



OPTIMIZING IT FINANCIAL MANAGEMENT: ANALYSIS OF COST CATEGORIZATION AND REPORTING PRACTICES

Lappeenranta-Lahti University of Technology LUT

Master's Program in Computational Engineering, Master's Thesis

2023

Rosa Katekeetta

Examiners: Prof. Lassi Roininen, D.Ph
 Inka Vilpola, D.Sc (Tech)

ABSTRACT

Lappeenranta-Lahti University of Technology LUT
School of Engineering Science
Computational Engineering

Rosa Katekeetta

Optimizing IT Financial Management: Analysis of Cost Categorization and Reporting Practices

Master's thesis

2023

40 pages, 6 figures, 3 tables, 2 appendices

Examiners: Prof. Lassi Roininen, D.Ph and Inka Vilpola, D.Sc (Tech)

Keywords: IT Financial Management, IT Financial Framework, Financial reporting

Digital technologies have transformed the business landscape, offering new avenues for companies to gain a competitive edge. However, managing the increasing costs associated with technology investments is crucial. This study focuses on improving IT cost categorization and reporting within a specific company, addressing the challenges identified through interviews, data analysis, and a comprehensive literature review. The research reveals that the case company's current IT cost categorization and reporting methods require improvement. While efforts have been made to enhance IT financial management through detailed reporting and expense tracking, the existing categorization model has become overly complex. Other challenges in the company's financial reporting were cost shares, the number of financial reports and weak communication in financial matters. A new cost categorization model is proposed to the case company to address this, building upon existing models and allowing for future service catalog integration. This model aims to provide a clear overview of the company's cost structure while accommodating detailed information when needed. The new cost categorization model and improved IT financial management practices lay a solid foundation for future service catalog integration. Completing the IT service catalog will provide an opportunity to enhance financial reporting, implement chargeback systems, emphasize IT value creation, enhance financial transparency, and optimize resource allocation.

TIIVISTELMÄ

Lappeenrannan-Lahden teknillinen yliopisto LUT
School of Engineering Science
Laskennallinen tekniikka

Rosa Katekeetta

IT-taloudenhallinnan optimointi: Analyysi kustannusten luokittelusta ja raportointikäytännöistä

Diplomityö

2023

40 sivua, 6 kuvaa, 3 taulukkoa, 2 liitettä

Tarkastajat: Prof. Lassi Roininen, D.Ph ja Inka Vilpola, D.Sc (Tech)

Hakusanat: IT-taloushallinto, IT-talousviitekehys, talousraportointi

Keywords: IT Financial Management, IT Financial Framework, Financial reporting

Digitaaliset teknologiat ovat muuttaneet liiketoimintaympäristöä tarjoten yrityksille uusia mahdollisuuksia saada kilpailuetua ja kasvavien teknologiainvestointien kustannusten hallinta onkin nyt ratkaisevan tärkeää. Tässä työssä keskitytään IT-kustannusten luokittelun ja raportoinnin parantamiseen case yrityksen sisällä haastattelujen, data-analyysin ja kattavan kirjallisuuskatsauksen avulla tunnistettuihin haasteisiin. Työn tuloksena ymmärretään, että case yrityksen nykyiset IT-kustannusten luokittelu- ja raportointitavat vaativat parantamista. Vaikka IT-taloudenhallintaa on pyritty parantamaan yksityiskohtaisen raportoinnin ja kulujen seurannan avulla, nykyisestä luokittelumallista on tullut liian monimutkainen. Muita haasteita yrityksen taloudellisessa raportoinnissa olivat kustannusosuudet (cost shares), talousraporttien määrä ja heikko kommunikointi IT-taloushallintaan liittyvissä asioissa. Yritykselle ehdotetaan uutta kustannusten luokittelumallia tämän ratkaisemiseksi, joka perustuu olemassa oleviin malleihin ja mahdollistaa tulevan palvelukatalogin integroinnin. Tämä malli pyrkii antamaan selkeän yleiskuvan yrityksen kustannusrakenteesta samalla antaen myös yksityiskohtaista tietoa. Uusi kustannusten luokittelumalli ja parannetut IT-taloudenhallinnan käytännöt luovat vankan pohjan yrityksen tulevalle palvelukatalogille. IT-palvelukatalogin luominen tarjoaa uusia mahdollisuuden tehostaa taloudellista raportointia, edesauttaa IT-arvon luomista, parantaa taloudellista läpinäkyvyyttä ja tehostaa resurssien allokointia.

ACKNOWLEDGEMENTS

I want to thank the work examiners, Lassi Roininen and Inka Vilpola, for my advice and their endless faith in completing the work, even though the original schedule was rewritten many times. I would also like to thank my supervisors from the case company for the opportunities and trust they gave me and my colleagues for helping me put together my master's thesis. A big thank you also to the people interviewed for your views and outlook on how we can improve the company's IT financial management.

I would also like to thank LUT University and the guild of computational engineering for the memorable years of study. They have accommodated a large number of sitz parties, annual balls, excursions, appros, after parties, burnt paljus, guild board work, and, as a counterweight, long study nights, retaken exams, exercises returned at the last minute and learning skills that are actually useful in terms of working life. But, above all, I want to thank my fellow students and friends. You have supported and helped me when I needed it and joined the fun when I needed it.

Helsinki, May 26, 2023

Rosa Katekeetta

LIST OF ABBREVIATIONS

B2BC	Business-to-Business-Consumer
CAPEX	Capital Expenditures
CMDB	Configuration Management Database
CtB	Change the Business
DASD	Direct Access Storage Device
GL	General Ledger
HaaS	Hardware as a Service
ITFM	IT Financial Management
LTF	Long Term Forecast
OPEX	Operating Expenses
PLM	Product Lifecycle Management
RtB	Run the Business
SIAM	Service Integration and Management
SSI	Semi-Structured Interview
TBM	Technology Business Management
TCO	Total Cost of Ownership

CONTENTS

1	INTRODUCTION	7
1.1	Background	7
1.2	Objectives and delimitations	8
1.3	Structure of the thesis	8
2	FINANCIAL FRAMEWORK	9
2.1	Financial framework	9
2.2	IT Finance Frameworks	9
3	IT COST CATEGORIZATION	14
4	IT FINANCIAL REPORTING	18
4.1	Current state of cost categorization in case company	18
4.2	New cost categorization model in case company	19
5	DATA AND METHODOLOGY	21
5.1	Qualitative study	21
5.1.1	Financial reporting	22
5.1.2	Cost categorization	24
5.2	Data Analysis	26
5.2.1	Statistical methods	26
5.2.2	Data	27
5.2.3	Data analysis results	30
6	DISCUSSION	34
6.1	Current study	34
6.2	Future work	36
7	CONCLUSION	38
	REFERENCES	40
	APPENDICES	
	Appendix 1: Interview questions	
	Appendix 2: Interview schedule	

1 INTRODUCTION

1.1 Background

Digital technologies are enabling radical new ways of delivering value to customers, changing the competitive environment, and changing the underlying economics of the market [1]. In a changing world, forward-looking companies at the forefront of technology can generate a significant competitive advantage [2]. However, the competitive advantage sought through technology does not come for free, and companies must be aware of their IT costs and investments. In many industries, information and communication technology costs are among the fastest-growing expense items [3]. Therefore in recent years, companies have optimized their IT costs even more effectively. Information systems and services are vitally essential to competitiveness for most companies, but they also constitute a significant expenditure item. IT costs can be roughly divided into two different categories: business development projects, i.e., change the business (CtB) costs, and daily operation and maintenance of IT equipment and systems, i.e., run the business (RtB) costs [4]. Every company needs the first to be successful, and the latter is an optimized expense from which savings are always sought [5].

According to Gartner, global IT costs will increase by 2.4% in 2023 from 2022. The increase in prices is due to the desire of companies to make more extensive change-the-business investments. Companies primarily use digital technology to renew their revenue stream, add new products and services, change the cash flow of existing products and services, and change the value proposition of existing products and services. At the same time, organizations also strive to operate efficiently and make cost savings, especially in the run-the-business functions of the IT budget [6]. As costs increase, it is even more important than before that the company understands both the value and importance of IT, as well as the opportunities it creates. This can be made with the right kind of transparent, trust-building communication and reporting.

The case company has consolidated its IT development and management during the past years to the central IT unit. Digitalization efforts and the number of mergers and acquisitions of companies have increased the IT offering and financial complexity. A financial accountability framework is needed because the case company has deficiencies in the structure, clarity, and transparency of IT cost statuses and development regarding reporting to the company businesses. The IT unit needs a more consistent understanding and explanation of its costs and value so that these can be communicated to the businesses.

1.2 Objectives and delimitations

Financial reporting is a clear and concrete target to start improving the relationship of trust between business and IT. The objective of this work is to create a stable foundation for clearer and more transparent financial reporting and thereby contribute to the creation of trust between business and IT. Successful financial reporting is influenced by many factors, such as choosing the right technology, training users, and ensuring sufficient data quality. In financial reporting, the work focuses on identifying stakeholders and their needs and classifying costs, which are a good foundation for developing efficient and transparent IT financial reporting.

1.3 Structure of the thesis

In the first part of the work, we familiarize ourselves with the literature related to financial frameworks and especially IT finance frameworks. The work focuses more on the IT frameworks offered by Gartner and TBM through their content, target groups, and purposes of use. In the second processing paragraph, he is familiar with the IT cost categorization models of the same IT industry research institutes.

In the fourth chapter, the case company's current IT cost classification model and its background is introduced. The new IT cost classification model, implemented in the case company with the latest IT financial reporting solution, is taught. The fifth chapter presents the data and research methods used in work. The work involved both qualitative research and data analysis. The qualitative research was conducted as an interview about financial reporting and cost categorization. Data analysis examines the factors affecting the annual total costs of the company's applications. Chapter 6 discusses the results and findings. Finally, chapter 7 presents the research conclusions and further development ideas.

2 FINANCIAL FRAMEWORK

2.1 Financial framework

A financial framework is an essential financial support structure of the company [7]. It is a system that contains regulations, practices, and methods that guide and support the establishment and operation of the company's financial matters. A financial framework is a crucial factor for successful companies or company departments, as the financial framework creates solid decision-making tools and goals. With the financial framework, the budget can be prioritized according to the company's research, development, growth, or expansion needs and wishes. It also keeps the company in line with its financial goals and shows how its current financial situation corresponds to its goals.

2.2 IT Finance Frameworks

This chapter compares Gartner and Technology Business Management (TBM) IT finance frameworks. Gartner is an international research and consulting company in the ICT sector that offers country- or continent-specific market information and consulting services. TBM is an IT management framework created by the TBM Council, a non-profit business unit committed to promoting the discipline of TBM through training, standards, and collaboration.

Gartner's frameworks are divided into three areas of IT finance: IT Financial Management (ITFM), IT Cost Management, and Business value of IT. These three areas are firmly connected, and thus, all Gartner finance frameworks fit together and support each other. The company can best be supported by utilizing several reference frameworks. In addition to Gartner's IT finance frameworks introduced in this chapter, Gartner has several additional frameworks focusing on IT cost reduction.

ITFM defines the best practices in financial planning and running the IT function. Effective ITFM ensures the company's cost base is transparent, understandable, and controlled. Common issues in this area are cost and budget transparency and visibility. Gartner's main framework in the ITFM area is the six pillars of IT financial transparency they created. This framework is typically used to take a comprehensive look at the IT department's cost base and assess the company's ITFM capability. It aims to help CIOs design multi-year programs that balance optimization with business transformation and innovation. The six

pillars of IT financial transparency are shown in figure 1. According to Gartner, these six pillars are IT spend management, strategic investment, service costing, performance benchmarks, cost optimization, and business value of IT. Gartner's IT financial framework models are based on these six pillars and focus more specifically on them individually [8].

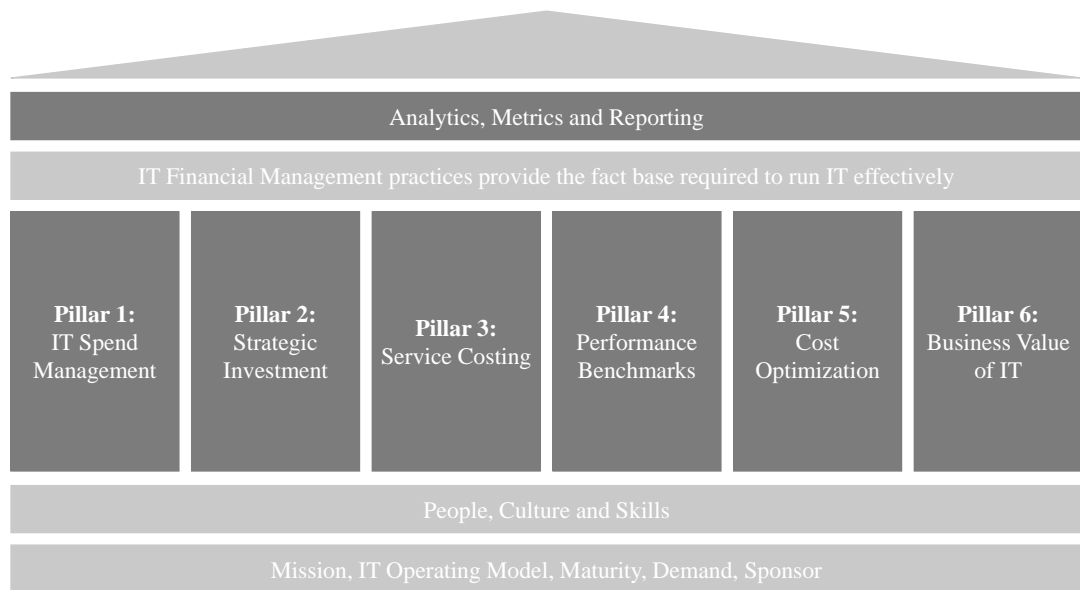


Figure 1. The Six Pillars of IT Financial Transparency

Successful financial management is based on a clear mission, a defined and understood IT operating model, sufficient maturity, and a sponsor that supports IT financial management activities. In addition, the company also needs skills, the right kind of culture that supports development, and, above all, the right people.

The first pillar, IT spend management, means the company can manage the IT budget effectively. The ability to manage and shape the IT budget in multiple ways gives a company's IT department the ability to both defend the budget and work together with the company to deliver IT value to the business. Successful IT spend management requires several different views of the IT budget, i.e., different cost categorization models, so that efforts can be supported and IT can be run like a business. The second pillar, i.e., strategic investing, means the company has a strategic investment plan. The investment plan is a process that focuses on effectively managing the IT investment's entire life cycle costs to maximize the value of the investment.

The third pillar, service costing, refers to different methods the IT department uses for re-

porting and possibly invoicing the costs arising from its services. Such methods include, for example, chargeback, show back, and various cost allocation models. The IT organization needs to understand all possible chargeable options and also help the company and business units to understand these so that the best method for a chargeback can be chosen for the company. The fourth pillar, performance benchmarks, is an essential tool to show that the IT organization is cost-effective and uses its resources for the right things. Benchmarking increases financial transparency between IT and business and creates an opportunity to identify areas that need special attention.

The fifth pillar, cost optimization, usually occurs organically in the company and is not managed centrally. To achieve the best result, however, the IT organization should prepare a cost optimization program, where the basis of IT costs is determined, a strategy is developed to optimize and implement the strategy, and the benefits achieved are monitored. The sixth, or last, pillar: the business value of IT can be demonstrated in many different ways, and the most important thing is to find the best operating methods for the company. Often, several operating models that support each other are needed for effective value communication. Business value can be shown, for example, with performance metrics, cost transparency, or the right kind of communication.

IT cost management is the underlying approach to managing IT costs in an organization. Generally, companies use one of three primary approaches: minimize costs by spending as little as possible, optimize expenses by getting the best value for your money, or use the cost base to drive value through the organization. The CIO's approach to cost management must be aligned with the company's value proposition. It is necessary to understand where the organization's value is and determine the appropriate cost approach based on this. According to Gartner, the main reference framework in IT cost management is their IT cost management revolution model, which aims to move organizations from operating according to reactionary cuts to optimizing costs. Cost cutting in line with recessionary cycles is widespread in an economic downturn. Gartner's IT cost management maturity path starts with cost cutting, moving next to cost optimization, and in the last stage of the maturity path to value optimization. In the final stage, IT is a vital factor for increasing value in business. This approach to cost management links all investments and expenditures to the value they create and uses the value to prioritize and justify prices.

The ability to demonstrate the value that IT delivers to the business is the endpoint of most IT finance frameworks. Providing a valuable service to the organization is the primary goal of any IT function. However, communicating this goal to the business often challenges IT functions. It is impossible to communicate the value of IT without both cost

transparency and a straightforward approach to cost management. In addition, communication methods should also be improved, and the message conveyed should be simplified and clarified. This can be done by utilizing KPIs, dashboards, and roadmaps.

Gartner's framework for improving the communication of IT's business value advises the IT function to focus communication on a small number of value-affecting services and influencing business results through these services. Services that affect value can be divided into three business value categories: revenue impact, cost efficiency, and risk mitigation. CIOs should aim to connect the impact of IT performance to at least one of these business value categories. The revenue impact category includes, for example, transaction services, delivery and transport, production systems, supplier services, demand management, and customer interaction. The cost-efficiency category includes productivity, efficiency, staffing, asset optimization, and service-level alignment. The risk mitigation category includes, for example, operational downtime, reputation loss, compliance and audit, data and operational security, and vulnerability remediation. By communicating the value of IT through these services that affect business value, it is possible to move away from standard IT metrics and demonstrate the value of IT in terms that non-IT managers also understand [8].

TBM is an IT management framework that implements a standard IT spend taxonomy. In other words, it implements a standard way to categorize IT costs, technologies, resources, applications, and services. TBM combines business value with technology investments by providing company leaders comprehensive visibility, comparison, optimization, billing, and investment planning regardless of the technology stack, delivery, or development model. TBM provides managers with practices that can be leveraged to quickly adjust to changing market dynamics and optimize cloud and agile strategies to help the company achieve its business goals. It also provides a framework for understanding the relationships between the business and the level of technology spending [9].

The primary tools of TBM are the TBM framework, the TBM taxonomy, the TBM model, TBM metrics, and the TBM system. This section focuses on the TBM framework. The TBM framework is built based on quantitative financial and operational data and IT professionals' knowledge base and business process understanding. The TBM framework can be applied on top of other best practices known in the industry, such as ITIL and COBIT. The framework offers a decision-making model for maximizing the business value of the technology portfolio because the fact that IT works better, costs less, or is more reliable does not automatically bring added value to the company. The framework also aims to help IT optimize its RtB and CtB costs to add business value in line with strategy

and objectives.

The TBM framework consists of ten elements, two of which are organizational elements, four core disciplines, and four value discussions. The organizational elements are the position of value and continuous development. Core disciplines are creating transparency, generating value for money, planning, shaping, and managing business demand. The framework's four value discussions are performance cost, business-focused portfolio, investment in innovation, and enterprise agility [10].

3 IT COST CATEGORIZATION

Categorizing IT costs is essentially defining a cost perspective. The costs are always the same. They are just classified differently, meaning the view differs. IT budgets are often created and managed with only one narrow perspective of IT spending, guided by the company's financial reporting requirements regarding operating expenses and capital investments. According to Gartner, companies should aim to provide multiple perspectives on their IT budget. Utilizing different perspectives makes it possible to answer questions and problems from key stakeholders: finance, IT, business, and executive leadership teams. By creating several mutually supportive views of IT costs, the transparency of IT costs is improved, which also enables the value of IT to be demonstrated to stakeholders more effectively [8]. Figure 2 shows Gartner's four must-have views of IT finance. According to Gartner, successful IT finance practices enable at least these four perspectives: asset or general ledger (GL) view, technical view, business services view, and investment view. These four views have their target audience, purpose of use, challenges, and strengths.

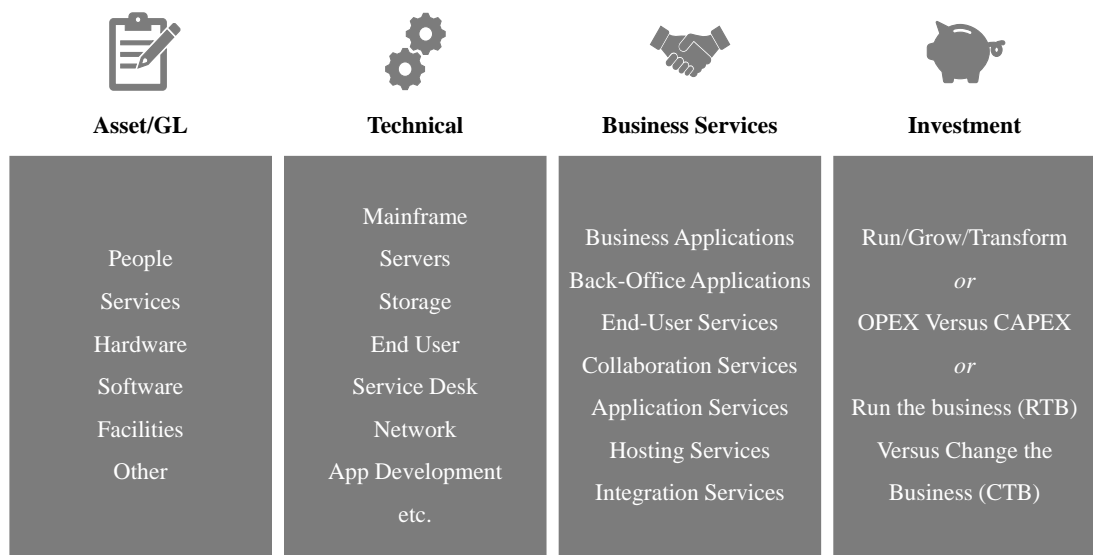


Figure 2. Four Must-Have Views of IT Finance

The asset-based or general ledger view is IT's foundational cost view on which all the other cost views are built. It is the IT budget for most organizations and is required to manage enterprise financials effectively. The numbers presented in this view must be cor-

rect, as all other IT budget views must add to the same total IT budget amount. Effective management of the IT budget is a prerequisite for expanding the focus beyond budgeting to prioritization, IT planning, and future capabilities. The most critical stakeholders in the asset-based view are the CFO, the company's finance function, and the owners of the IT budget. This view can be used to describe IT labor versus physical assets and facilities as a percent of total IT spend or capital expenditures (CAPEX) versus operating expenses (OPEX). The result of this view is the annual budget estimates, which are based on the GL structure.

Many organizations manage their expenses with technology domains. This enables effective management of IT costs in a language familiar to technology experts and technology providers: platforms, systems, and software. The most significant benefit of the technical view comes from the ability to analyze and benchmark technology consumption internally to minimize unit-specific costs and improve total cost of ownership (TCO) management of each technology domain. With this IT finance view, technology investments can be optimized from the following perspectives: physical versus virtual, cloud versus on-premises, direct access storage device (DASD) versus solid state, bench-marking spend and rate-volume analysis. The output of this view is the cost of technologies and IT services offered to technology consumers. The most critical stakeholders in the technical finance view are the IT teams and procurement.

The business services view shows the exact operating costs in the same way as the technology view. In the business services view, the costs are arranged in a way that more clearly expresses the costs of the services provided by IT from a business point of view. The use of this view requires the creation of a service portfolio. A service portfolio is a list of a small part of the services that can be priced and used to manage the services offered to the business. This view is the most informative from a business point of view because the business does not consume clear technology choices. Still, instead, it consumes services and applications that support central business outcomes. However, it is crucial to understand that the business service-based view does not replace the technology- or asset-based views but complements them. The most important stakeholders of the business service view are business leaders, people responsible for IT product lifecycle management (PLM), and sourcing. By utilizing this view, demand management can be done on a service-by-service basis, and IT value or cost, IT show back, and TCO can be determined.

The investment view splits both OPEX and CAPEX into a picture that separates the amount of money and potential value spent on new feature investments from the amount spent solely on running the business. The investment view is associated with several used

models, including the "run, grow, transform" model. The investment view should be applied consistently to all IT expenses so that the company can make suitable investments, which bring added value to the company and help reduce the run and increase the amount available for new investments. The view optimizes the IT department's strategic and operational spending. Optimization can be done by lowering run-the-business spending, financing innovations, and monitoring who spends how much. As a result of the optimization, IT funds can be allocated to enabling innovations and more strategic deliverables. The key stakeholder group for the investment view is business executives [11].

Like Gartner, according to TBM, IT costs should be reported from several perspectives. Successful IT cost reporting requires a multidimensional cost perspective and various financial metrics. According to Figure 3, the TBM model includes three different cost views: financial view, IT view, and business view. In the TBM model, IT costs and other resources are allocated through the model in layers from bottom to top. This enables analysis of costs and consumption at all desired levels. To use the financial perspectives of the TBM model, the company must define its IT towers, technical and end-user services, and business capabilities [10].

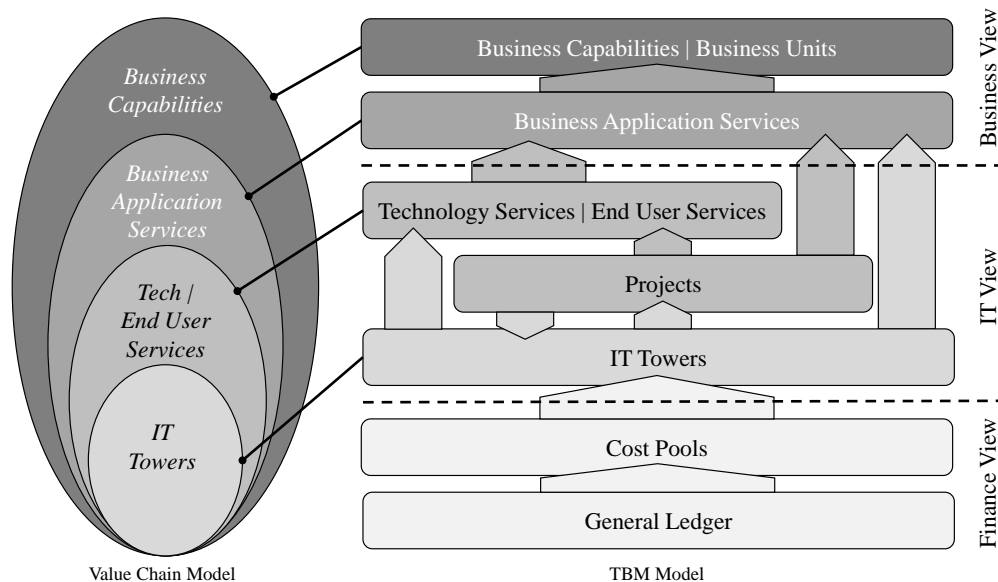


Figure 3. TBM Model

The financial view includes views of GL data and cost pools. By analyzing GL data, it is possible to compare the IT organization's fixed and variable costs or, like Gartner's investment view, the IT organization's OPEX and CAPEX. Cost pools are top-level groupings

for expenses. Depending on the company, they can be similar to Gartner's GL/asset view, for example, hardware, software, internal and external labor, facilities, and outside services. Cost pools make it easier to allocate costs, improve reporting, and can be used to analyze better the organization's cost structure.

In the IT view of the next TBM model level, costs are analyzed by IT tower, by project, and from the perspective of technical and end-user services. IT towers create a cost structure that can be seen as a combination of Gartner's technical and business views. IT towers can be functions related to applications, i.e., application development, support, operations, and quality assurance, as well as data centers, mainframes, storage, network, databases, end-user technologies, IT management, security and compliance, and project management. The IT view is especially aimed at IT managers, as this view can be used to analyze the cost-effectiveness of IT services. In the top view of the model, i.e., business view, costs are analyzed from the perspective of business application services, business capabilities, and business units. The TBM model's business view has the same elements as Gartner's business services view. In this view, the costs are allocated to the applications and services and business capabilities supported by the applications. In this cost view layer, more industry-specific elements are noticeable than in other levels, which enables more meaningful and more business-oriented reporting and cost comparison and analysis [10].

4 IT FINANCIAL REPORTING

4.1 Current state of cost categorization in case company

The company's current IT cost classification model in Figure 4 largely works with the so-called all-for-application logic. The IT unit makes most of its chargeback through applications, where the costs are piled up on the applications, and they are often viewed only from this point of view. Chargeback is also done through end-user services, site services, and IT cost shares distributed to businesses. As the name suggests, the application category includes cost and logical applications that behave like applications in an economic sense, which can be applications, projects, development projects, or cost follow-up of IT working hours. The end-user service category includes all services offered to users, from user ID to mobile phone. The site service category includes the various costs of the company's offices, such as network devices, printer services, and the costs of the walk-in center. The costs of various technical services are allocated to these three main categories.

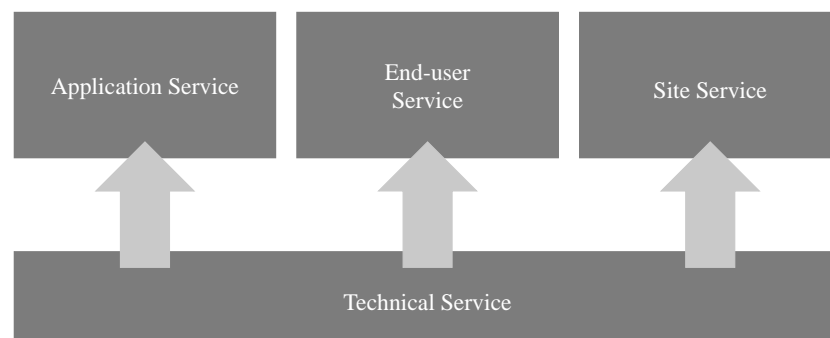


Figure 4. The old cost categorization model

The current allocation model is well-established in the company. Many stakeholders see it as something other than a cost categorization model but as the only way to allocate costs correctly. However, with the increase in IT expenses, vast costs have accumulated for individual services, which may belong outside the cost pool of the service. However, the current model is strongly linked to the company's chargeback model and, to this extent, to financial forecasting.

4.2 New cost categorization model in case company

The new cost categorization model prepared for the company's IT costs is shown in Figure 5. This view and classification of costs is intended for monitoring the total costs of an IT organization, in which case the director and CFO of the IT organization will benefit the most. The main goals of the model are, firstly, to include all the company's IT costs, not only the ones that are being charged back, and the possibility to report the IT unit's cost base consistently to all business levels. The new cost categorization model also aims to increase categorical cost ownership, i.e., all costs must have a clear owner responsible for their development. By creating a transparent categorization model that includes all, IT costs, a regular reporting model on all layers can be enabled. The new categorization model combines both GL and CMDB data and can therefore be used as a basis for other desired views. The most important target group of the financial report created directly based on the new categorization model is IT management because it can be used to create an IT unit for level financial reporting and analysis.

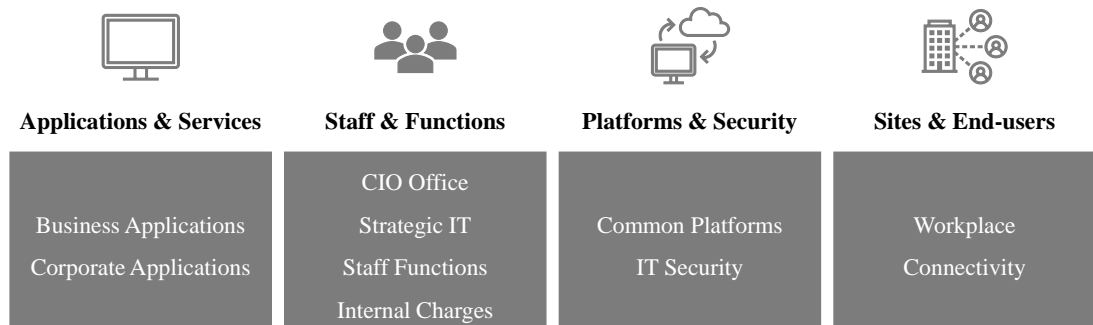


Figure 5. The new cost categorization model

The new IT total cost categorization model has four main categories: applications and services, staff and functions, platforms and security, and sites and end-users. The first category includes all costs included in applications and services. The costs can be viewed either as they are, i.e., as the TCO of applications and services, or as allocated costs, such as internal and external work and platform costs, have been removed from them. Since costs are monitored mainly in the case company from the point of view of applications, and business invoicing also takes place through them, applications are the first to be included in the name of the category. However, it was already wanted to bring the services

into this cost category version, as the company is preparing a service catalog simultaneously. It is hoped that in the near future, the monitoring and invoicing of expenses can be changed more to a service perspective, in which case the costs of individual applications will not be monitored but the costs of entire service chains and units. As a new feature in the classification model, application costs can be divided into direct and indirect costs into different allocated costs. Direct application costs include, for example, integration, development, SIAM service and cloud service, and platform costs. Allocated costs include various cost shares distributed to applications, such as service management cost share and common platform cost share.

The staff and functions category includes personnel costs and internal work that cannot be allocated to applications, projects, or directly to the business, costs related to strategic IT and development, mergers and acquisitions (M&A), and various internal overhead, such as travel costs. The costs of the category can be viewed from these different perspectives and divided into these subcategories. The Platforms and security category includes general platform and IT security costs, which can also be allocated to applications. The fourth category, sites and end-users, is pretty much the same in content as the end-user service category of the old classification model. In the new model, workplace costs are also combined with end-user services.

Because different user groups need additional information from financial data and look at expenses from a different perspective, in addition to the IT total view, three other views of the IT budget and costs were also created. However, all views follow the high-level categorization model up to a certain degree, i.e., the IT total view shown in diagram X. Additional views of the IT budget are the IT ownership, chargeback, and consumption views.

The IT ownership view is intended for internal IT reporting and monitoring at the application and project levels. The most critical stakeholders in this view are, for example, heads of IT services, service managers, and other persons responsible for application and project entities. As the name suggests, the chargeback view describes chargeback, i.e., the costs invoiced by the IT organization to the business. The chargeback view is intended for the customer, i.e., business and IT people who work in the customer interface and are responsible for the customer's invoicing and forecasts. The chargeback view includes costs, and the IT consumption view is intended for IT people working in the customer interface. Finally, the budget view helps them monitor and report the customer's IT consumption, i.e., costs and investments.

5 DATA AND METHODOLOGY

5.1 Qualitative study

To collect data, a qualitative study was carried out in the form of semi-structured interviews (SSI). SSI was chosen as the interview style because the questions are exploratory and open-ended, and the interview wanted to determine the independent thoughts of each individual interviewed about the topics. There were also relatively few interviewees, so holding SSIs was possible because this method of interviewing requires a lot of time and effort to get everything done correctly and is therefore not suitable for use with a large sample size [12].

The interviews were held as Microsoft Teams calls and recorded with the interviewees' consent. The interview recordings were partially transcribed in plain language, i.e., when transcribing, the language was clarified if necessary, sentence structures were changed to improve reliability, and filler words, repetitions, and words left in between were left out. From the interview, only the content related to the topic was transcribed, so the discussions that went beside the issue were left out of the transcribing. The names of the interviewees and customers and other possible identifying details were omitted from the answers. The interviews were either Finnish or English, according to the interviewee's preference. The Finnish interviews were translated into English to facilitate the analysis of the results. The interview results were analyzed in Excel. The interview is roughly divided into four sections: background, financial reporting, cost categorization, and additional questions. The interview questions can be seen in Appendix 1 and the interview schedule in Appendix 2.

The interviewees were selected from within the case company based on their roles and experience related to the research topic. The interviewed persons were selected from the following four groups: IT Management, head of IT service, service management, and project and program management. Seven professionals from Finland were interviewed from within the company's IT unit: one IT management representative and two representatives from the other three interviewee groups. Table 2 shows a summary of the interviewed persons. To clarify the analysis, the interviewees are referred to by abbreviations, where the letter describes the interviewee's group and the ordinal number in the group. For example, H2 means the second interviewee of the head of the IT service group.

Table 2. Summary of the Interviewees

Interviewee Group	Experience in the field	Company age (years)	Interviewee reference
IT Management	2 years in this position 14 years in case the company's IT management roles	14	M1
Head of IT Service	2 years in this position 10 years in management positions in the technology sector	4	H1
Head of IT Service	2 years in this position 25 years in IT financial management	2	H2
Project and Program Management	2 years in this role 10 years in project management	13	P1
Project and Program Management	2 years in this position 10 years in project and program management	2	P2
Service Manager	3 years in this position 15 years in the data and analytics sector	15	S1
Service Manager	5 years in this position 10 years in IT	20	S2

5.1.1 Financial reporting

The financial reporting part mapped which financial reporting solutions the interviewees use, which things they follow in financial reporting, and which they feel are the strengths and weaknesses of the current financial reporting exercises. One of the interviewees put together a financial report tailored to his needs, and the rest used two to five different sources to get the financial information they needed. Five out of seven interviewees use the company's general financial reporting solution for managers. The reporting solution uses accounting data and has over 30 public report pages for different target groups and purposes. The interviewees who do not use general financial reporting solutions either get financial reports tailored to their needs elsewhere or use other reporting solutions. It is impossible to monitor different IT components at the desired level from the company's

accounting data.

People who work purely in IT use a reporting solution for financial reporting instead of or in addition to a report containing accounting data, the data of which comes from the configuration management database (CMDB) and also the CMDB master system itself. Those who manage projects and programs and the role of higher-up managers use a tool intended for IT project portfolio management. Four out of seven interviewees also use their own Excel sheets to support the general financial reporting solutions offered by the company because the information they need either requires combining data from several different places or the reporting solutions offered are too complicated or unclear, in which case the desired information is best obtained using Excel, which requires manual work.

IT service managers (H1 and H2) monitor the financial reports of their service industry from both business and IT perspectives. From the business point of view, the consumption of business IT services and the amounts invoiced by IT to them and their differences to the forecast are monitored. Focused on meeting the IT needs of a single business unit, H1 working in the business interface, does not monitor any reports from an IT perspective. H2, responsible for IT corporate services offering cross-business services, monitors his unit's costs from an IT perspective, the actual cost and forecast differences, and the share of the amounts billed from the business in his unit's expenses.

The interviewees (P1 and P2) of the project and program management group monitor the project's finances from an IT and business perspective, depending on the project owner. In projects and other development items, external and internal costs, invoices, forecasted costs, and the realization of the project budget are monitored. Service managers (S1 and S2) monitor the costs of their area of responsibility from an IT and a business perspective. They observe how the costs are allocated to the business, i.e., what is billed. Regarding unit costs, it is vital to follow the rolling forecast and the difference between the long-term forecast (LTF) at the application and IT component levels.

According to the interviewees who follow the prices of IT services and components, the company's current reporting model enables the monitoring of expenses at a very detailed level, which is both the greatest strength and weakness of the reporting model. From the complex cost structure, you can see which factors drive the total costs of services and applications. S1 and S2, responsible for minor scale service or application entities, felt that the financial information is relatively well in the same place, which rarely needs to be combined from several different sources.

H1, M1, and S2, responsible for IT services, felt that the lack of a single source of truth

in the current financial reporting model is the biggest problem. There are too many financial reports and systems from which financial information can be retrieved, all of which provide different information. When looking at the financial report, you need to know strictly which system's data and which filters have been used in the report. It was also felt that financial reporting had been made unnecessarily complicated, and it was suggested, for example, that only accounting data be used in financial reports in those areas where possible. Weakness was also perceived as the fact that since the information from different financial data systems does not go together exactly, combining information from these can be challenging. The user must be very familiar with the systems and the data they provide to know how to do this correctly.

P1 and P2 felt that the current reporting solutions enable a view of project costs, and P1 also thought that the IT project portfolio management tool introduced a few years ago was a successful improvement because previously, the financial side of projects was mainly managed only in the project managers' own Excels and PowerPoints. However, both project and program management group representatives felt that the current financial reports of the projects still had room for improvement. P1 felt that BI tools must be fully utilized in the current reporting solutions. For example, it is impossible to drill down to the component and invoice level for projects in financial reports. P2 also felt that using the current main financial report was tricky to use from the perspective of projects.

As development ideas for IT financial reporting, H2 highlighted reporting routines, which currently need to be developed. For example, users use different reports, views, and filters for the same purposes, and no best practices are defined. Another area of development highlighted by H2 is the reporting of overhead costs. H2 feels that overhead expenses are hardly reported, making it difficult to influence them because there needs to be visibility.

5.1.2 Cost categorization

From the point of view of IT, the advantages of the current cost categorization model were seen as its established position and the support it created for activity-based cost accounting of the personnel costs of the IT unit. The possibility to monitor the costs of the application at a very detailed level, which had already come up in the reporting model, was also a strength of the current cost classification model. As weaknesses, M1 pointed out the complexity of the model, S1 pointed out the lack of an overall picture of the IT unit's costs and the poor visibility of overhead costs previously brought up also by H2, and H1 doubted whether there is anything good in the model from an IT perspective. The

project and program management representatives P1 and P2 needed to learn how to give any input to the cost classification model because the IT cost classification model is hardly visible in their work.

From the point of view of business, as strengths, H1 saw the precise allocation of so-called direct costs to business. From the point of view of H2, the IT financial reporting aimed at business is reasonable. As weaknesses, H1, M1, and P1 saw IT cost shares allocated to applications and paid directly to businesses. Unclear and poorly communicated allocation principles and content were raised from cost shares. Cost shares constantly cause problems and irritation on the part of the business because they do not understand what they are billed for and on what basis. M1 also saw the IT unit's internal allocations as a weakness, i.e., the methods in which costs are allocated from one IT unit to another and, finally, at some point or points to the customer. This confuses both IT and especially the customer. S1 also wished for more straightforward communication and regularity in allocating end-user services.

The interviewees were introduced to the new cost classification model, after which they shared their thoughts on the potential strengths and weaknesses of the model from both IT and business perspectives. From the point of view of IT, the strengths were seen as the possibility to increase so-called vertical-line reporting, i.e., costs can also be monitored by IT domains and not only by business domains. Furthermore, the improved visibility into the personnel costs of the IT unit was also an excellent potential improvement in the new model in the opinion of both IT managers and project management. Also, the possibility to look at platform and security costs separately, without having allocated them to applications and services, was perceived as a valuable improvement by IT service managers and project management.

From IT's point of view, weaknesses of the new model were raised by only a few interviewees: H2 was doubtful whether the new model offers a view of investment or developing and running costs or internal and external costs. The only concern with the P1 was that the new model might need to be clarified since the previous model is so established. From the point of view of business, the strengths of the new model were seen as the clarity of the model and the ability to see the general cost level of the IT department with the new IT staff and functions cost category. It was also believed that the new model could bring more granularity and, thus, more control to the payer, i.e., the business. The only weakness from a business point of view was that this new cost categorization model does not improve the distribution of overhead costs, i.e., the different cost shares.

Other factors related to financial reporting were raised by H2 on governance around financial reporting and understanding the bigger picture. According to them, it would be good to map out what kind of reports the IT unit offers to different departments and how the financial reporting routines could be developed and synchronized. M1 hoped that an IT financial report that uses purely accounting or GL data could be created. Currently, IT financial reports mainly use the financial data of the CMDB system, which does not match the GL data. Project reporting should, however, stick to CMDB data, as it is not possible to identify individual projects from GL data. S2 also emphasized that the best solution would be if the same financial report could be used for IT's needs and with internal customers, i.e., business.

5.2 Data Analysis

5.2.1 Statistical methods

The representatives of both IT Management and project and program management and the head of IT service groups brought different cost shares as a weakness from both IT and business perspectives. The factors influencing the annual costs of the company's business and Business-to-Business-Consumer (B2BC) applications were examined using the Pearson correlation coefficient.

Pearson's correlation coefficient r is the most common way to study linear dependence between two variables. Pearson's scores range from -1 to $+1$. Pearson's correlation coefficient describes a linear dependence, in which case the correlation coefficient is more robust the better the line $y = ax + b$ describes the data points. The closer the absolute value of the coefficient is to number one, the stronger the dependence between the variables. When the absolute value of the coefficient is 1, there is a perfect positive correlation between the variables. At the same time, -1 describes a situation with a perfect negative dependence between the variables. In a situation where r is 0, there is no linear dependence between the variables. If the dependence of the investigated variables is not linear, the Pearson correlation coefficient gives a bad value, even if the dependence between the variables is perfect. Pearson's correlation coefficient can be obtained from

$$r = \frac{\sum_i (x_i - \bar{x}_i)(y_i - \bar{y}_i)}{\sqrt{\sum_i (x_i - \bar{x}_i)^2 (y_i - \bar{y}_i)^2}}, \quad (1)$$

where \bar{x}_i describes the mean of x_i and \bar{y}_i describes the mean of y_i [13]. The statistical significance of Pearson's correlation coefficient can be evaluated with the help of the test variable t . The test variable t follows the Student's t -distribution with $n - 2$ degrees of freedom when n describes the number of observations. The test variable t can be calculated using the formula

$$t = 2r\sqrt{\frac{n-2}{1-r^2}}. \quad (2)$$

The null hypothesis H_0 of the t -test is $r = 0$, i.e., there is no correlation between the variables. The alternative hypothesis H_1 , on the other hand, is $r \neq 0$, which means that there is a correlation between the variables. The significance of the test result is measured using the p-value, which describes the probability of the value of r . The p-value corresponding to the test variable in formula 2 can be solved with formula

$$p = 2(1 - F(|t|)), \quad (3)$$

where F is the cumulative distribution function of the t -distribution. In the tests performed in work, the significance level α value of 0.05 has been used, which is the most commonly used significance level in statistical studies. The calculated p-value is compared to the set significance level. If the p-value is lower than the significance level, the null hypothesis is rejected, and the alternative hypothesis remains valid.

5.2.2 Data

Correlation analysis was conducted for the company's planned and active business and B2BC category applications. The analysis examined the relationship between the total costs of applications in 2022 and other variables describing the application. There are 35 variables, of which 28 are naturally numerical annual sums of the cost component of the application in euros, and the remaining seven are non-numerical features describing the application. Categorical non-numeric variables were converted to numeric ones to perform correlation analysis. The data were analyzed in two different parts: the first contains all 35 explanatory variables and the total annual costs of the application, and the second contains only the ten non-numerical variables as explanatory variables and the total annual costs of the application as an explanatory variable. A summary of the

non-numerical variables is presented in Table 3. Numerical variables are, for example, application integration costs, server and cloud costs, internal and external working hours, and network fees.

Table 3. Summary of the non-numeric application variables

Variable number	Variable	Description	Possible values
29	Status	Application activity status	Planned Active
30	Category	Application category	Business Application B2BC Application
31	Phase	Application lifecycle phase	Defining Development Operation
32	Domain	Application operation area	Collaboration Communication Customer Management Customer Service & Support ICT Market Other
33	Type	Information on whether the application is internal or external and how it is updated	6 categories
34	Owner Business Unit	The business unit that owns the application	8 categories (business units)
35	IT Ownership	The IT unit responsible for the application	18 categories (IT ownerships)

Numerical variables and their descriptions are presented in Table 4. Numerical variables are, for example, application integration costs, server and cloud costs, internal and external working hours, and network fees.

Table 4. Summary of the numeric application variables

Variable number	Variable	Description
1	AMS Cost Share	General AMS service costs
2	AMS Services	Application specific application management service cost
3	Application Development, External	External costs for demand, change, test and release development-related processes
4	Application Development, Internal	Internal costs for demand, change, test and release development-related processes
5	Application Development, Vendor 1	Vendor 1 costs for demand, change, test and release development-related processes
6	Application Operations, External	External costs for incident, service, problem and access operations-related processes
7	Application Usage	Fees related to permissions for using software as a service (SaaS) or license subscriptions
8	Cloud Cost Share	Cost share for cloud platforms related unidentified costs
9	Cloud Management, Vendor 1	Cloud management fee from vendor 1
10	Cloud Services, Vendor 1	Vendor 1 cloud service costs
11	Cloud Services, Vendor 2	Vendor 2 cloud service costs
12	Cloud Services, Vendor 3	Vendor 3 cloud service costs
13	HaaS and Leasing	Leasing fees and rents for user devices, servers, network devices and printers
14	Integrations	Integrations related costs
15	Licenses, Maintenance	Maintenance fees for licenses
16	Networks Fees	Data network fees for operations
17	Other	All other application related costs
18	Internal Work	Internal working hours

19	Internal Development Work	Internal development working hours
20	Platform Cost Share	Cost share for platform-related unidentified costs
21	Platform Development, Vendor 1	Platform development related costs from vendor 1
22	Platform Development, External	Platform development related costs from external source
23	Platform Development, Vendor 2	Platform development related costs from vendor 2
24	Platform Operations, Internal	Platform operations and support related internal costs
25	Platform Operations, External	Platform operations and support related external costs
26	SIAM Services	Service integration and management (SIAM) services related costs
27	Service Fees	All other service fees
28	Telecom Fees	Telecom fees for operators

5.2.3 Data analysis results

The correlation heatmap shown in Figure 6 visualizes the correlation strength between all 35 variables and TCO. In the figure, each variable is represented by a column, and the rows represent the relationship between each pair of variables. The color of the cells indicates the strength of the relationship. The p -value calculated to determine the statistical significance of the correlation shows a statistically significant correlation between 29 of the 35 variables and the TCO of the application, i.e., these cost components affect the total cost of the application at a statistically significant level. Cost components that do not have a statistically significant correlation with TCO are hardware as a service (HaaS) (variable 13) and leasing (variable 14), network fees (variable 17), platform development, vendor 2 (variable 23), Telecom fees (variable 28), category (variable 30) and domain (variable 32).

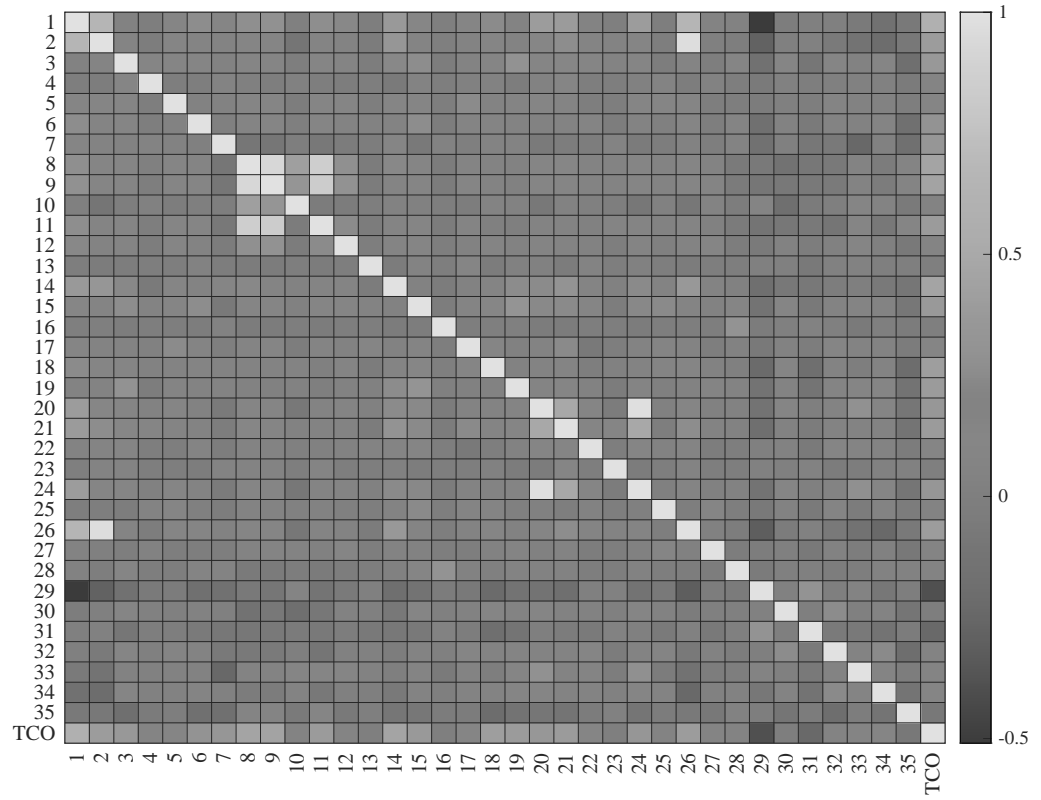


Figure 6. Correlations between properties of applications

The most statistically significant correlation in terms of TCO is the variables AMS Cost Share (variable 1), Cloud Cost Share (variable 8), and Integrations (variable 14). The cost shares allocated to applications have grown faster than other IT costs and today comprise a large part of the application's costs. In addition, as the IT portfolio, data needs, and capabilities have grown, so has the number of integrations between applications and interfaces, which has also increased costs.

In addition to the correlation study of all variables, it is also appropriate to study the relationship of only non-numerical variables as an application. The results of this correlation test are shown in Figure 7. Of these, the variables status (variable 29), phase (variable 31), type (variable 33), owner business unit (variable 34), and IT ownership (variable 35) have a statistically significant correlation with TCO.

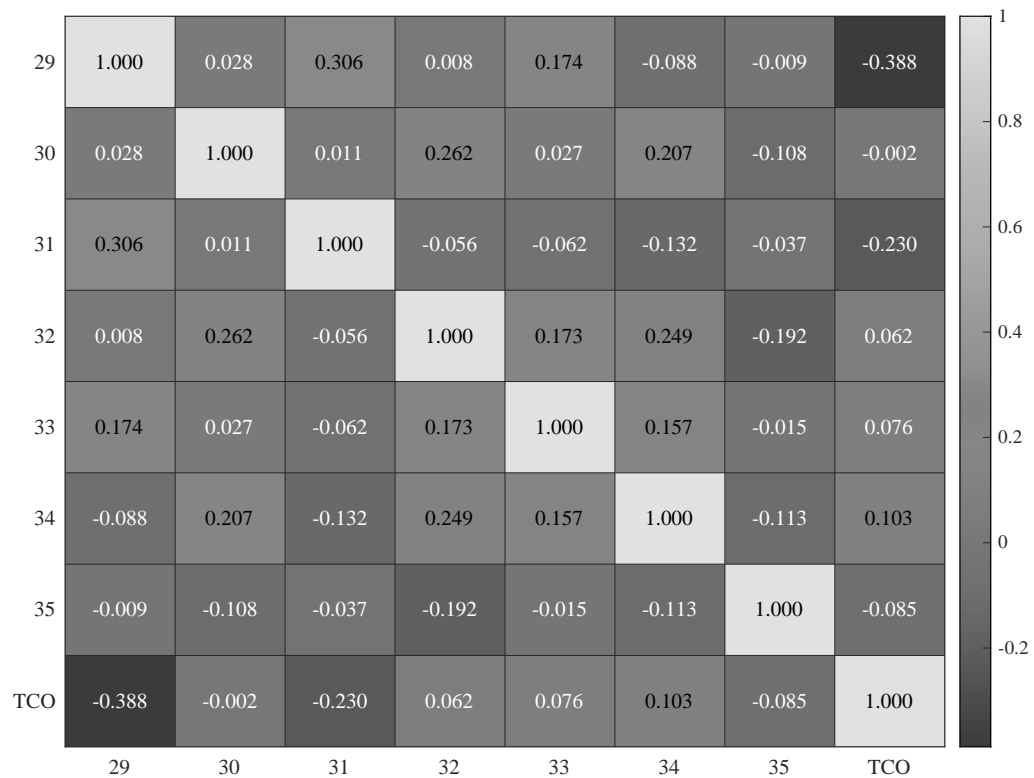


Figure 7. Correlations between non-numeric properties of applications

The status and phase of the application are natural factors affecting the costs because the costs of the application vary according to its life cycle. An important consideration from the correlation analysis is the correlation of TCO between the owner's business unit and

IT ownership. Correlation between these variables means some business and IT segments have higher application costs than others. The observation is not surprising because companies like the case company have many business and IT units of different natures, all of which have unique needs, which are determined, for example, by the criticality, activity, and technical demands of the unit's operation.

6 DISCUSSION

6.1 Current study

The categorization of the company's IT costs in the model and the reporting methods have room for improvement, which was revealed through the interviews, data analysis, and literature review. Over the years, the company's IT finances have been improved with more detailed reporting and expense tracking, new financial reports, and project management systems. With the changes, IT financial management has improved but has become unnecessarily complicated. Therefore, it is an excellent time to step back, look at the overall picture of the IT economy, and fundamentally think about things from a new perspective.

The new cost categorization model, designed for the company's needs, adapts to the existing cost categorization models on the market. The model is also forward-looking in that it can quickly implement the company's future service catalog into the cost categorization model. The biggest weakness and, at the same time, the strength of the old categorization model that several interviewees brought up - very detailed information can also be included in the new categorization model, however, at the same time creating a clear overall picture of the company's cost structure. In the interviews, various cost shares emerged as one of the most significant development targets in the IT economy. The new model itself does not take a position on cost shares. However, alongside developing the new model, the company also wants to improve the communication of IT-economic issues and ownership of costs.

The numerous cost shares allocated to the application and directly to the business are a significant source of mistrust between business and IT. The content of cost shares must be discovered and understood on the IT side, making it impossible to communicate them to the business. To improve the situation, cost shares should either be obliterated, or their content, and allocation logic should be opened up to both IT and business. Because it is easy to allocate general and other overhead costs through cost shares to be paid for appropriate applications or businesses, the IT unit is still being prepared to give them up. Therefore, the remaining option is to improve communication and report around cost shares. In particular, representatives of the IT unit operating in the business interface should be trained on what cost shares contain and their allocation rules. IT representatives could thus communicate with this side of the business and help them understand what they are paying for and on what basis. Cost shares should also be presented in financial reports

broken down into components, more than lump sums. The high correlation observed in the data analysis between the application's total costs and cost shares shows that cost shares make up the most significant part of the application's costs and are an essential driver for them. Therefore, when the business feels that they need more information and visibility into the content of cost shares, they also miss out on understanding a significant part of the costs of their applications.

Overhead costs were also seen as one of the biggest problems in the old cost categorization model, which the new categorization model does not solve directly. Although one of the main principles of the new categorization model is that all costs have their place so that all costs can also be reported, the location of some overhead costs still needs to be determined. This should be clarified in the future, and care should be taken at a very detailed level that all costs are invested in this model. Expenses that remain unreported are challenging to gain visibility and therefore influence. Unrecognized overhead costs can also be easily divided into different cost shares and thus be paid by the customer or left to the unit itself, even if they differ from the correct cost payer. Overall, overhead costs and different cost shares should be reduced, and efforts should be made to identify the costs and find a clear place, ownership, and payer for them.

The lack of communication and information that arose in the interviews is aimed to be solved in the company with new financial forums, which include representatives from IT, IT finance, and business. The forums communicate about, for example, new investments, cuts, and the rolling forecasting situation. The interviews also indicated that more precise documentation of the cost components of applications and services would be desired from both the IT and business sides, i.e., information about what the components contain, their allocation rules, and their governance. Documentation like this can also be shared in new financial forums. Regarding information sharing, the interviewees also hoped for internal training on using financial reporting solutions. The company would organize detailed workshop-style training for stakeholders on the new financial reporting solution. Training and training materials were also requested regarding everyday IT financial matters such as invoice booking and long-term forecasting. By constantly training staff to work correctly, financial data quality would be improved, and, above all, processes would be streamlined. IT representatives such as IT management and persons in the head of IT service roles should have good information skills in IT financial matters to communicate financial information to the business and thus improve understanding and trust between IT and the business.

6.2 Future work

If we consider the target company's IT financial situation through Gartner's six Pillars of IT transparency shown in Figure 1, the most significant deficiency in the company's IT transparency is pillar 6: the business value of IT. The last of Gartner's six pillars is perhaps the most challenging area. Despite the recognition of the value produced by IT and despite decades of research, there has yet to be a consensus on its strategic value [14]. Gellweiler and Krishnamurthi proposes an integrated definition of IT value consisting of two complementary types: customer and organizational value. Organizational value indirectly affects company performance and is a prerequisite for customer value, while customer value directly affects company performance. Added value can be brought to the customer through, for example, product leadership, functional excellence, and customer proximity. As mentioned earlier, companies with an excellent customer experience should be superior in one of the areas and relatively good in the other two. For example, organizational value can be created with the right kind of IT infrastructure, which can be used to create synergies that create cost benefits within the organization. In addition, IT enables flexible structures within the organization, for example, concerning suppliers and personnel. Although flexibility and synergy benefits are highly valued organizational characteristics, they do not directly generate cash flows for the company.

In addition to creating the IT value itself, it is also challenging to communicate and demonstrate the IT value to the company in many cases. Gartner has created nine rules for demonstrating IT business value. Among the rules, the following are especially suitable for the target company's needs: 2. The business outcomes measure value and impact on the mission or consumer, meaning that IT deliveries must have measurable value for stakeholders and things that the consumer is ready to pay for. For example, the rule can be followed by measuring the impact of the task or contribution on the business result and avoiding metrics that communicate effort, work, or technical results. 4. The value language should be the language of the consumer (result/product) and not the language of the producer (parts/processes), which can be followed by avoiding a deep dive into technology and platform discussions. 5. Cash saving is generally better than efficiency gains, meaning saved funding, reduced costs, and improved profitability are always more valuable and straightforward to measure for managers than process improvements. 8. If the people with the money don't understand the value, they will never become IT supporters and may not approve funding, even when there is user value. Furthermore, finally, the ninth rule: all IT funding requirements must be grouped into two categories: operating or changing, meaning all funding proposals, justifications, and value measurements must be unique for operating versus growing or transforming spending [15].

The company should also develop governance around financial reporting. For example, the company has financial reports intended for different purposes and should be read in a certain way. The quality of IT financial data should also be monitored so that high-quality truthful reports can be created based on it. Business confidence can also be increased with routine and valid financial reporting methods.

It will also be interesting to see the case company's finished IT service catalog in the future and how it can be connected primarily to financial reporting and, in the future, also to chargeback. The work simplifying and clarifying IT financial management creates a reasonable basis for implementing the new service catalog. In the future, with the help of the IT service catalog, it will be possible to emphasize the value created by IT, increase financial transparency, and create more control over the economy. Furthermore, with the service catalog, service quality can also be defined for IT services, and resources can be allocated more and more efficiently to critical and vital services for the company.

7 CONCLUSION

In conclusion, this study focused on improving IT cost categorization and reporting within the target company. Several key findings have been identified through interviews, data analysis, and a comprehensive literature review. The study revealed that the company's current IT cost categorization and reporting methods have room for improvement. While efforts have been made to enhance IT financial management through detailed reporting and expense tracking, the existing categorization model has become unnecessarily complex. Therefore, it is crucial to reassess the overall picture of the IT economy and consider alternative perspectives. A new cost categorization model has been proposed to address the company's specific needs. This model builds upon existing categorization models in the market and allows for the seamless integration of future service catalogs. It aims to provide a clear overview of the company's cost structure while accommodating detailed information when necessary. One significant challenge highlighted in the study is the need for more transparency and trust regarding cost shares between the business and IT. To address this, it is recommended to either eliminate cost shares or improve communication and reporting around them. Training IT representatives on cost shares and their allocation rules can help facilitate effective communication with the business and improve understanding of the costs involved in applications.

Overhead costs have also been identified as a significant issue in the current cost categorization model. While the new model strives to provide a place for all costs, the location of overhead costs needs further clarification. Efforts should be made to accurately identify and allocate these costs to prevent unreported expenses from impacting visibility and decision-making. The study emphasizes the importance of communication and information sharing between IT, IT finance, and the business. Establishing financial forums can facilitate discussions on investments, cuts, and rolling forecasting, while comprehensive documentation of cost components and governance can enhance understanding from both IT and business perspectives. Training on financial reporting solutions and IT financial matters should be provided to stakeholders to improve data quality and streamline processes. Demonstrating IT value to the company is crucial, and following Gartner's rules for demonstrating IT business value can provide valuable guidance. By measuring business outcomes, using consumer language, focusing on cash savings, and categorizing funding appropriately, IT can effectively communicate its impact and gain support from key decision-makers. Governance around financial reporting should be developed, ensuring consistent and reliable reports for different purposes. Business confidence can be increased by monitoring the quality of IT financial data and implementing valid reporting methods.

Completing the IT service catalog presents an opportunity to enhance financial reporting further and implement chargeback systems. In addition, the new categorization model and improved IT financial management practices lay a solid foundation for integrating the service catalog, emphasizing IT value creation, enhancing financial transparency, and optimizing resource allocation.

REFERENCES

- [1] Frederic Giron and Bobby Cameron. Make customer value technology's north star. *Forrester*, 2021.
- [2] Antonio Davila and Marc Wouters. Designing cost-competitive technology products through cost management. *Accounting Horizons*, 18(1):13–26, 2004.
- [3] Spiceworks Ziff Davis. The 2023 state of IT. published on-line, 2023.
- [4] Gartner. Transform the business IT spending: approaches to categorization and interpretation. published on-line, 2016.
- [5] Optimizing IT costs: the CIO's handbook. *Perspectives*, 2(1):1–31, 2009.
- [6] Gartner Newsroom. Gartner forecasts worldwide IT spending to grow 2.4% in 2023. published on-line, 2023.
- [7] Claus Madsen and Christian Hansen. Key questions to ask as a CFO when building a business finance framework. published on-line, 2018.
- [8] Gartner. Use Gartner's IT finance frameworks to drive successful IT finance, value and cost programs. published on-line, 2020.
- [9] TBM Council Home Page. <https://www.tbmcouncil.org/>, 2022. [Online; accessed October, 27, 2022].
- [10] Todd Tucker. *Tehcnology Business Management: The Four Value Conversations CIOs Must Have With Their Business*. TBM Council, 2016.
- [11] Gartner. CIOs must master four views of spend to manage IT finances. published on-line, 2020.
- [12] Kathryn Newcomer, Harry Hatry, and Joseph Wholey. *Handbook of practical program evaluation, fourth edition*. Jossey-Bass, 2015.
- [13] Mavuto Mukaka. Statistics corner: A guide to appropriate use of correlation coefficient in medical research. *Malawi Medical Journal*, 2012.
- [14] Christof Gellweiler and Lakshman Krishnamurthib. IT business value and competitive advantage: Integrating a customer-based view. *Information Systems Management*, 39(4):363–385, 2022.
- [15] Gartner. The 9 rules for demonstrating the business value of IT. published on-line, 2020.

Appendix 1. Interview questions

1 - Background

- 1.1. What is your job title? Could you briefly describe what your job description includes?
- 1.2. How have you been in his role or similar to this role (not only in the case company)?
- 1.3. How long have you been in the case company?

2 - Financial reporting

- 2.1. What things do you monitor in IT financial reporting? For example, which parameters are important to you?
- 2.2. What are the strengths of the current financial reporting model?
- 2.3. And what about weaknesses?

3 - Cost categorization

- 3.1. What strengths and weaknesses do you see in the “old” classification of costs in your service area from the IT point of view?
- 3.2. And what about the business point of view?
- 3.3. What strengths and weaknesses do you see in the new classification of costs in your service area from the IT point of view?
- 3.4. And what about the business point of view?

4 - Additional questions

- 4.1. Do you think something important regarding the financial reporting model was left unasked in this interview?
- 4.2. Would you like to raise another point of view regarding the classification of costs?

Appendix 2. Interview schedule

Service Manager 1	29.12.2022
Project Manager 1	29.12.2022
Head of IT Service 1	30.12.2022
Project Manager 2	3.1.2023
IT Management	5.1.2023
Service Manager 2	5.1.2023
Head of IT Service 2	9.1.2023