information shows IT's total costs. Through IT Service Management company's IT department has observed that the costs are needed to see per service.

IT managers want to see the costs per service at the most detailed level. Especially they want to see how the working hours are divided between the different services. Some of the IT labor hours are recorded directly to the business' work breakdown structure and IT does not have visibility to these records. On the other hand, IT wants to see only the real service costs.

Case company's financial department requires that book keeping legality terms are obeyed. They need the accounts for each expense and they are not so interested in how the costs are break down in IT. Of course, they need an input data how to allocate and bill IT costs forward.

Financial reporting should present in a big scale how IT uses their money. Because in a case company IT is a support department, they can only follow up the costs. In a case where is also sold services to the customers it is also important to see does the incomes meet the expenses. The case company can only see the service expenses at the moment because most of the money transfers go through allocations.

Financial reporting should concentrate on the cost reporting. It should present only the financial figures and other reporting should be carried out by the other methods. The most important thing is to bring financial reporting also closer to IT Service Management approach from which information can be processed to the use of management reporting.

### 5.2.3 Management reporting

Management report obtains basic information from financial report but also requires additional information. It is worth to managers seeing the costs in four different levels:

1. IT total costs
2. Organizational unit costs (Cost center costs)
3. Team costs
4. Service costs

These levels can be seen from appendices I and III. It is good to monitor the costs at this level to see if some resources are used inefficiently. In a long-term, the costs can be compared to the previous years and decision-making can also be based on these results.

Management report also needs the information about the usage in order to see changes in demand. Changes in demand affect also the service allocation because prices are calculated for one year and usually only minor changes are expected. IT managers also need information about the budgeted figures versus the actual costs to the service. If there are some major differences it is needed to explain where they have come from.

Management report should give information to the managers how their organization is performing. Report must support their decision-making. In a case company, the managers want to see their financial performance on those four levels. The managers also want to see how the working hours are sharing to the different services.

Management report could be built based on the service catalog. Financial report presents the exact costs but in management report these costs could be combined. Figure 16 shows how the service pricing is made. This same cost categorization idea could be used in the management report. Management reports per service

should show CAPEX, OPEX, labor hours and development costs. Overhead costs should be monitored also by own work breakdown structure numbers.

One part of management report should consist of information about suppliers. It is important to see how much we are paying to the outside suppliers. Possible increases in costs should be monitored. It is also easier compare different suppliers if you have information todays costs.

#### **5.2.4 Customer reporting**

Customer report may be an invoice or something else that presents value for their money. Invoice should at least tell to the customer what they are charged from. This is not necessarily enough to the customer and therefore the contract negotiations play an important role. It is necessary to specify in the negotiations what it is included in service that they are buying.

Company's divisions would like to have costs broken down per user and IT services that they are using. They want to see their own division's users and possibly inefficient use of services. At least divisions want to see how many services they are using and their share of the total pot.

Company's divisions assume that this approach brings more transparency to the IT costs and possibly optimize their use of IT. At the moment it is little bit unclear to the divisions to accept their IT costs because they do not have visibility how the costs arise. In addition, they feel that costs are not shared fair. Everyone is little confused about the current accounting principles. While IT Service Management is taken forward it means additional investments from IT – mainly work.

After taken IT Service Management forward and building business IT services is this service usage monitoring per user done manually. Before that it is not worth of doing because business does not understand all IT services right now. Therefore it would not change their attitude to the IT functions and would not

optimize their service usage. Fundamentally, customer report provides customers information about their IT costs and strives to efficient their IT usage.

### 5.3 *Charging*

There are two kinds of charging methods in a case company – allocation and invoicing. Allocation method is used in to the case company's divisions and it has been implemented by the ERP system. Other customers than company's divisions are invoiced. Charging and pricing are two completely different processes which are interlinked. Charging is done after IT department has defined the prices and service consumption has occurred. Therefore it is needed information about the usage and prices that cost can be charged.

Nowadays invoicing is arranged monthly or quarterly depending on the customer needs. Invoiced amounts are agreed in the budget negotiations and then invoices are recorded according agreed amounts. Invoicing is done now according to assumed consumption, not the actual usage.

Allocation is a bigger problem due to ERP system. The current system does not encourage making changes during the year. It takes many days to change allocation criteria. In the chapter 6 is presented different systems to arrange this charging. A major limiting factor is company's ERP system and the new system should have integration for it.

#### **5.3.1 Invoicing**

The financial department makes invoices. To make these invoices they need information from IT department. IT department gives information about the costs that should be invoiced from the customers. IT department has usually given budgeted information and not the actual usage of services.

In the future service usage should be monitored with some system and invoices recorded according to usage and service prices. Service prices need to be unified and done at least at the business IT service level. The best way to understand the service prices is to make them all monthly prices.

However, it is very essential that it is explained what costs are included in these monthly prices. Monthly price may include for example: work expenses, delivery, licenses etc. It is important that it is clearly defined what is in scope of price and what is out of the scope.

Anyway, recording invoices will stay financial department's task but the invoicing criteria should be made more usage based. Of course, this usage based invoicing makes a little bit more difficult to the forecast revenues. A change in the branch where company is operating is fairly rapidly detectable and changes in services utilization are also predictable. The only trouble is that the budget is made at the summer time and you should be able to forecast the utilization further one and a half year.

### **5.3.2 Allocation**

Allocation means costs sharing forward. In a case company it means costs sharing to the divisions. Allocation is made automatically by the ERP system. Allocation criteria are checked only twice in a year.

Nowadays the costs are gathered into three different cost centers and in seven work breakdown structures. These costs are then allocated forward to the divisions. Allocation criteria are the number of computers, heads or users. These same criteria could be used when allocating costs with monthly prices but their data should be reviewed and maintained with some system.

Each business IT service should be allocated separately but allocation criteria could be same for some services. For example network could be kept as an own

business IT service but allocation still be based on the number of computers. This service allocation criterion is similar as standard workstation package has because every computer need network connection.

Service usage monitoring is in a key role also for allocation. Cost allocation should be based on the use of services. Therefore, prices of services should get as accurate as possible. If there is any sum left in the bottom line it is also needed to allocate forward. This residual is allocated according to the number of heads and therefore pricing is in an important role. Cost allocation with the number of heads does not give any transparency to the customers.

In a first phase IT department has implemented IT Service Management to its continuous services. The process developments and the major projects are kept under closer monitor but these costs are allocated according to the number of heads. In the future also these costs' allocation should be addressed better to the cost creator. Today one division can be the user of service and others are also charged for this service.

The biggest challenge is to find and to develop a system which allows that allocation criteria are easily changeable. Currently it takes three days to change these criteria for ten cost objects. These cost objects are three cost centers and seven work breakdown structures. After defined business IT services there are approximately 40 services and cost objects which should be allocated forward.

## 6 IT FINANCIAL MANAGEMENT SYSTEMS

Only a few service providers offer a holistic system for IT Service Management. IT Financial Management is often left out of the scope and in some cases IT Financial Management is a completely separate system. IT Financial Management system should support all three IT Financial Management functions. IT Financial Management system does not displace the existing financial systems. It will operate between the financial systems and the other IT systems.

In this case system should contain at least the processes that are involved in first phase of IT Service Management in the case company but preferably it should be a holistic solution. The first phase processes were: Demand management, Service Portfolio management, Service Catalog management, Information Security management, Change management, Release and Deployment management, Incident management and request fulfillment.

There are two kinds of the systems in a market. The systems are either operating independently or gathering information from other systems. In this case, system should at least integrate with the ERP system. Case company's solutions should be approved on the Group level because we are moving towards a common goal.

The holistic system should also support a usual business user. He should be able easily to check services that he is using from the system. The system could also be built so that different users have different views. For example, the lowest level user can only order some services and the higher-level user can also order services that are not available for the lowest level user. The higher-level user should be able to get some reports from the system that presents their IT usage and costs.

From financial management perspective, IT Service Management system should be able to present all the things that are required to make financial reporting. It must be able to present the cost's structure and incomes per service. In addition,

price information and its formation should be able to trace with the system.

The case company has now at least two ways to proceed with this IT Financial Management aspect. Change is anyway needed for the current situation because no one is satisfied with it. Company can proceed either Group level made program or invest in a completely new system. Systems are compared according their functions and integrations. However, it was almost impossible to make larger research because there are only a small number of vendors offering systems for IT Financial Management. A more detailed research would also have required more resources. Case company is better to wait before there is a holistic system in a market.

Group level program is called ITBilling and it can be just used to improve the allocation methods. ITBilling does not support other IT Service Management processes. In this respect the new system could be better because it could combine other IT Service Management processes in the same system and should therefore be more useful. New system would probably also require more money and time to come into the operation.

The next new approach is already coming to market. It is called cloud computing. Many professionals are already talking about it. Cloud computing allows the user easily to access services over the Internet or via a private network from any location. Services will be available when and where the users need them and the user is expected to pay only for technology capacity that he needs. (Ryan et al. 2010. p. 22)

## 6.1 *ITBilling*

ITBilling is developed in Group level to support their allocation methods. They are already pricing some of their services and ITBilling is used for invoicing those services. Prices are defined so that they cover the costs. ITBilling is a program



that combines price and the usage information. The usage information comes from another program and prices are defined by the excel calculations. After this information ITBilling transfers data to the company's ERP system and the cost allocation are carried out by the ERP system.

ITBilling supports only charging and that is a major stumbling block in the case company at the moment. Charging or rather allocation methods need to be renewed. ITBilling provides temporary relief to this problem but because due to its shortcomings it should be replaced by a holistic system at the some point. It not increases transparency enough and are not linked to other IT Service Management's processes.

Implementation of ITBilling requires an effort from the IT organization. System is not ready to use for the work breakdown structures at the moment and this feature should be developed as soon as possible. Secondly, the case company's system that monitors the usage information is not enough at a satisfactory level. This system should be updated completely and each computer's information should be checked.

ITBilling would be a good solution for the case company because it supports Group policies. However, it does not offer a tool for reporting. This means that the reporting should be done partly manually. ITBilling also does not provide the tool for price calculation. ITBilling system is a good next step to move toward IT Financial Management in the case company.

## 6.2 *Others*

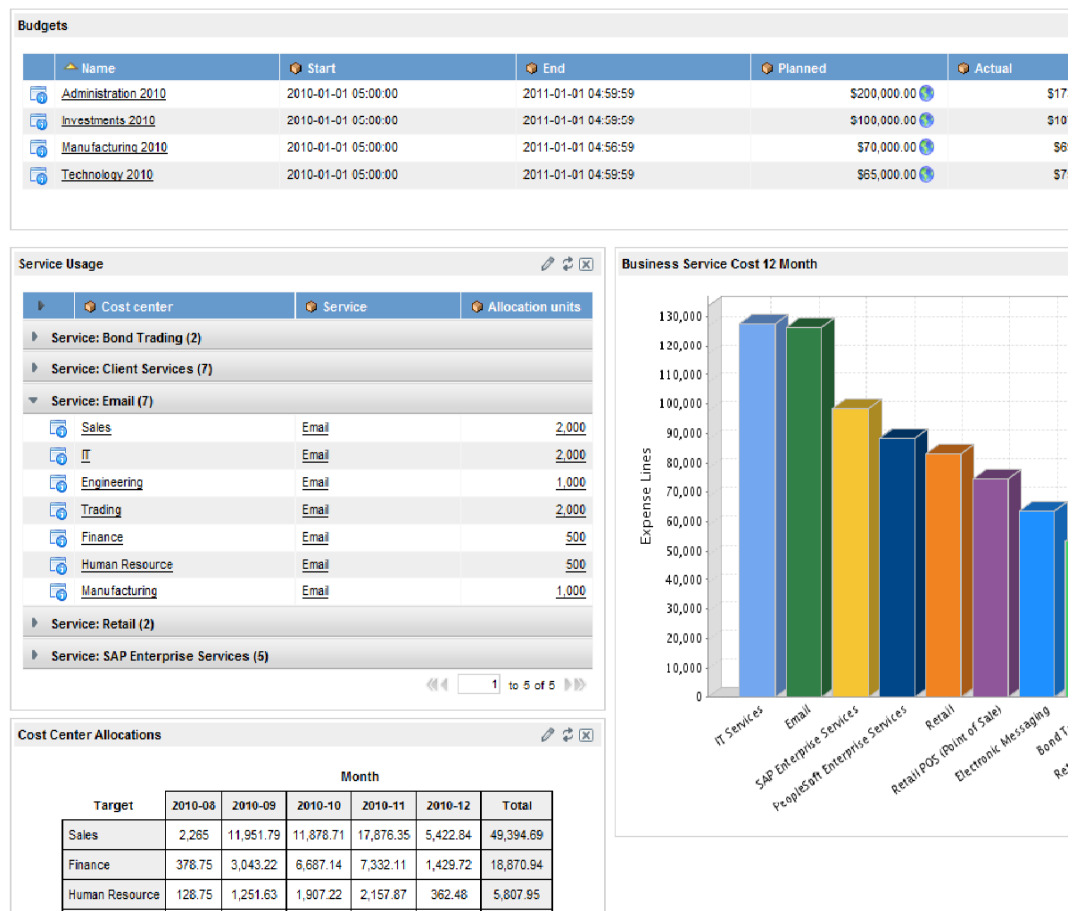
There are already some systems in the markets offering solutions to manage IT Service Management's processes. At the moment service-now.com is probably the best system. Other service providers which have also observed IT Financial Management approach somehow are inter alia IBM Tivoli, Nicus, Digitalfuel,

SAS, VAlign and Apptio. These all also supports IT Service Management approach but most of them deals only with IT Financial Management.

Thomas Mendel and Peter O'Neill (2009) have published an article titled Market overview: IT Financial Management Software. Article presents market situation in year 2009 and general requirements for IT Financial Management systems. In year, 2009 there was no a single vendor for offering a complete solution and the situation has not changed much until today. Forrester forecasted that IT Financial Management market size could be already double compared with year 2009. This development may have been slowed due to global recession because the number of vendors is still quite small. However, this area will grow rapidly in the near future.

Service-now.com is a holistic system for IT Service Management. It provides visibility to IT at many different levels. Figure 17 presents one chance how IT Financial Management could be published. Service-now.com sheet has shown budget vs. actual costs, service usage, service costs and cost center allocations. In this way it is easy to check IT costs and remaining financial resources.

Service-now.com reports are easy to establish and they shows quickly IT figures. Their reports are also visually well executed. It is important to see how much you have budget left and what are the actual costs from the financial perspective. The cost breakdowns for different services are also important to see.



**Figure 17** Service-now.com financial sheet overview (Company. 2010)

IBM Tivoli system is more concentrated on the service management. Financial management is noticed minimally and the main focus is on the service management. Some service vendors' offers additional softwares which are integrated with IBM Tivoli. IBM Tivoli consists of different softwares which are integrated to each other.

Nicus software consists of three functions: IT chargeback, IT cost transparency and budgeting & forecasting. Nicus is designed only for IT Financial Management and therefore it is not an optimal system to the case company. Nicus provides web-based reporting and all information is gathered to it.

Digitalfuel offers a SaaS (System as a service) application. The application offers

the following functions: IT costing, IT budgeting, IT showback & chargeback, IT cost optimization, IT SLA & KPI and IT vendor management. All IT Financial Management functions are noticed excellent in it. The application is also visually well designed. This could be a possible system to implement case company's IT Financial Management but still it is only for IT Financial Management not to IT Service Management. Digitalfuel's application can be integrated to the case company's ERP system.

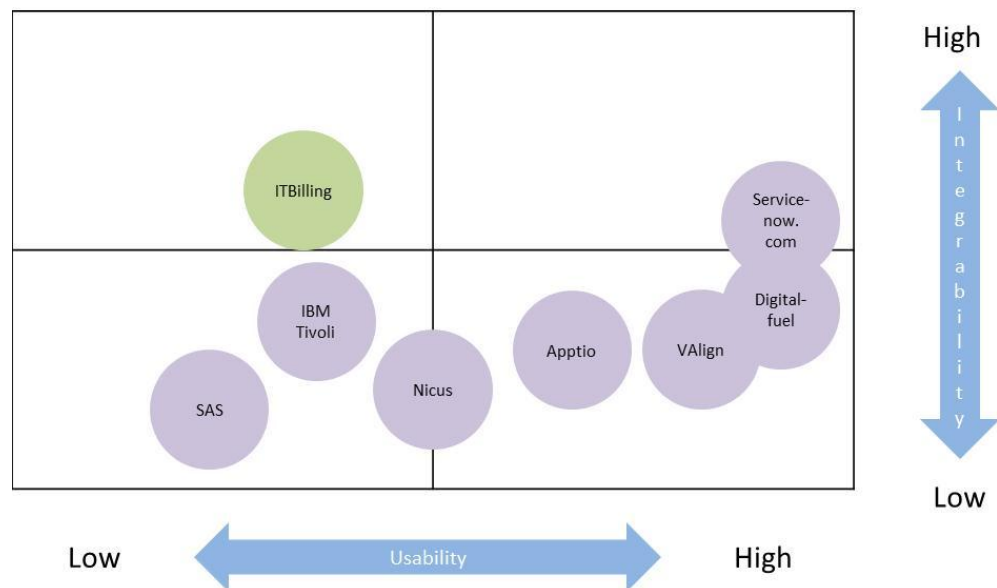
SAS has a system for IT management. There are two parts in a system - resource management and charge management. Charge management is concentrating on IT Financial Management. It provides an enterprise chargeback solution for IT organizations to track, allocate and control costs. SAS' solution is quite weak and it offers only some opportunities to implement IT Service Management.

VAlign is designed for the cloud and virtualized services. VAlign has three fundamental components: Client, Server and Reports. User can build up a service catalog and set up billing policies in Client software. Data is gathered to the server and the bills are presented via online portal or through integrations with the existing ERP systems. Financial data can be aggregated by customer, service or infrastructure in the reports. VAlign thus provides a solution for IT Financial Management but not for IT Service Management.

Apptio's system is also a SaaS system. Apptio's platform provides a flexible, secure set of options for both top-down and bottom-up data integration and management. Apptio also provides a solution only for IT Financial Management. Visual look seems a little bit primitive than Digitalfuel's solution although the content is almost same.

### 6.3 Comparison

Comparisons between the different systems were made by usability and integrability. The result of the comparison is shown in the figure 18. Usability is an important factor to make system works in the practice. If system is difficult to use and it does not easily provide IT cost reports it does not probably provide added value to IT or its customers. Another chosen factor was integrability because the case company wants one holistic system and its financial information is tightly linked to the ERP system. Therefore, integration to the ERP system is necessary because IT Service Management system or rather IT Financial Management system should support the current financial system, not to replace it.



**Figure 18** Comparison of the different systems

Digitalfuel or VAlign could be possible solutions for the case company to implement IT Financial Management system. The only disadvantage is that they do not support other IT Service Management processes. Service-now.com should be the best way to proceed with the issue at the moment but its integration with the case company's ERP system is not enough satisfactory level.

Case company is worth to wait before the vendors have a holistic solution for IT Service Management which also supports the case company's ERP system. Generally, the vendors' solutions provide transparency to the IT costs and they are visually well designed and easy to read. At the first step, the case company is worth to take the ITBilling in use from the financial perspective. It already supports case company's current systems and integrates with them. However, it is necessary to follow markets and try to find a holistic system that supports all IT Service Management's processes.

## 7 CONCLUSIONS

IT Service Management is an important part of today's IT Management and many companies have implemented it to themselves. IT Service Management encourages IT department to examine critically their functions and identify areas that should be improved. IT department is often seen only as a cost creating department that company must have. IT Service Management strives to break this belief and offers the opportunity to make IT operations more visible.

To implement IT Service Management is not an easy process. In many companies a resistance to change is quite large and things are done as before. IT Service Management anyway requires effort from the entire IT department. The first step is to recognize the different services and after that to start working basis on these services. The duties are practically the same for employees but this approach brings more visibility to the customers.

It makes sense to bring IT Service Management's processes piece by piece as the case company has done. It is not worth to bite a too big piece at once. It is important to build up an effective and proper IT service catalog, because of all IT activities should be run around this IT service catalog. Business IT service catalog can be built up with help of this IT service catalog. Business IT service can consist of one or more IT services. Making the business IT service catalog it is worth to remembering that it is done such a way that the business user understands the services.

IT Service Management presents IT activities in the different processes which should be managed. It is difficult to put the processes in order of importance but one possibility is to proceed according to the ITIL. The ITIL's first book deals with Demand management and IT Financial Management but still most of the processes are involved in the whole lifecycle.

IT Financial Management is therefore closely related to IT Service Management. For that reason IT Financial Management is also taken account in the case company. They noticed that the financial side is needed to include early stage in order to make IT Service Management work in practice. The customer anyway see first the costs and after that the benefits.

IT Financial Management can also be implemented in the pieces. Each function can be implemented individually. However, this could easily arise three different systems as it is going to happen in the case company. This means that manual work is needed more and the data may be distorted between the systems.

There are systems in the market in which all of these functions are managed in the same place so it reduces the chance of human error. These systems are nonetheless unsuitable for the case company because they support only IT Financial Management. The case company aims to get a system where are all the IT Service Management processes included in. For that reason, it is not worth to buy a system from markets before there is one, which can manage all IT Service Management's processes.

The next is presented research questions and proposed solutions to them. Giving the unambiguous answers to the questions is almost impossible. The topic is very challenging and it can be approached from many different angles. Therefore, answers are as advices that offer the best possible way to go forward.

*How IT Financial Management can be improved in a case company?*

It is recommended that the case company will continue to develop its IT processes and takes ITBilling in use to allocate the costs better. This solution requires little bit more work but is already connected to the case company's ERP system. Cost allocation is though the biggest problem in the case company currently. There are only few allocation ways but with help of ITBilling amount of these could be increased. This means that every service should be allocated individually but the



allocation key could be the same.

The next step in the case company is to build up a business IT service catalog. Without this catalog, the business users do not get visibility to the IT and its costs. The business IT service catalog can be published to the end user but it can also be shown only for the higher-level users. However, the main purpose of the catalog is to make IT functions more visible and therefore it must be in understandable form. The catalog cannot contain too IT technical vocabulary. Since business IT services are defined, should the work breakdown structure also reviewed. The work breakdown structure must be convergent with the service catalogs. Otherwise, cost allocation goes too complicated. The current structure could be held that divides costs two pieces: operational and development costs. Service charging is worth to make on only one side in order to obtain quite easily the income reports. These steps are needed to do before the next budget period to make IT Financial Management work in practice and to make it support IT Service Management in the next fiscal year.

*How an IT service pricing and charging should be done?*

Service pricing should be done on the business IT service level. Service prices are now determined for IT services. It is important that the user understand how price consist of and therefore IT service prices are also good to know. Service pricing review is worth to do before and after budgeting period. After budgeting IT department has the best estimation of the next year's costs. Budgets must be approved at the higher-level managers and after the budget approval prices can be published to the divisions. Other customers usually want to discuss about budget and after these discussions, the contract of a delivery will be agreed for the next year. In addition, IT benchmarking is done at the IT service level and the comparisons to the similar products are easier to make at the IT service level.

Charging requires more efforts than other IT Financial Management's functions at the moment. Some tool can improve charging methods easily. In this case,

ITBilling should be taken in a more detailed review. The most important thing is that the pricing and charging are reliable and fair. Charged amounts should be based on the prices and the usage information.

*Have all costs taken into account in the budgeting?*

It has been developed an own template for budgeting. It covers all costs that are expected to come to IT department. This template is a workable solution as long as all IT managers maintain it. Template allows seeing costs as financial department requires and also brings visibility to IT costs from service perspective. The disadvantage is that template does not use the price and the usage information and it does not support the ERP system's input templates.

*How to ensure the contract of a delivery and how it will be published and archived?*

The contracts are made in two different ways depending on the customer. Internal customers agree their costs at the budgeting. They see the monthly prices and expected usages which create the total costs. External customers are also part of the same group but operate independently. With them will have to be an annual meeting, where prices will be agreed. This agreement can then be sent to all parties by e-mail. However, invoicing should be based on the actual service usage.

*How financial management and customer reporting should be organized and what they should contain?*

The current systems produce some kind of reporting but they are not perfect. Cost reporting can be mainly managed by the ERP system but the usage reporting need to do some other way. The usage reporting requires probably a lot of manual work at the beginning, which means that the usage changes have to update manually. The customer reports should be sent once in a month to the controllers and they can check if there are some changes in their unit's users and the usage of services.

Reporting requires also much better communication between IT and HR and also between IT staff. The content is roughly the same in the both financial management and customer reports. The content is presented little differently and the customer report is narrower.

### *Summa summarum*

The case company's actions are very similar to presented in theory. However, the theory only produces a framework that can be applied to some extent. Practice anyway always different somehow from the theory framework. Budgeting and accounting are relatively easy to organize because they affect only to IT organization but charging is the one that causes problems. Charging also affects to other parties. Support department's cost allocation are widely researched branch and it is always possible to find the different perspective to approach support department's cost allocation. The most important thing is to find a fair model to execute it. The model should be such that all parties accept it. There were also took a slightly new approach to support department's cost allocation in this research. The aim is now to find and share the costs according to the service usage. This means that within the case company is used in both activity-based accounting and traditional cost accounting. This research did not provided an unambiguous model but it gave suggestions on how the case company could continue with this issue.

IT Service Management is a tool for the case company that makes it actions more transparency. Both customers and employees have demanded more transparency. IT Service Management should be moved forward in the case company and the most important next step is to commit IT employees better to work around it. Now IT employees still have a small confusion what is this service oriented IT approach and already working hour recording to the services causes some problems for them. They should get to think their actions as part of the services and finally just act around the services.

IT Service Management is an approach that many companies are already using. However, the next approach is coming slowly but it reminds widely IT Service Management. This approach is called cloud computing. Cloud computing supposes that user do not need any more an own computer. He should be able to use services anywhere and anytime. This will bring some new challenges, especially for the pricing.

## REFERENCES

Bandyopadhyay Kakoli, Mykytyn Peter P. and Mykytyn Kathleen.1999. A framework for integrated risk management in information technology. *Management Decision*. Vol. 37 No. 5, pp. 437-444.

Best Practice Management. 2011. Best Practice Management's network publishing. [referred 15.2.2011]. Available: <<http://www.best-management-practice.com/Knowledge-Centre/OGC-Reseller-Area/ITIL-Version-2/>>

Brimson James A. and Antos John. 1994. *Activity-based management*. John Wiley & Sons, Inc. New York. 364 pages.

Company. 2010. Internal material.

CobiT. 2007. *CobiT 4.1*. Governance Institute. Illinois. 196 pages.

Denne Mark J. 2007. Chargeback demonstrates IT value in the enterprise. Online article. [referred 9.11.2010] Available: <<http://www.cio.com/article/print/27821>>

Drury Colin. 2004. *Management and cost accounting*. Sixth edition. Thomson learning. Italy. 1280 pages.

Emmanuel Clive, Otley David and Merchant Kenneth. 1995. *Accounting for management control*. Second Edition. Chapman & Hall. London. 517 pages.

Galup Stuart D., Dattero Ronald, Quan Jim J. and Conger Sua. 2009. An overview of IT Service Management. *Communications of the ACM*. Vol. 52 No. 5, pp. 124-127.

Genetin Patricia and Messineo David. 2008. IT Financial Management and Cost Recovery. Online article. [referred 21.12.2010] Available:

<<http://www.ca.com/files/whitepapers/it-financial-management-and-cost-recovery.pdf>>

Granlund Markus and Malmi Teemu. 2004. Tietotekniikan mahdollisuudet taloushallinnon kehittämisessä. Gummerus kirjapaino Oy. 167 pages.

Grönroos Christian. 2007. Service management and marketing. John Wiley & Sons Ltd. Chichester. 483 pages.

Horngren Charles T., Datar Srikant M. and Foster George. 2006. Cost accounting: A managerial emphasis. Twelfth edition. Prentice Hall, Inc. New Jersey. 868 pages.

Hugh Evans and Wall Deborah. 2008. Cost allocation. Financial management Nov. 2008. p. 39-40.

International tax institute. 2010. Transfer pricing methods. International tax institute's network publishing. [referred 26.10.2010]. Available:

<<http://www.itinet.org/transferpricing/methods.htm>>

Innes John, Mitchell Falconer and Sinclair Donald. 2000. Activity-based costing in the U.K.'s largest companies: a comparison of 1994 and 1999 survey results. Management accounting research. Vol. 11 No. 3, pp. 349-362.

International Standard ISO/IEC 20000-2. 2005. Information technology – Service management – Part 2: Code of practice. 34 pages.

ISACA. 2010. Isaca's network publishing. [referred 18.10.2010] Available: <<http://www.isaca.org/Knowledge-Center/COBIT/Pages/Overview.aspxCoBit.>>

ITIL Central. 2010. ITIL Central's network publishing. [referred 19.10.2010]  
Available: <<http://itsm.fwtk.org/History.htm>>

ITIL training zone. 2010. ITIL training zone's network publishing. [referred 19.10.2010] Available: <<http://www.italtrainingzone.com/introduction-to-til.html>>

ITIL V3 a. 2007. The official introduction to the ITIL Service Lifecycle. TSO. Norwich. 238 pages.

ITIL V3 b. 2007. Service Strategy. TSO – The Stationery Office. Norwich. 264 pages.

ITIL V3 c. 2007. Service Design. TSO – The Stationery Office. Norwich. 334 pages.

ITIL V3 d. 2007. Service Transition. TSO – The Stationery Office. Norwich. 261 pages.

ITIL V3 e. 2007. Service Operation. TSO – The Stationery Office. Norwich. 263 pages.

Jacobs Fredrick, Marshall Ronald and Smith Sheldon R. 1993. An alternative method for allocating service department costs. Ohio CPA Journal. Vol. 52 No. 2, pp. 20-25.

Järvenpää Marko, Partanen Vesa and Tuomela Tero-Seppo. 2003. Moderni taloushallinto – Haasteet ja mahdollisuudet. Edita Prima Oy. Helsinki. 359 pages.

Karjalainen Jukka and Raunio Merja. 2007. Siirtohinnoittelu. WS Bookwell Oy. Juva. 298 pages.

Kasanen Eero, Lukka Kari and Siitonen Arto. 1993. The Constructive Approach in Management Accounting Research. Journal of Management Accounting Research. Fall 1993. Vol. 5, pp. 243-264.

Kaplan Robert S. and Cooper Robin. 1998. Cost&Effect. Harvard business school press. Boston. 357 pages.

Kotler Philip and Keller Kevin L. 2009. Marketing Management. 13th edition. Pearson Education Inc. New Jersey.

McCann David. 2010. The New Star of IT Cost Allocation. Online article. [referred 17.12.2010] Available: <<http://www.cfo.com/printable/article.cfm/14494101>>

Mendel Thomas and O'Neill Peter. 2009. Market Overview: IT Financial Management Software. Online article. [referred 14.3.2011] Available: <[http://www.ca.com/files/industryanalystreports/market\\_overview\\_it\\_financial\\_207750.pdf](http://www.ca.com/files/industryanalystreports/market_overview_it_financial_207750.pdf)>

Morton K., Streatfeild B., Clarke G. and Scriven G. 2010. IT Business Performance – Running IT as a business. Online article. [referred 28.2.2011] Available: <[http://www.sas.com/resources/whitepaper/wp\\_19916.pdf](http://www.sas.com/resources/whitepaper/wp_19916.pdf)>

Riistama Veijo and Jyrkkiö Esa. 2002. Laskentatoimi päätöksenteon apuna. 15th edition. WSOY. Helsinki. 344 pages.

Ryan Michael and Loeffler Christopher M. 2010. Insights into Cloud Computing. Intellectual Property & Technology Law Journal. Vol. 22 No. 11, pp. 22-27.

Ryan Robert and Raducha-Grace Tim. 2009. IT Financial Management: The Business of IT. Online article. [referred 14.12.2010] Available: <<http://www.informit.com/articles/article.aspx?p=1397671>>



Syntel. 2011. Syntel's network publishing. [referred 21.2.2011]. Available:  
<<http://www.syntelinc.com/Solutions.aspx?id=327>>

Tuttle Brad and Vandervelde Scott D. 2007. An empirical examination of CobiT as an internal control framework for information technology. International Journal of Accounting Information Systems. Vol. 8 No. 4, pp. 240-263.

Wakaru. 2009. ITIL v3 foundations course material. Version 2.2. Published 20.09.2009.

WiseGEEK. 2010. WiseGEEK's network publishing. [referred 16.12.2010]  
Available: <<http://www.wisegeek.com/what-is-cost-allocation.htm>>

#### Interviews:

Accounting assistant. 15.11.2011, 21.1.2011

IT Financial controller 3.12.2010

Application manager 23.12.2010

Business controller 28.12.2010

Vice president of IT & Knowledge manager. 29.12.-30.12.2010

Business controller 2. 10.1.2011

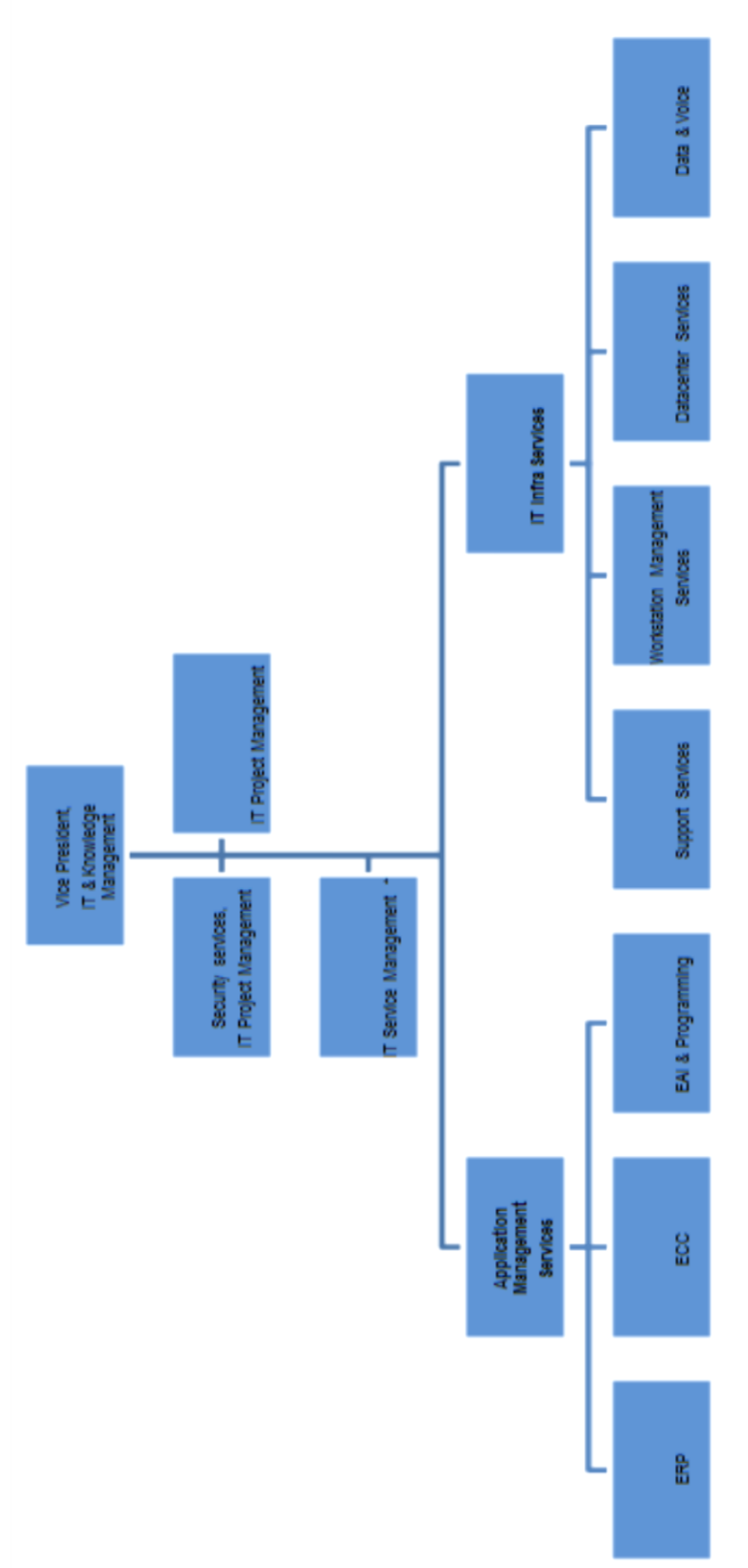
Division controller. 28.1.2011

Accounting manager. 1.2.2011

IT Infrastructure manager. 15.2.2011

## APPENDICES

### I Organizational chart



## II Overview of IT Service Catalog

Category	Service name	Description	Must	Option	OTC	Monthly cost
Datacenter services	Storage&backups	Network storage, backups and recovery service for enduser.				18 €
	eMail	eMail account	x			6 €
	eParcel	Sending and receiving large files over internet				0 €
	OCS&LM	Office communicator, Live meeting (licences not included)				0 €
	OCS-PBX integration	OCS-PBX integration				11 €
	DLO	Laptop backups and recovery		x		7 €
	Push mail	Push mail and Antivirus for GSM phones	x			11 €
	Server operations	Server operation costs	x			15 €
	Common phone services	Cid, Switch Board Operators, Fonecta				18 €
	Workstation rents	Workstation (Laptop, Desktop, Displays)				55 €
Common phone services	ASAP full usage	SAP and BI usage fully, all functionality available		x		186 €
	ASAP hour reporting	SAP hour reporting		x		8 €
	CRM service	Customer Relationship Management		x		104 €
	Invoice processing service	Basware IP, invoice processing system. Includes FastScan, Master, ThinClient, Monitor, Admin and Agent.				17 €
	Monetary transactions service	Basware FM consists of Finance, Banking and eOffice applications.		x		3 €
	Travel expense management service	Basware TEM		x		2 €
	Life-cycle document management	Hummingbird DM		x		16 €
	eRoom document service	eRoom		x		10 €
	Photo archive	Cumulus Photo Archive		x		5 €
	Salaries payment	Payroll (Logica), MB Palkat. Salaries		x		1 431 €
ERP Services	Working time control	Esmikko, working time control		x		1 €
	Single Sign-On service	SSO (Single Sign-On)		x		5 €
	Local intranet	Local intranet		x		3 €
	Global intranet	Global intranet		x		1 €
	Quotation service	KWest, quotation application		x		77 €
	Sales document generator	Salemate, sales document generator		x		47 €
	Configuration model development service	SSA Configurator		x		44 €
	BaaN service	BaaN, ERP program		x		125 €
	ERP Macros and integrations service	ERP Macros and integrations		x		17 €
	Manufacturing hour information	Jobbar, hour information from manufacturing		x		17 €
Product data management	Matrix, product data management		x		140 €	
Shipping program	Melisto, shipping		x		12 €	
Projector service	Projector, ERP program		x		76 €	
Permission manager	PPM (Propentus Permission Manager)		x		4 €	

### III Overview of cost centers and work breakdown structure

#### IT MANAGEMENT

##### IT Local Development

CPT1 Project Execution  
CPT2 Service  
CPT3 Finance  
CPT4 Engineering  
CPT5 Sourcing  
CPT6 Manufacturing  
CPT7 DMS  
CPT8 Quality mgmt  
Sales and Tendering  
Business Intelligence  
HR mgmt  
Business Process Management  
IT Management workgroup

**Document Management System**

**Mechanical engineering tools migration**

**Datacenter consolidation plan**

**IT Management**

**IT Management Unallocated depreciation**

## IT APPLICATIONS

<b>AMS Operations</b>	<b>ERP Services</b>	ASAP Operations	SAP and BI useage fully, all available SAP hour reporting
		CRM	Customer Relationship Management
		Invoice processing	Invoice processing Programs
		Monetary transactions	Finance Management
		Travel Expense Management	Travel&Expense management
		HR Services	Salaries Working time control Single Sign-On
		ERP team	ERP team admin
<b>AMS Development</b>	<b>ERP Services Development</b>	ASAP Development	SAP and BI useage fully, Development SAP hour reporting Development
		CRM Development	Customer Relationship Management Develop
		Invoice processing Development	Invoice processing Programs Development
		Monetary transactions Development	Finance Management Development
		Travel Expense Management Development	Travel&Expense management Development
		HR Services Development	SalariesDevelopment Working time control Developmen Single Sign-On Development

## IT INFRA

<b>IT Infra Local Development</b>		
	IT Infra Datacenter Services Development	IT infra Dev Server Operations IT infra Dev Storage&Backup services, IT infra Dev DLO services IT infra Dev E-mail service
	IT Infra Telecom Services Development	IT infra Dev Smartphone applications IT infra Dev Common phone services IT infra Dev OCS-PBX integratio
<b>IT Infra Operations</b>		
	IT Infra Datacenter services	IT Infra Rebillables IT Infra Networks IT Infra Server Operations IT Infra Int*net IT Infra E-mail service IT Infra Storage&Backup service IT Infra DLO services IT Infra Datacenter services admin
	IT Infra Telecom services	IT Infra Smartphone applications IT Infra Common phone services IT Infra OCS-PBX integration IT Infra Telecom services admin
	IT Infra Management	IT Infra Management
	IT Infra Unallocated Deprication	IT Infra unallocated deprication

#### IV CRM cost reports

Object Currency	EUR								
Object	WBS O-02-000001 CRM								
Person responsible	Matti Meikäläinen								
From Fiscal Year	2011 To Fiscal Year	2011							
From Period	1 To Period	12							
<b>Cost elements</b>	<b>Costs</b>	<b>Total</b>	<b>Plan</b>	<b>Cost elements</b>	<b>Actual</b>	<b>Total</b>			
343200 I/C Service Fees	-1248	-1248	-1248	343200 I/C Service Fees	-1248	-1248			
431010 Travel Expenses	1461,52	1461,52	3000	431010 Travel Expenses	1461,52	1461,52			
433919 IC Service Fees	106287,36	106287,36	85000	433919 IC Service Fees	106287,36	106287,36			
434200 Purchased service, IT work	100	100	0	434200 Purchased service, IT work	100	100			
512000 Software - Amortization	18200,04	18200,04	0	512000 Software - Amortization	18200,04	18200,04			
620000 Engineering hours	12348	12348	21312	620000 Engineering hours	12348	12348			
650400 Settlement OH Projects	-125105,6	-125105,56	-108064	650400 Settlement OH Projects	-125105,6	-125105,6			
<b>* All cost elements</b>				<b>* All cost elements</b>					

Object Currency	EUR								
Object	WBS O-02-000002 CRM Development								
Person responsible	Matti Meikäläinen								
From Fiscal Year	2011 To Fiscal Y	2011							
From Period	1 To Period	12							
<b>Cost elements</b>	<b>Costs</b>	<b>Total</b>	<b>Plan</b>	<b>Cost elements</b>	<b>Actual</b>	<b>Total</b>			
620000 Engineering hours	2268	2268	0	620000 Engineering hours	2268	2268			
650400 Settlement OH Projects	-2268	-2268	0	650400 Settlement OH Projects	-2268	-2268			
<b>* All cost elements</b>				<b>* All cost elements</b>					