Master’s Thesis in Informatics

Achieving and Maintaining IS/IT Alignment in Organizations

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Abstract

The alignment between IS/IT and business is one of the ways to achieve a significant competitive advantage for any organization. It is more important nowadays since any organization can buy any technology in the open market, so technologies themselves don’t give a significant competitive advantage. Although the concept of the alignment has two decades of the history, it still has a lot of controversial issues and knowledge gaps such as uncertain understanding of the essence of the concept, the complexity of practical implementation and not paying attention to the social dimension of the alignment, i.e. the importance of mutual understanding and collaboration of IT and business executives. The current research aims to investigate the concept of alignment and finds out how an organization can achieve and maintain the IS/IT alignment. Also, this study explores the importance of the social dimension in the alignment concept, clarifies the essence of the IS/IT alignment and investigates how some theoretical concepts can really work in practice.

There are many evidences in information systems management literature which describe that strategic alignment is necessary for profit organizations but there are very few which mention that strategic alignment is also important in non-profit academic institutions. During our current research we investigate how this concept works in Linnaeus University and how important it is to achieve and maintain an alignment in any university. In order to achieve the goal of the current research, the relevant information systems management literature was reviewed from a new perspective – a resource-based theory and a unified framework was proposed as a base for the further practical investigation.

This research is based on a qualitative approach. By using a qualitative approach, we won’t miss anything important and can determine the maximum number of respondents’ opinions. The primary data was collected by conducting private semi-structured interviews. The respondents are employees of a big nonprofit organization with the implemented business strategy, IT department and several information systems in use – Linnaeus University. The data were presented and analyzed according to the research questions and presented framework. The current study demonstrates the concept more clearly and tries to reassess the structure of IS/IT alignment. This research provides «a fresh look» at the concept of IS/IT alignment.

Keywords: alignment, information system, information technology, competitive advantage, business, strategy, method, knowledge, resource-based theory, competencies, capability.
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Zhyganov Volodymyr
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1 Introduction

1.1 Background

Starting from the time when organizations began to use computers, information needs have never been the same. Nowadays, Information Technology (IT) sustains daily operations of almost every organization, helps to achieve business goals, increases effectiveness and competitiveness of the organization. Non-profit organizations can find many advantages in IT as well as commercial organizations. Education institutions, for example, can improve their communication channels, assets management, system of academic materials distribution, information retrieval, access to electronic databases, etc. (Fahmy et al., 2002). Anyway, if an organization wants to get the maximum value from IT, it should be used strategically. IT strategic planning helps effectively allocate resources, manage critical assets, reduce expenses, manage the flow of information within the organization, etc. Organizations are significantly affected by the Internet now (Fahmy et al., 2002), so information is no longer depends on space and time. It provides students with new opportunities for distance learning, on-line scheduling of lectures, events or exams, on-line registration (for example, registration for exams). Also, Information Technology enables education organizations to connect and cooperate with external organizations regarding jobs opportunities, scholarships, events, etc.

Each education organization includes two parts (Fahmy et al., 2002). The first part consists of such tangible assets as libraries, departments, faculties and other institutional structures. The second one, a more intangible part includes students, university staff and other employees of education organization. It isn’t hard to assess the first part, but it’s more difficult to evaluate the second intangible part. Both parts are involved in the process of IT strategic planning. According to Fahmy et al. (2002), there are four main types of IT: sensing, analyzing, display and communication technologies. Sensing technologies help to transfer raw data from the external environment into the machine data (i.e. sensors, scanners). Analyzing technologies convert data into information (hardware and suitable software). Display technologies help to deliver information to end users. Communication technologies usually link together all sensing, analyzing and display technologies by communication channels in some information systems (Fahmy et al., 2002).

Universities usually use several information systems: staff information systems, student information systems, financial systems, internal complain systems, groupware systems, research center information systems and other (Fahmy et al., 2002). All the components of IT strategic planning process are shown on figure 1.1.

![Figure 1.1 – Model of IT strategic planning for education organizations (Fahmy et al., 2002)](image-url)
One of the main problems in organizations is insufficient return from investments in information systems. There are several ways how to improve this situation but the alignment of IS/IT with business is one of the most effective (Chan and Reich, 2007).

Today practitioners and researchers actively investigate and explore the concept of alignment between business and IS/IT because nowadays all technologies and instruments are available on the open market for every company and competitors can easily buy every technology. This leads to a situation when technology itself can't give a significant competitive advantage (Campbell, 2011).

According to Chan and Reich (2007), the alignment of overall business strategy and IS/IT leads to a more effective use of IS/IT and to a general performance of the organization. Those organizations which align their IS/IT strategy with overall strategic plan will come to leading position at the market.

According to Avison et al., “the application and analysis of alignment will facilitate more competitive and profitable organization” (2004, p.225). Such explicit outcomes should motivate managers to achieve the alignment by enhancement of core organization’s resources and competencies.

1.2 Research Problem and Research Questions

This research is focused on the investigation of the strategic alignment in Linnaeus University. The concept of the alignment is important in academic institutions as well as in profit organizations. Linnaeus University also has general strategic plan, strong IT Department and uses several information systems. University operates in a turbulent environment where wise gathering, storing and using of information is vital in such circumstances. However, according to Teubner (2007), “there is a gap between alignment research literature and practice” (2007, p. 11). In order to overcome this situation, this research presents a deep study which aims to investigate disputed issues in the literature and then tries to find how they really would work in practice. For today, strategic management literature doesn’t provide substantial foundation which can be used for achieving and maintaining alignment between business and IS/IT. Almost all the propositions are based on conceptual assumptions (Teubner, 2007). Most of the proposed techniques and approaches are too theoretical and it’s hard to use them in practice. Avison et al. (2004) mentioned that “various authors provide some examples of enablers and inhibitors of alignment, but the literature provides little guidance on how to achieve alignment between business and IT strategies” (2004, p. 224).

Although the concept of alignment has been studied during the last two decades, there is some uncertainty about the essence of the alignment. Some authors argue that the alignment is a final result while others believe that it is an ongoing continuous process. According to Maes (2000) and Avison et al. (2004), until recent years, the majority of the literature refers to the opinion that the alignment is an outcome, so the importance of maintaining the alignment was rarely investigated. But there are authors who don't share this opinion and understand the importance of dynamic maintaining of the alignment (Burn, 1997, Henderson and Thomas, 1992, Venkatraman, 2000). According to Henderson and Thomas (1992, p.72) “alignment means much more than linking of information technology and business strategy”. Luftman mentioned that “the process for establishing and maintaining IT-business alignment is ongoing” (2000, p. 119).One of the tasks during this research is to investigate the structure of the alignment and to find the essence of this concept.

Existing methods and techniques often have a very important knowledge gap - the alignment is often limited only by consistency of IS/IT strategy with business strategy and doesn't take into account the social dimension of the concept (Campbell, 2011). This is mainly because organizations often interpret it not correctly and use the concept of the alignment. This is a very serious omission because all the organizations operate in the complex environment and a social
dimension plays a very important role (Campbell, 2011). During this research I will try to solve this knowledge gap and investigate the importance of employees' knowledge, experience, skills and relationships in this concept.

Despite the fact that the concept of the alignment has been studied for two decades it is still quite ambiguous and controversial (Maes et al., 2000). According to Kearns and Sabherwal, “research connecting all important aspects of alignment seems to be lacking” (2006, p. 130). In this research the concept of the alignment and its main components will be demonstrated more clearly and it will be shown how organizations can achieve and maintain it.

Our current study aims to develop the foundation for further research in this area. This research attempts to provide “a fresh look” at the concept of the alignment and re-evaluate its structure and essence.

In order to show the whole concept of the alignment and arrange the components in some structure we need a framework. Resource-based theory can provide a basis for it, so the concept of the alignment will be investigated from this new perspective, which will be more closely described in the theoretical part of the current paper. According to Teubner (2007), resource-based view is “the most substantiate way to explain sustainable competitive advantage” (2007, p.12). The main idea is that an organization can be presented like a complex of various resources. The purpose of the resource theory is to explain the creation, use and renewal of a competitive advantage in terms of organization's resources.

The purpose of this research is to investigate the strategic alignment between IS/IT and business in Linnaeus University from a new perspective – a resource-based view and a further investigation of how an organization can achieve and maintain the alignment according to this view. The research also includes issues related to the importance of the social dimension in the alignment concept and the dynamic essence of IS/IT alignment.

A unified framework would give clear understanding about research problem area and help to answer the main research question:

**RQ 1: How to achieve and maintain a strategic alignment in organizations?**

Further, the main research question is divided into three more specific research sub questions:

**RQ 1.1: What resources are important in order to achieve and maintain IS/IT alignment?**

**RQ 1.2: Which processes and structure components in organization influence IS/IT alignment?**

**RQ 1.3: What competencies should organization have in order to achieve and maintain IS/IT alignment?**

These sub research questions are interrelated in order to answer the main research question. They are linked by a unified model according to which each organization has three levels: enterprise level, organization level and resource level (Ward and Peppard, 2004). This division appears due to the resource-based view which identifies organization’s resources, structure, processes and competencies.
1.3 Aims and Objectives

The main aim of the current research is to investigate the concept of the strategic alignment between IS/IT and business and to find out how organizations can achieve and maintain a high level of the alignment. In order to accomplish this task it’s necessary to identify the main components of the concept and to show how it really works in practice. The current research tries to look at the strategic alignment from a new perspective – the resource-based theory and to show how an organization can achieve a new significant competitive advantage according to this view.

In order to achieve the main aim of the study it is important to: identify main resources which should be carefully managed in order to achieve a strategic alignment; find out processes and organization structure which help to utilize the existing resources in order to build new competencies; to identify the list of competencies which an organization should maintain in order to achieve alignment capability.

The current research also aims to overcome several knowledge gaps which were founded during the literature research. First of all, I will try to highlight the importance of the social dimension in the strategic alignment, because many authors consider alignment only as a fit between business and IT strategies. IT employees and business personnel must collaborate with each other at all levels of the organization in order to achieve mutual understanding and commitment to goals and the mission of the organization (Chan and Reich, 2007). The next knowledge gap is an ambiguity of the alignment’s essence. Many authors argue that alignment is an end result, while other authors try to prove that alignment is a continuous process which needs to be maintained. During this research the dynamic essence of the strategic alignment will be demonstrated. Also, the current study investigates how the concept works in the academic institution because the importance of the strategic alignment in academic organizations is mentioned only a few times within the information systems management literature. This omission will be overcome by investigating Linnaeus University.

1.4 Topic Justification

Nowadays, almost all organizations in all sectors of the economy are depending on their information systems (Ward and Peppard, 2002). Information technologies and information systems have become extremely interconnected with business. Recently, some organizations have started to see in information technologies not only service providers for business but also enablers of the organization to find new opportunities which will provide them with new competitive advantages. However, very few organizations use information systems and the technology strategically which sometimes lead to several problems. One of the main problems is that organizations do not receive the desired return from the investment in information systems. One of the ways to solve this problem and improve the overall situation in organization is a better strategic business/IS alignment. It seems like the next step in the process of engaging companies to the process of strategic planning. Strategic planning process is a bidirectional process, so organizations start to understand that plans and strategies for various parts of organizations should match with each other and even more – they should support the plans of the entire organization. In this research it’s investigated how the strategy of IS/IT can consistently support an overall strategic plan of the organization.

According to Peppard and Ward (2004), all organizations actually have some level of the alignment capability but only organizations with a strong one can get a competitive advantage and rapidly respond for changes in the turbulent environment.

Nowadays the strategic alignment is one of the top concerns for any organization’s executives. According to several authors (Kearns and Sabherwal, 2007; Chan et al., 2006; Luftman
and Brier, 1999), a progress in the strategic alignment between IT and business is necessary to increase the organization overall performance. However, even now some business managers keep seeing IT as a cost center. Such managers view information technologies more like expenses and don’t understand how IT can contribute to the overall business performance.

There are three main reasons why organizations should seek the alignment. The alignment helps to achieve sustainable and significant competitive advantage, leverage IS/IT investments and successfully react to new opportunities (Avison et al., 2004). One of the main concerns among business managers is maximizing returns from information technologies. Here the communication between business and IT/IS starts to be vital, and managers should consider business goals and IS/IT investments together. It is also expected that the strategic alignment is important in profit business companies as well as in non-profit academic organizations (Chan et al., 2006; Reich and Chan, 2007).

The importance of the strategic alignment between business and IS/IT in organizations in general and in academic institutions particularly appealed me to carry the current research on this particular topic. I argue that the results of the current research will be helpful to identify the necessity of achieving and maintaining the alignment in organizations and provide «a fresh look» at the concept.

1.5 Scope and Limitation

There are researches which were conducted within this topic. Many of them are focused on outcomes or antecedents of the alignment (Campbell, 2011; Henderson and Venkatraman, 1992; Luftman and Brier, 1999; Chan et al., 2006), some authors study different dimensions of the alignment: structural, strategic, cultural or social (Chan et al., 2007; Reich and Benbasat, 2000; Avison et al., 2004). There are several papers related to the measurement of the alignment (Sabherwal and Chan, 2001; Kearns and Lederer, 2000; Day, 1996). There are articles which investigate the essence of the alignment (Henderson and Venkatraman, 1992; Maes et al., 2000; Avison et al., 2004), connect the concept to success factors (Burn and Szeto, 2000), industry factors (Reich and Benbasat, 2000) or even to the Balanced Scorecard (Bracknall et al., 2007). However, “literature provides little guidance on how to achieve alignment between business and IT strategies” (Avison et al., 2004, p. 224). This research tries to define the most important and vital components of the alignment, connect them in a new unified comprehensive framework by investigating the concept from a new perspective – resource-based view, and then refine this framework by further investigation in Linnaeus University.

This research is limited by time and resources. Consequently, there are several limitations which should be described here.

The current research is focused on finding how this concept works in academic institutions, so the research is conducted in Linnaeus University among three departments: Administration Department, IT Department and Department of Planning.

By a reason of the limited time, the research includes a limited number of participants that provide empirical findings – 3 respondents. Another reason for this is that a topic of the study is quite narrow and I tried to choose those employees who are the most experienced experts in their areas and can provide all the necessary information regarding research. Although the number of participants is small, I believe it’s enough to collect all important data, answer the research questions and to achieve the purpose of the study. The second limitation of such kind of the research is that organizations usually don’t easily share the information related to their internal strategic features because their competitive advantage usually depends on it (Chan et al., 2007; Avison et al., 2004). This limitation will be partly overcome by choosing Linnaeus University as an investigated organization.

Some authors argue that there are two different ways to operate the alignment: a short-term alignment and a long-term alignment (Reich and Benbasat, 2000; Chan et al., 2007). Due to the
limited time and resources, this research will investigate the concept as one whole term without a separation of a long- and a short-term alignment.

One of the main delimitations is a practical side of the alignment. It is very difficult to find a universal technique or method which could be used for all organizations because every organization has its own structure and processes and exists in their individual special environments. During the research only one academic institution is investigated, so the outcomes from this research can’t be easily applied to another organization without any changes.

1.6 Disposition

This Master Thesis investigates the concept of IS/IT alignment and provides guidelines how to achieve and maintain it. This research paper consists of six chapters:

- **Introduction** – providing motivation for conducting this research, topic background information, discussion of the problem area, aims and research questions statement. Topic justification, scope and limitations are also included here.
- **Theoretical foundation and literature review** – presenting critical theoretical concepts related to the research area.
- **Research framework** – deep investigation of the research area is conducted on this step in order to get all the necessary information about the research problem. This chapter ends by presenting unified model.
- **Research methodology** – description of the philosophical worldview choosing the research method and strategy, techniques for data research and analysis, issues related to the reliability and validity of this master thesis, ethical consideration are included here.
- **Empirical findings** – presentation of empirical findings from the conducted interview and their analysis.
- **Discussion and Conclusion** – further analysis and discussion of the empirical data by comparing theoretical statements and how it really works in practice. This chapter ends by answering the research questions, providing recommendation for the investigated organization and suggestions for a future research.
2 Theoretical Foundation and Literature Review

2.1 IS/IT Activities

It’s not enough to just formulate the IS/IT strategy. Managers need to implement this strategy, deliver the results and occasionally update the strategy in order to reflect changing IS/IT and business environment. Sometimes organizations fail successfully manage IS/IT strategies due to various cultural, political or organizational issues (Ward and Peppard, 2002). Many organizations have failed to manage IS/IT because of lack of coordination, which is in turn has three main consequences (Ward and Peppard, 2002):
- Developed information system don’t meet organization’s needs;
- Resources are overused;
- Process of strategy formulation produces huge rework.

According to Ward and Peppard (2002), the main reasons for such situation are wrong management of IT demand and IT supply, wrong choice of centralization/decentralization strategy, poor alignment between business and IS/IT.

Traditional IS/IT activities which are important for “IT” actually can also be presented as activities that serve for the needs of an organization. They include IS/IT strategy development, investment planning, building, installing and maintaining applications, software and services, providing ongoing support, etc. Ward and Peppard (2002) argue that they can be classified to four groups: strategy and planning services; application and technical services; application development services; technology delivery and maintenance services (fig. 2.1).

<table>
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<tr>
<th>Strategy and planning services</th>
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<td>IT strategy development</td>
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<td>IT planning and resource developement</td>
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<td>New technology options ‘evaluation’ (technology road map)</td>
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<td>‘Account’ management</td>
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<td>Consultancy/business analysis</td>
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<td>Contingency planning</td>
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<td>Capacity planning</td>
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<td>New service development</td>
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<td>Package evaluation</td>
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<td>Systems implementation</td>
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<td>Programming and software developement</td>
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<td>Project management</td>
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<th>Application and technical services</th>
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<td>Application maintenance and change control</td>
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<td>First line user-support/problem resolution</td>
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<td>Advice centre</td>
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<td>Security/Access control</td>
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<td>Information ‘procurement’ (from external sources, etc.)</td>
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<th>Technology delivery and maintenance services</th>
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<td>Installing, PC, servers, cables</td>
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<td>Keeping network running</td>
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<td>Maintenance of hardware</td>
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<td>Upgrading software/version control</td>
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<td>Supplier and contracts management</td>
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Figure 2.1 – Examples of IS/IT activities (Ward and Peppard, 2002, p. 355)
2.2 Alignment Theory

2.2.1 Definitions of Alignment and Equivalent Terms

There are various definitions of alignment. Some of them are quite general and not precision, but they give better understanding about the concept. Campbell (2005) received this answer during interviewing focus group: “alignment is when the business and IS working together to reach a common goal”. Abrahm (2006) explained that alignment “is when everyone rowing in the same direction”. More specific definition gave one of the first advocates of this concept – Henderson and Venkatraman (1993, p. 474): “alignment is a degree of integration and fit among business strategy, business infrastructure, IS strategy and IT infrastructure”. Maes et al. stated that alignment is “the continuous process...of consciously and coherently interrelating all components of the business-IT relationships” (2000, p.19). According to Lutman and Brier, alignment requires “applying IT in an appropriate way in harmony with business strategies, goals, and needs” (1999, p. 109). Chan et al. (2006) defined alignment as “degree to which the mission, objectives and plans contained in the strategic plan are shared and supported by the IT/IS strategy – to influence organization performance” (2006, p. 27).

Although the term “alignment” is no doubt the dominant term in literature, there are different equivalent terms in strategic management literature, especially in older articles. Sometimes it’s called “fit” (Henderson and Venkatraman, 1993; Chan, 1992; Porter, 1985), “integration” (Broadbent and Weill, 1998; Henderson and Venkatraman, 1993). For example, Chan (1992) defined “fit” as the level of consistency among existing business and IT strategies, while Henderson and Venkatraman (1993) understood “fit” as some degree of coherence between business strategy and organization’s processes and infrastructure. There are also pseudonyms such as “harmony” (Luftman et al., 1999), “bridge” (Ciborra, 1997), “linkage” (Henderson and Venkatraman, 1992; Reich and Benbasat, 1996) and “fusion” (Smaczny, 2001). Nevertheless, the term “alignment” is dominant term, and other terms have been occurred very rare.

2.2.2 Alignment Dimensions and Levels

According to Chan and Reich (2007) and several another authors, there are four main dimensions of alignment: strategic, structural, cultural and social. There is a dominant attention to strategic dimension among the literature, but cultural and social aspects are also critical for organization’s performance. Strategic alignment relates to how IS/IT strategy and goals complement business strategy and goals. According to this perspective, organization can’t achieve appropriate level of alignment without existing formal business plan. Structural dimension is about structural integration between IS/IT and business. Within the structural aspect executives have to make decisions related to physical location of IT, allocation of decision-making rights, centralization or decentralization of IT, report relationships, etc. (Chan and Reich, 2007; Avison et al., 2004; Luftman and Brier, 1999). An important issue here is a size of organization and how it can influence the alignment. This issue also will be explored later in this research. Moreover, Chan (2002) found that an informal structure is also very important in order to achieve alignment between IS/IT and business. Social dimension relates to CEO-CIO relationships, coordination and the most important – understanding mission, strategy, goals of each other at all levels of the organization. Executives must change or improve many important social issues such as IT status within organization, communication problems, shared knowledge, leadership, etc. The cultural dimension pays attention on the importance of a cultural fit between business and IS/IT for achieving superior performance. Any organization should “culturally” support the alignment. Organization should build “bridges” between business and IT personal in order to create a “common language” (Chan and Reich, 2007).

During this research the concept of alignment has been explored from all perspectives in
order to achieve complete understanding of the alignment essence and its components.

According to Campbell (2005) and Chan (2007), organization should have alignment at all levels of an organization: enterprise level, organization level, system/project level and individual/resource level. Implementation of formal strategies only at top levels of organization is one of the most common problems during implementation of any system. That’s why organizations should translate overall business goals and strategies into individual goals.

Another issue is external and internal alignment. According to Henderson and Venkatraman (1993), organization must maintain internal alignment as well as external alignment. Internally, organization need to align internal business and IT processes, while externally organization’s strategy must be aligned with industry (Henderson and Venkatraman, 1993; Amit and Schoemaker, 1993; Chan and Reich, 2007).

2.2.3 Arguments Against the Alignment Concept

There is no general agreement within strategic management literature about the concept of alignment. There are several arguments which challenge the importance of alignment. Several of them have been briefly described below.

According to Ciborra (1997), the alignment literature is too theoretical, so the author recommends to use more practical approaches (for example, Mintzberg approach) and propose to go “to the field” for investigation. Real practice and process of strategy formulation is affected by human actions, attitudes and behaviors, so it’s very hard strictly follow some theoretical concepts (Avison et al., 2004). The next argument is that tight connection can have negative results in turbulent environment. Consequently, business can have problem with an adaptation to new environment, if it would suddenly change. Another argument relates to technology itself. According to Ciborra (1997), information technologies can’t work toward some fixed and predetermined outcomes, because it is characterized by some sort of improvisation and unforeseen results. Moreover, several authors argue that IT can’t be simply leaded by business vision. It should sometimes challenge the business, because disagreement, disputes and debates sometimes can be very desirable. Next argument is that too tight connection of strategies, tactics and objectives can lead to very rigid strategic planning process. If an organization will follow this process too pedantically, this can lead to reducing creativity thinking in organization (Avison et al., 2004).

However, all these arguments seem only as challenges to achievement of alignment, and alignment undoubtedly should be studied. According Chan and Reich (2007), alignment is one of the top management concerns among all respondents.

2.2.4 Challenges in Alignment Attaining

Recently, organizations have started to understand that traditional methods of business strategy development don’t ensure taking full advantage of IS/IT. However, some organizations still see IT as a “cost center”, and don’t understand that IT could be a driver of business value. Strategic alignment between business and IS/IT provide a new view on IS/IT and its role in strategy development.

Many organization didn’t get the desired return from their investments in IS/IT because they don’t know how to strategically manage IT. Some organizations don’t understand that they work in complex social environment which include wicked problems. Many organization respond to such problems in very wrong ways: they start spend more resources at IS/IT, but don’t change the management and behavior; or in contrast cut IT spending because see IT as a cost center; accuse or fire the CIO; or simply put the problem away by outsourcing the IS function.

Managers need to have skills and knowledge to understand existing processes, structure and resources in order to evaluate their contribution to organization’s performance. They also
should see different ways of utilization existing resources and make right choice, which will be the most appropriate to overall business strategy. However, some managers are unable to perform these tasks (Campbell, 2011; Chan and Reich, 2007; Avison et al., 2004). Such problems arise because of complex turbulent social environment with “wicked problems”. The main feature of wicked problem is that people understand that there is a problem but they can’t define it. There are several characteristics of wicked problems according Campbell (2011): no single definition; definition and solution are related; no single optimal solution; each wicked problem is unique; no abstraction from real word. According to Campbell (2011), “strategic alignment also occurs within complex social system” (2011, p. 5) and managers have to deal with these “wicked problems”.

IS/IT alignment challenges should be considered in order to get understanding what problems organizations face during achieving alignment. These challenges are usually relate to control problems, knowledge and changes in organizations.

The main problem related to knowledge is that very often business executives are not knowledgeable about information technologies, and IT executives are not knowledgeable about business principles and strategies (Chan et al., 2006). Sometimes business managers are not knowledgeable even about critical industry drivers.

Another issue is unclear corporate strategy. If the business strategy is not formulated, it makes barrier in achieving alignment because almost all existing alignment models presuppose existing formal business plan according to which organization could align IS/IT. Next challenge may occur when managers ambiguously understand the business strategy. Sometimes there is difference between formal business strategy document and the actual working strategy. They even may contradict to each other. Organization must achieve great results in such areas as shared knowledge domain, mental models, organization structure, status of IT staff in an organization, etc. in order to reach good level of alignment (Campbell, 2005; Chan et al., 2006; Chan and Reich, 2007).

Next problem is lack of belief in power of alignment or lack of awareness about it. Although there are many empirical studies in the strategic management literature which highlight the usefulness of alignment, many managers don’t believe that it can solve their business problems.

Several authors (Baets, 1996; Henderson and Venkatraman, 1993) have been stated that alignment can also be negatively affected if business managers are not aware about external industry factors. This mean that before business executives want strategically use IT, deep knowledge about industry itself is required.

Organizations should also pay attention to the fact that business environment is turbulently changing, so alignment can’t be seemed as some end state or result. According Henderson and Venkatraman (1993), alignment is all about continued process of changes and adaptation.

2.3 Resource-based Theory

There are common questions which executives from any organization often ask themselves: “What make us profitable?”, “Are we unique?”, “Why customers are attractive to our products or services?”. Usually the answers for these questions can be found in the dimension of organization’s “know-how”, “costumer orientation”, “adaptability to uncertain environment”, etc. Almost always management will define some specific unique organization’s resources, competencies or capabilities which are the most critical and important to explanation of organization’s good performance. The main task for managers is to find, improve, protect and efficiently utilize resources in the way that helps to get sustainable, substantial and significant competitive advantage and good return from investments (Amit and Schoemaker, 1993).

Although the resource-based theory (RBT) has origins in works Penrose (1959) and Wrigley (1970), it has been widely spread only 20 years ago. The resource-based view is alternative for traditional product-market view which was dominated last 50 years (Peppard and
According to several authors (Peppard and Ward, 2004, Amit and Schoemaker, 1993, Barney, 1991), the main idea of resource-based view is that resources are distributed heterogeneously across organization. According to this viewpoint, organizations cannot just “buy” unique competitive advantage in the market. Company has to generate this advantage by improving and mobilization of existing resources. Peppard and Ward (2004) argue that organization can get competitive advantage by creating and maintaining their own distinctive unique competencies and resources which are already controlled by the organization.

There is some ambiguity in main concepts and terms of RBT. Theory often uses different and sometimes contradictory definitions. For example, some literature doesn’t distinguish terms “competency” and “capability” and use them as synonyms. Another example is when authors use another terms which are synonyms, i.e. “strategic assets” to terms “competency” and “capability” (Amit and Schoemaker, 1993). That’s why main concepts of RBT: resources, competencies and capability and their appropriate definitions have been described below.

**Resources.** There is some ambiguity even at the level of resources. For example, there are statements like “...resources which include all competencies, organizational processes, information...” (Barney, 1991). It should be found such definition of resources that will completely fit with definition of competencies and capabilities. The most appropriate definition of resources has been proposed by Amit and Schoemaker (1993): resources defined as “stocks of available factors that owned or controlled by the organization” (Amit and Schoemaker, 1993, p. 35). It’s important to note that according to this definition all resources that organization controls should be considered, even if they are outsourced. Resources include patents, physical or financial assets, human capital, knowledge, skills, etc.

**Competencies.** According to Peppard and Ward (2004), Penrose (1959), resources themselves can’t bring a value. Organization can generate value by utilization of resources. It is very important the ability (or competence) of the company to correctly use these resources. The company should be able to utilize a combination of different resources in order to perform various tasks and achieve desired result with existing processes. Competencies are usually based on information, organization’s unique intangible and tangible processes and complex combination of organization’s resources.

The term “competence” is widely used in the literature, including information systems, information technologies, management, human resource, applied psychology, etc. In different contexts this concept can be used as a skill, personality trait or as performance indicator (Bassellier et al., 2001).

It’s very important to distinguish the terms “competence” and “performance” because sometimes these concept are used as synonyms (Bassellier et al., 2001). However, competence is something like enabler to greater performance. Competence is a process, while performance is an outcome. Therefore, these concepts can’t be interchanged because they have different essence. The problem is that it’s very hard to evaluate the competence, so people use performance instead of it. However, performance can be influenced by wide range of other factors such as motivation or support. Moreover, competence doesn’t always lead to performance. According to Bassellier et al. (2001), competence can be presented as a personality trait, as a skill or as knowledge.

**Capability.** According to Peppard and Ward (2004), capability can be described as use and deployment of competencies to accomplish some organization purposes. Very often development of some capabilities determined by organization’s future goals and can require improvement or development of various competencies.

Capability is a meta-level concept, so its underlying competencies of some organization’s capability can be coordinated and located in different ways. That’s why sometimes it’s very hard to directly identify a capability by external actors.

Managers face complex tasks during investment decisions about strategic capabilities. They have to foresee possible futures, review all possible competitors’ actions in each future, and deal with organization inertia and internal disagreements to align the organization’s list of
According to RBT, managers focus on creation of a portfolio of tangible and intangible competencies with high economic return. Referring Amit and Schoemaker (1993), the value of an organization’s capability depends on some desired characteristics of underlying competencies and resources: durability, limited substitutability, inimitability, complementary and low tradeability.

Organization can increase a strategic value of resources and competencies by making them more difficult to buy, cope, sell or substitute. For example, invisible competencies such as high IT status, collective learning, or tacit resources such as knowledge, communication between CEO and CIO cannot be easily duplicated by competitors because they have deep roots in history of the organization (Peppard and Ward, 2004). Such specific competencies and resources are established slowly in time.
3.1 Why is a Unified Framework Needed?

The concept of alignment needs a comprehensive framework that will clearly describe the structure and essence of the alignment. Referring Maes (2000), “any attempt at transforming the concept of alignment into a practical method will therefore need a reference framework incorporating strategic perspectives” (Maes, 2000, p. 9). According to Avison (2004), “there is need for clearer framework, despite available models…” (2004, p. 228). Avison et al. also have mentioned that various authors “provide some examples of enablers and inhibitors of alignment, but the literature provides little guidance on how to achieve alignment between business and IT strategies” (Avison et al., 2004, p. 224).

In the current research the concept of alignment has been considered from resource-based perspective in order to understand the essence and components of this concept.

The deep search within appropriate strategic management literature has been conducted to provide material for unified framework, which highlights the most important components of the alignment. Following that, during further investigation, the components of alignment framework were arranged according to resource-based theory. The processes of construction of the model and conduction of literature search had more iterative nature rather than sequential. As a result, the theoretical framework presents all the most important dimensions and fully describes the essence of the concept.

3.2 Used Models

Proposed model is affected by two models, which both depend on resource-based theory. First model is Strategic Assets Model by Amit and Schoemaker (1993), which is shown on figure 3.1. This model presents relationships between firm’s resources, capabilities and strategic assets.
The second model is the model of the IS capability by Peppard and Ward (2004). The model represents components of IS capability (fig. 3.2).
3.3 Framework Components: Resource Level

3.3.1 General Information

According to Peppard and Ward (2004), Chan and Reich (2007), Chan et al. (2006), Luftman and Brier (1999), Kearns and Sabherwal (2006), Campbell (2011) and many another authors, the most important and critical organization’s resources for alignment are:

— IT knowledge, skills and experience of business managers;
— business knowledge, skills and experience of IT managers;
— behaviors and attitudes;
— communication between business and IT executives;

During this chapter all these resources have been considered more closely.

3.3.2 IT Knowledge, Skills and Experience of Business Managers / Business Knowledge, Skills and Experience of IT Managers

Starting from the time when organization began widely use information technologies, managers of IT department take responsibility for implementation and maintaining of IT investments. However, accordingly to Bassellier et al. (2001), IT and line managers should share management of IT. Business managers should strategically use IT, communicate with IT department, and sometimes even take leadership role in IT projects. Many authors argue that organization’s employees should be technologically competent, especially management team. According to Keen (1991), “business cannot afford technology-illiterate managers any more than it can afford business-illiterate IT professionals” (1991, p. 121). Kearns and Sabherwal argue that “the lack of top managers’ knowledge of IT is a major inhibitor of effective IT strategies” (2006, p. 135).

Both, IT knowledge of business managers and business knowledge of IT managers, are discussed in the literature, but according to Kearns and Sabherwal (2006), business executives’ knowledge of IT is more important for improving business-IT knowledge integration and further strategic alignment. Kearns and Sabherwal argue that individuals in integration process must “have opportunity to integrate their knowledge, have motivation to participate in the process, expect the knowledge integration to create value, and have ability to combine different dimensions of knowledge” (2006, p.135). Business manager’s knowledge of IT could be defined as knowledge of the value of IT. This awareness can increase the level of knowledge integration and enable participation in planning process. Line managers, which are aware about the value and potential of IT, are more likely will integrate business and IS/IT knowledge and contribute to business-IT alignment. According to Kearns and Sabherwal (2006), “top managers’ knowledge of IT facilitate business managers’ participation in strategic IT planning as well as IT managers’ participation in business planning” (2006, p. 136). On the other hand, business knowledge of IT managers have a little more limited impact on this process (Kearns and Sabherwal, 2006). Although it can help to IT managers to combine their knowledge with line managers, it not surely will lead to increasing respect to IT or business managers’ support to IT projects. However, such knowledge should be considered, because it anyway facilitates the integration of IT and business (Kearns and Sabherwal, 2006). IT managers have to be aware about new information technologies that could be applied in the business and must be knowledgeable about senior executives’ strategic plans.

Business managers form their awareness about IT according to their knowledge, skills and experience in system development, management of IT, knowledge of applications, etc. Then, managers can expand their awareness by adding knowledge “who knows what”, which can help
managers to support and leverage the knowledge of other employees (Bassellier et al., 2001). According to Kears and Sabherwal, “managers’ knowledge of IT helps to leverage the knowledge of others” (1991, p. 133).

3.3.3 Behavior and Attitude

Behavior of a person is completely defined by individual’s intention to perform the behavior (Bassellier et al., 2001), which is in turn influenced by three factors: individual’s attitude toward the behavior, person’s subjective norms, and perceived behavioral control.

Individual’s attitude reflects how the individual feels about some specific behavior. Usually it depends on what consequences and outcomes person sees, and in what he or she believes. The roots of such beliefs are in deep person’s value system. Individual’s beliefs in IT can be influenced by the knowledge about IT. For example, if some business manager is aware (knows this) that strategic usage of IT can lead to better organization performance, it would lead to belief that IT is useful tool. There are many examples, when managers’ participation in system development then influences their attitude toward using this system. Eventually, it’s expected that business managers’ experience in IT and IT managers’ experience in business will influence their attitude toward each other.

According to Bassellier et al., subjective norms are “function of two factors: what one believes important other individuals expect one to do and one’s motivation to comply with those others” (2001, p. 175). It is expected that business and IT knowledge of managers will indirectly influence subjective norms. The key linkage here is employees’ beliefs in value of business/IT communication.

Perceived behavioral control reflects the opportunities and limitations of IT usage in business. It tests the availability of necessary resources to perform the behavior: time, money, authority, etc. The second key component is self-efficacy, which reflects employee’s confidence that he or she can perform the behavior.

3.3.4 Positive Attitude and Communication between Business and IT Executives

There are many convincing evidences in the literature that communication between business and IT executives is one of the main resources in organization and that it leads to alignment achievement. According to Boynton et al. (1994), communication between business and IT managers directly affect the successful application of IT. Rogers (1986) suggest that line and IT managers should communicate in knowledge creation and sharing in order to achieve mutual understanding. Reich and Benbasat state that “communication increases it is more likely that group members will share common goals” (2000, p. 85) and “communication ensures that business and IT capabilities are integrated into the business effectively” (2000, p. 85). According to Luftman (1997), one of the main factors which influence alignment is the degree of personal communication between business and IT executives. According to Luftman and Brier (1999), if organization wants to succeed in alignment, “a climate of clear communication is an absolute necessity” (1999, p. 118).

Figure 3.3 shows six stages of communication between business and IT managers regarding “shared values” by Galliers and Sutherland (1991). Many organizations stuck at stages 2 and 3. Behavior and attitude of business and IT managers, which were formed for years, make achieving stage 4 is incredibly difficult. Stages 5 and 6 are the most desired, but as well very complicated to achieve.
Cultural issues are critical for communication between business and IT managers. Ward and Peppard have described how organization can understand the beliefs and perceptions of employees by using “The Cultural Web” in order to exploring communication cultural gap. The main idea is that “both business and IT managers describe their perceptions of relationship as a starting point for reconciliation and then carefully change the ways how IT managers work with business and vice versa” (2002, p. 398). There is some common set of assumptions, beliefs and values, which are distributed among almost all employees. This set is called “paradigm” and it influences organization’s perception of environment and even itself. The paradigm is changing over the time and retains history. It also includes so-called cultural artifacts:

- Stories and myths. When a new employee comes to some organization, he or she usually hears some stories about big IT failures, project failures, leaders and people who tried to break the
cultural norms. Such stories and myths show for new employee what is important in organization and how he or she should behave.

- **Symbols.** All organizations have symbols, but sometimes it’s hard to see it because they can be deeply ingrained. The examples of symbols can be dress code, furniture style, top managers’ parking spaces, organization-specific language, physical location of IT department in organization, etc.

- **Rituals and routines** represent the way how organization does the things and show traditional organizational activities. It can include board meetings as well as company barbecue parties, etc.

- **Control systems** can help us to see what is valued by organization and how organization control and encourage performance. It includes organization’s management hierarchy, reward and pay systems, etc.

- **Organization structure** includes location of departments according to geography or functionality, management hierarchies, product-based business units.

- **Power structures** are usually the first target to change because they usually want to keep paradigm as it is.

When management tries to make some changes they usually change only tangible elements of web (for example, organizational structures), and don’t change intangible elements. However, it won’t work or will give limited results, if the management won’t examine all elements of web including stories, symbols and rituals.

### 3.4 Processes

**3.4.1 Participation of IT Managers in Business Planning / Participation of Business Managers in IT Planning**

Reich and Benbasat (2000) have mentioned that alignment is critical during the process of IT planning. According to Lederer and Burky (1999), IT managers which take active part in business planning, have better understanding of business goals and strategies.

According to Kearns and Sabherwal, “IT managers’ participation in business planning and business managers’ participation in IT planning, affect strategic business-IT alignment” (2006, p. 130).

Referring Kearns and Sabherwal (2006), traditionally, the process of IT planning includes “a development of the strategy, the purpose of the system, system applications (functions), function requirements, goals and documentation” (2006, p. 131). However, due to the recent shift in organizations from data processing and IS management eras to “strategic” era, organizations change the goals of IT planning from IT project planning to support and maintenance the business strategy.

Participation of line and IT managers in IT and business planning respectively contribute to knowledge integration and shared domain knowledge between IT and business managers by facilitating socialization through some joint activities, for example, work and cooperate in common environment, or exchange activities (Kearns and Sabherwal, 2006). According to Kearns and Sabherwal, such participation “create cross-function interfaces, which provide opportunities for “collecting learning”...They facilitate the sharing of experience, opinions and viewpoints through confrontation, brainstorming sessions and conversations...” (2006, p. 134). Knowledge sharing between business and IT employees leads to enhanced ability to reflect the business goals in IT planning.
3.4.2 Partnership between Business and IT People

According to several authors (Kearns and Sabherwal, 2006; Bassellier et al., 2001; Luftman and Brier, 1999), business managers’ awareness about IT, IT managers’ awareness about business, proper attitude and behavior lead to productive partnership between business and IT. Such relationships are critical for successful deployment of IT, and the way how organization competes. According to Rockart et al. (1996), “in an effective relationships, IT professionals and business managers work together to understand business opportunities, choose among technology options, determine needed functionality, and decide when urgent business needs demand sacrificing technical excellence for immediate, albeit incomplete, solutions,...” (1996, p. 47).

Organization has to build effective relationships among line and IT managers at all levels. Just through such partnership organization can be sure that technology and business competencies are integrated at all levels. Nowadays, IT education in organization should also include improving communication skills such active listening, negotiation, team playing, responsiveness, etc.

3.5 Roles

Each employee in organization has one or several roles according to his “job description”. Individuals actually can perform different roles at different time. Employee is able to perform some role in according to existing knowledge (knowing what), skills (knowing how), behaviors and attitudes.

According to Avison et al. (2000), there are many roles which business and IT managers should provide: strategy formulator, strategy implementer, technology visionary, technology architect, business visionary, catalyst, prioritizer, executive leadership, etc.

Business and IS/IT managers have to play multiple staff and line roles in order to achieve strategic alignment.

3.6 Structure

3.6.1 Organizational Size

There are empirical evidences in the literature that organization size can affect the level of alignment (Byrd et al., 1995; Levy et al., 2001; Chan et al., 2006). Organization size affects the way how organizations manage IT. Small and medium organizations usually use centralized structures for coordination, so organizations often don’t need any explicit structures to maintain alignment (Chan et al., 2006). On the other hand, large organizations usually use decentralized management structures for coordination, which require some explicit alignment structures and mechanisms (Levy et al., 2001).

Chan et al. (2006) have conducted quantitative research, which identified assumption that organization size affects the level of alignment in business organizations, but doesn’t in non-profit academic institutions.

3.6.2 Location of IT Department

Sometimes low IS status is reflected on organization structure and physical location of IS/IT function or department. Campbell (2011) described a situation when one company has policy to give a tour around the firm for new staff. However, it was applied to everyone except new IT staff. There is also a story when CIO first time met productive manager after quite long time...
because IT department was located far away. Separate physical location of IT department leads to mental separation between IT and business staff, which negatively affects strategic alignment between business and IS/IT.

3.6.3 Centralization/Decentralization of IS/IT

The level of centralization usually refers to the level to which IT central group make decisions independently. According to Kearns and Sabherwal, “a centralized design is present when decision authority resides primarily with corporate IT managers (or central IS/IT unit)” (2007, p. 137). Centralization provides better efficiencies, great control and organization integration, while decentralization provides local business units’ control and better responsiveness to business needs.

The location of main IT resource in organization structure is important because it affects various dimensions of organization’s work. The main problem usually occurs when organization try to decide which control of IT/IS resources is better to be used – centralized or decentralized. Extreme decentralization or centralization often don’t give desired effect because there are always some things that should be decentralized, while others have to be centralized. However, organizations sometimes fail to correctly respond when chosen strategy doesn’t give expected return. For example, when extremely centralized IS function fails to serve some decentralized development group it doesn’t mean that organization must rapidly shift IS/IT resources completely to business units. Management must carefully evaluate situation first and identify that maybe some aspect definitely should be recentralized, but some resources should be remain where they are. Organization should always “keep in mind” some factors, which can influence the arrangement of IS/IT resources: extent to which organization depends on IT; maturity of application portfolio; physical allocation and geography of organization; business diversity; competitive pressure; needed resources, skills, etc. (Ward and Peppard, 2002). There is no doubt that organization should centralize some resources because there are more potential benefits and opportunities for organization as a whole instead of the sum of business units (parts), so some coordination from the center can add some additional value. In information systems management literature there is also so-called federal structure that combines both centralization and decentralization approaches. In federal structure decentralized IS functions serve for business units, while corporate IS function performs central control and leadership (Figure 3.4).

![Figure 3.4 – Different structures of IT organization (Ward and Peppard, 2002, p. 351)](image-url)
3.6.4 Authority for IS/IT

According to Luftman and Brier (1999), IT governance relates to “how the authority for resources, risk, conflict resolution, and responsibility for IT is shared among IT managers, business units, and service providers. Project selection and prioritization issues are included here” (1999, p. 111).

Organization can devolve some aspects of IS/IT to business units or manage all by central IS function, in any case organization has someone who has general authority for IS/IT. Usually it’s someone from the board level, but necessary with director status. Sometimes it can even be not his or her main responsibility as a board member. Ward and Peppard have presented comparison of allocation of authority for IS/IT with IT director, Business-unit head, Financial director, Board of directors (figure 3.5). One of the problems with IT director’s authority for IS/IT is that then IT is not aligned. However, recently the role of CIO has been shifted from simply “technical specialist” to a “leader”. It’s obvious that CIO must have sound IT background, but sometimes it’s can be more successful if CIO role takes not-IS/IT specialist because it can bring to business a focus to its activities. Today, CIO has to perform five critical roles: leadership, visionary, relationship builder, politician, and deliverer (Ward and Peppard, 2002).

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<td>Shorter reporting structure</td>
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<td><strong>Board of directors</strong></td>
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<td>Appreciation of broader impact of decisions</td>
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<td>Slow to exploit technology</td>
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Figure 3.5 – Consequences of locating overall authority for IS/IT (Ward and Peppard, 2002, p. 365)

3.6.5 Steering Groups


Steering group is usually cross-functional team which includes from 5 to 12 managers form
different business and IT units. “To have a Strategic Steering Committee composed of a group of senior executives meeting on a regular basis is considered among the best practices for strategic alignment” (Luftman, 2000, p. 120). According to Luftman and Brier (1999), steering committee can include “business process managers, IT managers, functional managers, change managers, vendors and external customers” (1999, p. 119). The most important key is their credibility and their knowledge about business and IT. Such team should always seek for new ideas and propositions and has comprehensive view on organization. Another important issue is an involvement of IT in business strategic planning. Steering group should ensure that an organization maintains all necessary competencies, processes and resources for facilitation of alignment because the business-IS/IT alignment is ongoing process.

Steering committees are not always called “steering groups” and often have in title words like “planning”, “coordination”, “strategy”, etc. According to Ward and Peppard (2002), the reasons for implementation such groups are:

- Providing alignment between business and IS/IT;
- Improving attitude to IT;
- Encouraging business management involvement in IS/IT planning;
- Encouraging IS/IT managers involvement in business planning;
- Increasing communication between business and IT managers, middle and top managers.

Ward and Peppard argue that “steering groups” were “one of the most effective ways of improving organizations’ IS planning, by assisting the integration of the IS function with the business and by coordinating planning activities” (2002, p. 371). It doesn’t matter which structure – centralized or decentralized, organization use, it can’t satisfy all involved parts. That’s the reason why additional monitoring structure is necessary. If a structure is decentralized, there is a need to coordinate application planning and ensure that IT resources bring maximum value. If the structure is centralized, there is a need to estimate the demand, and determine suitable level of resources. Although there is a wide establishment of steering groups during the recent decade, many such initiatives were failed due to different reasons (Ward and Peppard, 2002):

- Too many/few people attend;
- Wrong people attend/ Right people don’t attend;
- Members meet too often/ too rare;
- Members make too many/ not enough decisions;
- Group doesn’t understand the real issues;
- Group is remote from reality;
- Members discuss wrong things/ don’t discuss necessary things.

Any steering group should communicate with every part that involved in strategy implementation. Members must have relevant inputs from outside and ensure that their decisions are implemented. According to Ward and Peppard (2002), “the steering group role is evaluate opportunities resulting from new ideas in the context of the business, judge their worth, initiate appropriate action and then monitor whether success is achieved” (2002, p. 374). Members of steering group must be able to determine the opportunities for IS/IT in terms of business strategy, use IS/IT as a “business weapon”, influence management of business area that they represent (Ward and Peppard, 2002). It doesn’t matter which role a member performs in his or her business unit, but at the same time it’s necessary that all business areas should be presented. It’s also important that IT person can’t chair the group, leadership should be from business.

Steering group is one of the best practices for alignment, but keeping such commitment is hard. There are some critical success factors, which are important for maintaining the steering groups (Luftman and Brier, 1999):

- **Bureaucracy**: reduction of bureaucracy in order to expand of IT opportunities;
- **Career Building**: participants should have opportunities to learn and share responsibilities;
- **Communication**: first step in discussion and sharing knowledge among employees
within organization;
— *Complex Decisions*: do not operate in “mundane” dimensions;
— *Empowerment*: ability to carry out the decisions;
— *Quick Hits*: immediate response for changes;
— *Measurements*: estimation of IT contribution in business;
— *Ownership*: responsibility for decisions made;
— *Priorities*: primary decisions about resource allocation and their further utilization.
— *Relationships*: clear partnerships between IS/IT and business;
— *Right Participants*: cooperative team members with high credibility and deep knowledge of business and IT;
— *Share Risks*: equal responsibility, rewards, etc.

Finally, it is important how the group works, not only what it does. Group should operate openly, without any secrets; decisions must be spread quickly; success should be recognized as well as failures.

### 3.7 Competencies

#### 3.7.1 Shared Domain Knowledge

According to Reich and Benbasat (2000), shared domain knowledge is “*the ability of IT and business executives, at a deep level, to understand and be able to participate in others’ key processes and respect each other’s unique contribution and challenges*” (2000, p. 86).

There are many empirical evidences in the literature about the necessity of shared domain knowledge for alignment process. Dougherty (1992) has investigated relationships between information sharing, understanding and innovations. Luftman and Brier (1999) have explored the linkage between IT managers’ knowledge about business and alignment, while Vitale et al. (1986) have discussed the connection between line managers’ knowledge of IT and alignment. Several other authors have found that if business managers have appropriate IT knowledge, it leads to successful participation of such managers in IS/IT planning and further increase of alignment. According to Chan et al. (2006), it is very important that business and IS/IT managers should have “common objectives, common experience, common “language” and even overlapping, common education” (2006, p. 29).

According to Bassellier et al., shared domain knowledge is “*the most important factor in explaining the alignment of IT and business strategies*” (2001, p. 161).

Knowledge is the most important and unique resource in resource-based theory, so organizations can be viewed as dynamic systems of knowledge production and usage. The central aspect of resource-based view is knowledge integration (Kearns and Sabherwal, 2006). According to resource-based theory, organization’s performance depends of how the organization can manage and integrate various knowledge streams in order to create new knowledge as well as apply existing ones. According to Kearns and Sabherwal, “*successful knowledge integration requires that the concerned individuals possess an underlying base of shared domain knowledge, common knowledge, or mutual knowledge*” (2006, p. 133). When there is a situation where one person (for example, business manager) shares some knowledge with another person (for example, IT manager), the sender and recipient need some base of mutual knowledge in order to successfully utilize knowledge. Shared domain knowledge helps to receive new knowledge, enable line and IS/IT managers integrate knowledge which are not common for them (Kearns and Sabherwal, 2006).
3.7.2 Planning Sophistication

According to several authors, sophisticated planning process is one of the top important concerns among IS and business managers (Reich and Benbasat, 2000; Chan et al., 2006; Raghunathan, 1991; Vitale et al., 1986). Such planning is an opportunity for line and IS/IT managers to work together in order to manage IT-related issues. According to Chan et al. (2006), “this ongoing communication helps to improve IS alignment” (2006, p. 29).

Business and IS/IT strategies can only be aligned if the organization has formal process of strategic planning, defined business strategy, vision and goals (Luftman and Brier, 1999). Based on strategic management literature, organization’s ability to provide sophisticated planning process can be one of alignment competencies.

3.7.3 High IS/IT Status

According to Chan et al. (2006), “the view of new or future IS opportunities is affected by their looking back at experiences with past ones” (2006, p. 102).

Past failures reduce the level of credibility of IT department (Reich and Benbasat, 2000). History of previous IT projects has significant effect on what line managers think about competence of IT department. Failures reduce cooperation, mutual trust, communication and support between business and IT managers (Reich and Benbasat, 2000; Brown, 1991). According to Campbell (2011), “where IS status is low business managers are not inclined to communicate and develop a relationship with a low status IT managers” (2011, p.7). IT managers also react to this situation and distance themselves even further. Finally, it will lead to situation when any communication, shared domain knowledge or trust is difficult to achieve. There are even cases when low IS status leads to physical separation of IS function.

On the other hand, referring Reich and Benbasat (2000), a successful IT’s track record leads to including IT in business strategic planning and increasing degree of communication between line and IT managers. Business and IT managers want to develop trust mutual relationships and shared domain knowledge.

This shows that managers have to pay attention to prior failures or gaps of IS/IT department and don’t ignore it. Organization’s ability to improve IS status within organization can help to achieve better alignment (Chan et al., 2006).

3.7.4 Organizational Emphasis on Knowledge Management

Knowledge management in organizations includes creation, identification, evaluation, sharing, and storing of both explicit and tacit knowledge (Kearns and Sabherwal, 2006). Organization emphasis on knowledge management means that top managers are focused on knowledge creation and sharing among employees within organization. Such attention to knowledge management leads to increasing the level of awareness about business and IT initiatives, aiding of IT projects, facilitate communication between line and IT managers, etc. Business managers begin be more aware about potential and value of IT, while IT managers begin being more aware about business.

3.7.5 Other Competencies

There are several other competencies which are not mentioned in alignment literature, but these competencies can be also vital for achieving and maintaining strategic alignment between business and IS/IT.
Competence of “managing changes” is one of necessary IS competencies according to Ward and Pepper (2004). During research we will use further definition of this competence: “the ability to perform the business, IS/IT and organizational changes in order to maximize the benefits without detrimental impact on stakeholders” (2004, p. 178).

According to Campbell (2011), “to develop dynamic capabilities senior management must be able to perceive opportunities to productively change existing routines or resource allocations, have willingness to undertake such changes, and the ability to implement these changes” (2011, p. 3).

Next important competence is “Technology innovation” and it described by Ward and Peppard as “the ability incorporate the potential of new and emerging technologies in long term business development” (2004, p. 178).

It also important that organization has “the ability to establish appropriate criteria for decision making on investments in information, system, technologies and alignment mechanism” (2004, p. 178), in another words – investment criteria competence. Organization has to keep track of investments in technologies and ensure that these investments give maximum return from available resources.

Particular attention organization should be given to “business and IS/IT staff development” competence which defined by Ward and Peppard (2004) as “the ability to recruit, train and deploy appropriate staff and ensure technical, business and personal skills meet the needs of the organization” (2004, p.179).

3.8 Alignment Unified Framework

Influenced by the work of Ward and Peppard (2004) and according to resource-based theory the Alignment Unified Framework has three levels: the enterprise level, the organization level and the resource level (Peppard and Ward, 2004, Ciborra, 1997). The resource level in this framework includes resources element because they are the most important components for alignment: IT knowledge, skills and experience of business managers, business knowledge, skills and experience of IS/IT managers; attitude and behavior, communication between business and IT/IS managers. In the next level – organization level – framework describes how an organization can utilize these resources by exist processes, structure and roles in order to create “alignment competencies”. Individuals in organizations utilize, share and implement their knowledge, skills and experience by interaction with each other and performing some roles within processes and structure of organization. Employee can be part of many processes, so he or she contributes toward many different competencies. Only at the enterprise level we will see “alignment capability”.

The Alignment Unified Framework is presented on figure 3.6 and mainly based on the Model of the IS Capability (Peppard and Ward, 2004, p. 180). It has a similar structure, but the components of the model are modified and extended in order to present all necessary elements of the IS/IT alignment concept. This framework is used as a base for interview guide. In followed chapters it will be considered how the concept works in real practice and then compared with presented theory.
Figure 3.6 – Alignment Unified Framework
(Peppard and Ward, 2004)
4 Research Methodology

4.1 Philosophical Worldview

Philosophical ideas influence the way a research is conducted, so it is necessary to identify them. It also helps to choose methods for research. According to Creswell (2009), worldview is “general orientation about the world and the nature of research that a researcher holds” (2009, p. 6). The choice of worldview usually affected by student past experience, the discipline of the research. There are four main worldviews: post-positivism, constructivism, advocacy/participatory, and pragmatism.

Social Constructivism has been used in this research to conduct qualitative study. The main idea is that a researcher tries to understand and explore the world where he or she lives and works. People operate in social environment and have complex set of subjective meanings about certain things or objects. According to social constructivism worldview, the main goal of research is “to rely as much as possible on participants’ views of the situation being studied” (Creswell, 2009, p. 8).

Current research has been focused on how IS/IT and business staff interact and communicate with each other, share knowledge, and work together in complex social environment. The research aims to find out as much as possible of participants’ opinion, so we need use general, broad, and open-ended questions, and carefully listen what participants say.

Philosophical worldview have the influence on current research from the very beginning - there is great attention to social dimension of IS/IT alignment concept, i.e. how IT staff and business personnel interact with each other and work together to reach a common goals. And further, philosophical worldview influenced the way which research approach has been used and how data were collected. This research explores the situation from the perspective and subjective understanding of employees, and completely relies on their view.

4.2 Research Approach

There are three types of research approach: qualitative research, quantitative research and mixed methods research (Creswell, 2009). Each of them is associated with different philosophical assumptions and employs different strategies of inquiry, methods, models, and practices.

Researchers usually use quantitative approach for testing objective theories, hypothesis, and relationships among various variables. The most common strategies of inquiry within quantitative approach are surveys and experiments.

Qualitative approach has been used in this research because it allows getting complete and detailed picture of real practice of phenomena. By using a qualitative approach we won’t miss anything important and can determine the maximum number of respondents' opinions (Creswell, 2009). The task of qualitative research methods is a data exploration, but not quantitative distribution of opinions. Not numbers but words are used to explain and interpret the concept (Creswell, 2009). In other words, qualitative study answers questions like "what" and "how". According to Creswell (2009), “the process of qualitative research involves emerging questions and procedures, data which collected in the participant's setting, data analysis building from particulars to general themes, and the researcher making interpretations of the meaning of the data” (2009, p.4). Researchers which use qualitative approach should gather data directly in the field where participants face research problem. Researches must actually talk with people face-to-face and see how they behave in certain conditions.

The most common strategies of inquiry during qualitative research are grounded theory, phenomenology, ethnography, narrative research, and case studies (Creswell, 2009). Researchers
usually gather data by interviewing, observation, document and text analysis, etc.

Current research aims to explore the opinions of respondents about how an organization can achieve strategic alignment between business and IS/IT, and then compare these opinions with existing theories. There is no need for any numerical data for this, but there is a need of deep focus in how the concept works in real practice. That’s why qualitative approach is most suitable for current research.

4.3 Research Strategy

According to Yin (2009), there are five main research strategies: case studies, experiments, surveys, archival analyses, and histories. Each research strategy represents some research plan about how researcher is going to answer research questions. There are many types of research questions, and each of them relates to different research strategy (see table 4.1).

Table 4.1 – Relevant situations for different research methods (Yin; 2009; p. 8)

<table>
<thead>
<tr>
<th>Research strategy</th>
<th>Form of Research Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Survey</td>
<td>How, why?</td>
</tr>
<tr>
<td>Experiment</td>
<td>Who, what, where, how many, how much?</td>
</tr>
<tr>
<td>History</td>
<td>How, why?</td>
</tr>
<tr>
<td>Archival Analysis</td>
<td>Who, what, where, how many, how much?</td>
</tr>
<tr>
<td>Case Study</td>
<td>How, why?</td>
</tr>
</tbody>
</table>

The main research question in this study – “How an organization can achieve and maintain strategic alignment?” According to Yin (2009), researchers may choose case study strategy if main research questions are “Why?” or “How?”, so case study strategy is suitable for current research. According to Silverman (2005), the main idea of case study is “that one case (or perhaps a small number of cases) will be studied in detail, using whatever methods seem appropriate. While there may be a variety of specific purposes and research questions, the general objective is to develop as full an understanding of that case as possible” (2005, p. 126).

According to Yin (2009), there are single and multiple case studies. A single case – Linnaeus University is investigated, and the research aims to explore and understand how the concept of alignment works in real practice.

4.4 Data Collection

It is very important to find right people, which are competent in investigated research area because the topic of research is quite narrow and specialized.

This research is focused on large organization that has strong IT department and uses different information systems. In addition, the minimum criterion is the existence of overall strategic plan of organization because without it the concept of alignment has no sense. It is not necessary that the organization officially do some efforts for achieving and maintaining alignment or not. The organization may simply call it differently, or sometimes organizations can even don’t know that they do some steps in this direction.

The feature of current study is considering non-profit organization such as university. It is expected that for such organization, the alignment is also important because they also need to
coordinate and integrate overall strategic plan with IT.

This research has been conducted at Linnaeus University, Sweden. Linnaeus University is one of the largest universities in Sweden with 25000 students and 2000 employees. The turnover of the university is 1500 Million Swedish Kroner, and 350 of them are allocated to PhD research training. There are 13 main departments, 5 faculties and more than 10 different schools. Since we are interested in opinions of competent people, interviewing is conducted among three departments: Administration Department, IT Department and Department of Planning.

There are three professionals which agreed to participate in this research.

<table>
<thead>
<tr>
<th>Number</th>
<th>Position</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>University Director</td>
<td>Administration</td>
</tr>
<tr>
<td>2</td>
<td>Chief Information Officer</td>
<td>IT Department</td>
</tr>
<tr>
<td>3</td>
<td>Quality Coordinator</td>
<td>Department of Planning</td>
</tr>
</tbody>
</table>

Private semi-structured interviews have been used to obtain primary data since it gives maximum of views of respondents (McCracken, 1988). According to Gunes (2008) “semi-structured interviews enable adaption to each respondent and interview setting, by allowing us to: change formulations of the questions, reorder them, and follow up with new questions if needed” (2008, p. 96). The questionnaire consists of several prepared questions, but it’s always possible to add new items, if any, during the interview. The "interview protocol" is used, which includes demographic information on the top, and questions which placed in several categories according to research theoretical framework. Majority of questions is similar for different respondents, but there are also questions which are personalized in according to respondent group – IT, Administration or Planning.

Each interview was recorded on a tape, which allows me to make only small notes. It made possible to listen exact phrases and definitions from respondents later by using the records. This helped during the interview to be focused on the conversation.

4.5 Data Analysis and Interpretation

Data analysis in qualitative research starts right at the interview. The analysis is closely related to information gathering, interpretation and writing a report. Analysis is based on collection of data, derived from the responses of participants.

The analysis of data was performed according to Creswell’s map of data analysis in qualitative research (fig. 4.1). According Creswell (2009), there are six steps of analysis:

1) The process begins with collection and preparation of data for analysis. At this stage it’s important to collect all data and sort them.

2) Read through all data. At this stage we have to evaluate the data as a whole. There is a need to find the best way of using information; evaluate its usefulness, depth, and credibility; identify the general ideas of the participants.

3) Coding data. The obtained data should be divided into several segments (groups) and each of them should be labelled.

4) After that, it’s necessary to highlight a few key themes that will reflect main findings in the study.

5) At the fifth stage the results are presented in visual form. Narrative analysis is used for description of findings.
6) The last step is interpretation of data (Creswell, 2009). Here, the results are analysed, discussed and compared with the theory concepts.

![Diagram of data analysis in qualitative research](Creswell, 2009, p. 185)

4.6 Reliability and Validity

According to Creswell (2009), qualitative validity means “that a researcher checks for the accuracy of the findings by employing certain procedures” (2009, p. 190).

In order to ensure qualitative validity during data collection and interpretation following steps were taken:

- Data were collected by several semi-structured face-to-face interviews;
- Member checking;
- Transcripts were checked in order to make sure that there are no mistakes during transcription;
- Presentation of all information: expected data as well as discrepant information;
- Peer debriefing: The study was reviewed and all obscure and controversial points were discussed with another person;
- Data were collected from competent respondents which have several year of
experience in research area;

— Questions for interview based on comprehensive theoretical framework.

Referring Creswell (2009), qualitative reliability ensures “that the researcher’s approach is consistent across different researchers and different projects” (2009, p. 190). In another words – if another researcher will make the same study, the result should be similar. In order to achieve high reliability researcher must reduce or at list minimize the biases and errors in study.

In order to increase reliability all procedures were documented on each step. The most skilled, experienced and knowledgeable respondents were chosen in order to get reliable data. Comprehensive framework was created in according to previous literature review from different sources and perspectives. It reduces the possibility of misunderstanding or biasness and increase the reliability.

4.7 Ethical Considerations

Current research is based on data received from people. According to Creswell (2009), the researcher must protect participants, create a trust relationship in order to support the integrity of research.

During the research, one of the most important ethical issues related to the purpose of study was taken into consideration. It was ensured that respondents and researcher equally understand the purpose of research (Neergaard and Ulhoi, 2000).

All members of research during data collection phase were treated with a respect and they were protected from any risks or awkward situation.

In addition, a study included a form that contained all necessary information about the study: identification of researcher, purpose of study, benefits for participating, level and type of participant involvement, describing how the participants were selected, guarantee of confidentiality and others.

There were no cases during research when someone wished to stay anonymous, but if such situation would happened, such opportunity would be given. The respondents were warned about the possible usage of data that he or she gives.

During the interviews, no inappropriate words that might unintentionally offend respondents by reason of gender, ethnicity, age or profession, were used.
5 Empirical Findings

5.1 Documentation

In order to get a pre understanding of overall situation in Linnaeus University regarding alignment of IS/IT two documents were reviewed. Obviously, the main document which should be reviewed is Strategic Plan for 2010-2015 of Linnaeus University – “A journey into the future”. Second document is University IT-policy, which represents IS/IT strategy. These documented were used to get secondary information about organization’s entire strategic issues in Linnaeus University and how strategic plans are connected there.

“Linnaeus University – a journey into the future” is fundamental document that describes how a merger of Kalmar and Vaxjo Universities will lead to creation of new and unique institution – Linnaeus University. This strategic plan includes fundamental goals and objectives, so students and university’s staff will be able to understand and participate in the process of further university development.

The vision of Linnaeus University is represented in term of main keywords: “Linnaeus University – an attractive international learning environment promoting curiosity, creativity, companionship and utility” (Strategic plan, p.9). Main objective of all employees in Linnaeus University is to cooperate with each other in order reach the vision and embed university values into day-to-day operations. The main task of Linnaeus University is “to pursue high quality teaching and outstanding research in co-operation with community” (Strategic plan, p.9). Linnaeus University will always promote such values as openness, new thinking, internationalism and proximity.

In order to fulfill its vision Linnaeus University must offer an “infrastructure of the highest quality and ensuring good communication throughout the University” (Strategic plan, p.10). It is clear that information systems play vital role here, because they give an opportunity to connect both employees and students in linked working environment.

There are twelve related goals in four strategic areas, which represent the way to university vision. The most significant strategic area is a creation of academic environment which attracts excellence. In order to accomplish goals within this area university provides a set of strategies, among which open recruitment process, balance between teaching and research, ensuring work field experience for each degree program, different skills trainings, and “investing in the application and use of digital tools, flexible learning and an Internet-based range of courses” (Strategic plan, p. 13). Three other areas are: an outstanding research; collaboration with community and regional development; and maintaining of university’s global values such as internationalization and openness.

We may not found in Linnaeus University Strategic Plan direct connection between University Strategy and IS/IT Strategy, but this document was formulated “with the conscious intention of opening up to certain degree of interpretive freedom” (Strategic plan, p.5). Linnaeus University is a huge organization and it’s impossible to generate specific strategic principles that would cover all areas of university. However, we constantly see words cooperation, integration, communication, fit, etc. Through all documents we see the idea of necessity of communication and fit between teaching and research, students and staff, among all faculties, specializations, and administrative bodies. Strategic Plan states the importance of IT and IS in university’s work and there is a perfect precondition for achieving and maintaining of IS/IT alignment.

Second document that was reviewed in order to amplify knowledge before interview process is “Linneuniversitetets IT-policy”. It’s relatively new document and it has been entered into force from 2012-06-01. Starting from introduction part we can see perfect alignment with previous document – Linnaeus University Strategic Plan. The main purpose of IT-policy is to provide a guidance and comprehensive support by IT operations in order to accomplish all
university’s goals which are stated in “A journey into the future. Strategy 2010-2015”. IT-policy is a platform for rational and strategic utilization of IS/IT, so IT Department can actively work with different business structures and university functions in order to insure high level of support. IT-policy connected to general strategic plan and reflects the essential elements from university strategic plan in terms of keywords: _curiosity, companionship, creativity and utility._

Main principles of IT-policy are:

— provide support for staff and students as much as they need it;
— provide services which can improve a quality of communication within university and with outside structures;
— provide university with well-tried and modern technologies;
— maintain the Information Security.

At the next step, IT-strategy connected to university strategic plan by four main strategic areas, which were mentioned above: attractive academic environment, outstanding research, a social impulse, and global values. IT Department takes responsibility for contribution to development of attractive academic environment by providing comprehensive IT-support; increasing of mobility and flexibility of education for students and staff; and providing practical instruments for education and scientific researches. In the area of “outstanding research” IT Department improves, strengthens and maintains IS/IT infrastructure which lead to improving of internal, national, and international cooperation. In order to make social impulse, IT Department works with IT-solutions that make Linnaeus University more attractive, inspiring and open for community. IT also promotes such global values as environmental protection and internationalism.

After analysis we can see that documents of IS/IT-strategy and overall University Strategic Plan are aligned among each other. Communication is one of the major principles in both documents and IT-policy aimed on comprehensive support in achieving all goals stated in “Linnaeus University – a journey into the future”. It is very important that there is a fit between these two documents, but it’s not enough. In the next chapter data from interviews are presented and analyzed in order to identify all necessary elements for IS/IT alignment in organizations.

5.2 Interviews

5.2.1 General Information about Interviews

In order to obtain case study evidence a set of private semi-structured interviews were conducted from June 11 to June 14 in Linnaeus University, Sweden. There were prepared three sets of interview guides for staff from university Senior Management, IT Department and Department of Planning (Appendix A, B and C respectively). Interview guides were prepared in order to get maximum of respondents’ view and cover all issues related to research questions and research problem. All questions connected to unified framework, which was created by careful analysis of theoretical data. To collect all necessary information three interviews were conducted with University Director, Head of the IT Department, and Quality Coordinator from the Department of Planning. All respondents were informed about the purpose and structure of interview. Questions were asked accordingly to several categories where each represents some part of framework. Since it was semi-structured interviews I was able to reorder questions or change formulation of them, if it was needed. Sometimes I also followed up with new questions. Each interview was recorded in order to focus on conversation. However, small notes were taken because of possibility of some technical problems. All ethical considerations were respected during research interview. Description of all conducted interviews represented below.
5.2.2 Interview with University Director

The first interview with University Director was conducted on 11th of June at 3.30 pm in his office. At the beginning of the interview I repeated a purpose of research and explained the structure of interview. Questions were asked from Senior Management Interview Guide (Appendix A). The whole time of interview was approximately 50 minutes.

First set of questions was related directly to respondent’s personal characteristics such official job title, main responsibilities, work experience, etc. Respondent’s official job title is University Director, but he also mentioned that “another word for my job title is a Head of the Administration”. Each university has two main parts – academic part and administration. As he said, his main responsibility is overall university administration. University Director is placed in both – Kalmar and Vaxjo, so communication IS technologies play a vital role for him. As he said, “the work would be impossible without such instruments as Adobe Connect or Skype”. Administration team has representatives from IT, communication, planning, economics, housing services, human resource, etc. As he said, “we have something around 12 sections in administration and each of these sections has own authority. And my responsibility is telling to the heads of these departments what their responsibilities are”. I should stress one important finding for us - a head of IT Department is also a part of University Director’s administration team and he is reporting directly to University Director. It is important to determine authority for IT in organization to see what plusses and minuses it brings to IS/IT alignment.

Respondent works in Linnaeus University as long as it exists, and before this he worked in Vaxjo University since 1995. He started his work as a Head of Planning Department, and he has been working on current position for 1,5 year. University director reports directly to Vice-Chancellor and the University Board.

General questions related to alignment

First of all, we were talking about importance of IS/IT in Linnaeus University and its connection to “business”. University director was very confident that IS/IT is critical for every part of university – education, research, and administration. As he said, “if information technology doesn’t work, we can go home”. Depending on words of University Director, Linnaeus University uses many information systems for external and internal economic administration, human resource, education tracking, groupware communication, learning environments (Blackboard, FirstClass, Moodle), etc. As University Director said, “for sure, we couldn’t manage without all these systems”. Linnaeus University wants to reduce many separated information systems and create new system which will connect every part of Linnaeus University and will be linked to other information systems. Administration now is trying to find the most suitable way of delegating different responsibilities and accountabilities to appropriate representatives from administration, IT Department, and institutions. “We have interface between information systems to develop. We need to decide who will be responsible and for what...Things like budgeting, development, etc.”. According to University Director, IT Department is running many different information systems now. It is very important to stress that some of these systems have another people from institutions who are responsible for using these systems. One of the prioritized tasks for Linnaeus University is to deep and expand communication between IT Department and heads of units who are responsible for using theirs systems. It’s a perfect example of situation when IS/IT alignment starts to be vital for further running of organization, and communication between IT managers and heads of organization units is a priority task. It is good when organization understands it and tries to achieve needed level of alignment.

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In the next question, I asked the respondent to describe the level of communication between IT managers and other executives in Linnaeus University. In this particular interview, I was interested in the point of view of some person from senior executive board and University Director was the most appropriate respondent for this. He explained that the head of IT Department is part of Director’s Administration Team, and he always participates in all main projects. This is one direction of communication. Another direction is communication between IT management team and managers from different university units. “We are trying to improve both directions. Administration has to understand that IT has changed and it’s not the same as it was 20 years ago. We have to make our relations deeper. IT is critical for our everyday work, so we started this discussion about making clearer and more visible our relations, responsibilities, rules, routines, etc.”

Regarding the importance of IT knowledge for university executives, respondent explained that “all managers must have deep knowledge about information systems which are they responsible for, and also have understanding about other systems and how they connect to each other”. According to respondent’s view, IT managers should also have some level of understanding about trends in education and research, because how can you improve something if you know nothing about it? “Education and research is a “business” in our organization. If you understand how it works, you will be able to support and improve it”.

First question in this section was “What roles does IT management take in university strategic plan formulation process?”. According to respondent, IT Department doesn’t really participate in strategic plan formulation process, but they are following this plan. “Each department or office in Linnaeus University, be it Communication Department, Human Resource or IT Department, must follow our strategic plan and think how they can support achieving goals stated there”. IT Department didn’t participate in formulation process of “Strategic Plan 2010-2015 – A journey into the future”, but they always can propose something to improve it because planning is always ongoing process. “IT must find its own role in achieving university strategic goals, and this is a way how IT participates in strategic planning”.

Next question was “When do IT managers start participate in major projects?”. As University Director explained, all main projects are coming out from strategic plan. His administration team thinks what they must to do in order to achieve goals from the strategy. Since IT manager is a part of this team, we can say that IT starts participate at early stages. Then, administration delegates responsibilities for different projects to units. Sure, when a project somehow related to IT, IT Department starts to participate or be in charge of some project. However, usually responsibilities are shared between different units. “For example, if we want to develop University Research Center, many units will participate in this project, IT Department including. So, IT is present at projects very often, and at all stages, if it needed. But at the same time we must make clear who owns a project and who supports it, what are the responsibilities for IT, and what are the responsibilities for owners of project, and how they can work together”. University doesn’t have any special steering groups for integration of IT with whole university, but administration team partially plays such role.

Last question in this group was “How did a merger of two Universities: Kalmar and Vaxjo influenced the way of management and planning?”. As respondent said, “First of all, you should understand that Kalmar and Vaxjo were two different universities and they had different ways of handling management and planning. So now, we have to get rid from old face, and create a new one. And we are still working on this”. According to respondent, Kalmar and Vaxjo Universities managed IT in different ways and some of information systems are also different. So now
administration should make a decision about what information system Linnaeus University will use. As University Director said, “It is different in different areas. Sometimes it’s rather a smooth process to find new way, but sometimes it needs a long and hard discussion. For example, in research and education we are almost found a new way. However, at the same time we can say that there are still two different IT systems in Vaxjo and Kalmar, and we have a lot of work to do to change this situation”. However, it seems that executives don’t see it as a “war” between two universities. They see it like “Ok, now we are here. We are Linnaeus University. How will we work now?” and they are ready to give up old thoughts.

**Strategic alignment: alignment capabilities**

Next question was “How can you characterize the status of IS/IT in the University and how this status affects the relationship between IT and other parts of the University?”. From respondent answer we can conclude that status of IS/IT is very high. Even if often IT seems only as a support provider, administration starts to see IT as a partner. However, as University Director said, “we just began this journey and we still have a lot of things to do in this area”. Regarding the question about IT failures, respondent answered that he doesn’t remember any big IT failures. “Sometimes IT projects take more time then we expect, but it’s normal situation because you can’t predict everything. For example, there was one project in 1996, when we tried to implement media tools for chatting and screening, but university was not ready for this. Sometimes it took time to understand how useful some IT tool, but eventually we can’t understand how we lived without them before”. Thus, not all IT projects go perfectly smooth, but there were no big IT failures which could negatively influence IT status in Linnaeus University.

After a question “How does the University manage knowledge?”, respondent clarified what knowledge do I mean, and then answered that “University is full of knowledge. And they are managed in different ways because there are different kinds of knowledge. We have internal web for staff and student, life meetings for knowledge sharing. It’s one of priority tasks to ensure that knowledge are spread across all University. Linnaeus University has 2000 employees and 25000 students. Making this work in communication and managing knowledge is great challenge, and nobody can reach the end of this project”. Anyway, accordingly to respondent, University now is focused on knowledge management in all directions – creation, evaluation, storing and sharing of knowledge.

Answer for a question “How could you characterize overall attitude to changes in the University?” was obvious after all previous questions, but I asked this question anyway. Respondent answered that he can show me this by drawing a little scheme. He drove simple scheme on write board, edited version of which you can see on figure 5.1. According to this scheme, university has four groups of people with different attitude to changes: enthusiasts, I Majority, II Majority, and die-hard (people, who will never change). “First, you have to convince first group of enthusiasts, then, with their help start to convince I Majority. Eventually almost all people will accept a change, even those who don’t want to change. You just have to start from right people, and others will follow majority”. According to changes in Linnaeus University, respondent explained that university obviously has all four types of people, but the difference is that the first group of enthusiasts is pretty big here, so it’s not so hard to implement something new and change old one. “There are always some people who want changes and who don’t want them. You must talk, communicate, discuss…It’s always the same.”

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According to respondent, “we have to accept and adjust to changes, otherwise we will lose the game, perhaps...You have to adjust all the time because the world around university is changing, and we have to change with it. We have a lot to do now and a lot to change. We have to adjust to demand from outside our university, find new competencies inside...We have to listen, watch, analyze, decide what we should change, and then do it”. And on last question “How does the University manage innovations?” respondent answered that “innovations are essential part of Linnaeus University and they always looking for potential emerging and new technologies. It’s also important to protect our own innovations and research results, which are commercial. And of course we must be open and sensitive for new opportunities”.

At the end I want summarize IT activities which I think the most important for IS/IT alignment. Respondent said that “there are three main directions for IT. First, we need to develop new connected system which will link several old information systems together”. University Director made an example how this system can look like and what it would give for university. He made a scheme on write board, edited version of this scheme is on figure 5.2. There are many information systems in Linnaeus University, and three of them are: human resource system (Primula), economics system and students’ database system (Ladok). According to respondent, “if we will connect these three systems we will have good base for new decisions. We would be able to see money streams related to students or staff, or both. And this will be one system for all Linnaeus University – in Kalmar and Vaxjo”. Another example of creating new system could be new learning environment IS that will merge eight different systems, as Ladok, Blackboard, FirstClass, Moodle, etc. University Director said that “we decided to create one learning information system instead of eight that we have now. It will reduce costs of support and make easier to use it”.
Secondly, university should improve and make more clear connection between IT Department with different units and their management because as it was explained above, there are some information systems where the heads of university units are responsible for its use, but at the same time IT Department is responsible for “running” these systems. For example, human resource unit in Linnaeus University uses information system – “Primula”, and the Head of Human Resource Department is responsible for this system. However, IT manager is also responsible for running this system (figure 5.3). That’s why university should make clear boundaries of responsibilities; clarify issues related to planning, developing, using and running; and, of course, in order to accomplish all these, we must create high and deep communication between IT and unit management, or in another words - alignment.
5.2.3 Interview with a Head of IT Department

The second interview with IT chief was conducted on 13th of June at 1.30 pm in his office in N-building in Linnaeus University. At the beginning of the interview I repeated a purpose of research and explained the structure of interview. Questions were asked from IT Management Interview Guide (Appendix B). The whole time of interview was approximately 45 minutes.

The same as it was in previous interview, first set of questions was related to respondent’s experience and personal characteristics. According to respondent, his official job title is IT manager or Chief Information Officer (CIO). “I’m responsible for whole IT environment and business in Linnaeus University. Institutions have some degree of independence in decisions about IT, but I’m responsible for general decisions for whole university. I’m deciding what type of infrastructure we should have: all issues related to storage, networks, backup, etc.”. According to respondent, he has been working on current position for 2.5 years. He reports directly to University Director and participates in the work of Administration Team as a head of IT Department. To the question “Who do you think that the IS/IT function should report to?” respondent answered “It depends…I think it’s pretty good the way it is. It’s right that I report to manager of whole administration, but sometimes it could be good to discuss something directly with Chancellor or Rector. If you want to make from IT a tool for improving academic strategies, you should put IT closer to Rector. Anyway, it’s very effective how it works now”.

General questions related to alignment

In the first question I asked IT manager to describe the structure of IT Department in Linnaeus University: main units, number of employees, physical location, etc. According to respondent, there is one IT Department in Linnaeus University for both Kalmar and Vaxjo. This department consists of four main units: support unit, infrastructure department, development unit, and staff function department (economics, processes, projects offices, etc.). Since Linnaeus University has two campuses in Kalmar and Vaxjo, all IT staff is divided on two parts. Each unit has representatives in both campuses. For example, infrastructure unit has 7-8 employees in Vaxjo, and the same amount of people in Kalmar.

Next question was related to main responsibilities of IT Department in Linnaeus University. According to respondent, there are three main areas of responsibility: infrastructure, support, and development. “We build whole infrastructure, when it comes to mail-servers, mail-handling, cable and wireless networks, storage, backup, etc. – it’s all our responsibilities. And then we have to support all this as well. When a student or employer has some problem with using his account or something, we must help him. It’s also our responsibilities”. Then he mentioned that in Linnaeus University there are around 2000 employees and 25000 students which they must support. University has 300 physical servers, a lot of network, 500 Wi-Fi access points. “So, it’s a lot of maintaining and support for infrastructure and clients”. And the third area is development. “Now, we have to develop many new systems. We will connect some systems in university, create new systems, and we also need to develop integration with some government systems because they want to have reports from us. Actually now all development in Linnaeus University is mainly about integration of systems”. According to respondent, IT Department is also responsible for all web development. They have three main projects in web: “my.lnu” for students, “medarbetare” for employees, and “lnu.se”, as official site for everyone.

Followed question was “Does our University have a formulated IS/IT strategy?”. IT manager explained that they have strategic plan for IT, and it’s completely reflects University Strategic Plan. IT Department tries to interpret goals stated in that document into some tasks for IT. It’s not always so easy, because people understand things differently. “For example, when it says that University should provide for teachers and students good possibilities to work with mobility, IT Department should translate it in some kind of technical specification. When we talk
about mobility, I usually think about wireless connection, work with laptops, iPads, etc.”. So, we can see that IT Department transforms goals from University Strategy Document into some more specific tasks in order to provide support for accomplishing all university goals which are stated in “A journey into the future. Strategy 2010-2015”. IT strategic plan is a platform for strategic utilization of IT, so IT Department can actively works with different business structures and university’s functions in order to insure high level of support. There is a perfect alignment between IT-policy and whole University Strategy.

At the next question we discussed information systems, which Linnaeus University has. IT manager confirmed that University plans to develop new information systems for better decisions. He also mentioned this integrated system of students, employees and economics, which was discussed before with University Director. However, for IT, information system means something more directly related to communication, like web, e-mail services, adobe connect, etc. “Systems for employees, economy or human resource are also information systems, but it’s more like decision support systems...”. Thus, this new system which we were talking about with the Head of Administration is decision support system, and this really makes sense if we look on task which this system should accomplish. “If you will connect these systems, you will be able get all needed information from them, evaluate it, and make better decisions”.

From answers of respondent, it seems that University is open for discussion about outsourcing some IT functions, even if almost everything is developing inside IT Department. Good example – new student e-mail system, which started working from summer 2012. University keeps names and all content of student accounts, but in background it is Google, which gives all services and applications. “University is looking into cloud services as Google Apps and Google Drive now. We will always see it as possibility, so now we are analyzing different areas to find which ways are the best to give more services for students and staff”.

Strategic alignment: Resource level

First question in this section was “How can you describe the level of communication and partnership between IT managers and other executives in Linnaeus University?”. Respondent answered that there is a big difference how communicate IT managers and executives in universities and outside – in industry. “When I started work in Linnaeus University 2,5 years ago all communication was limited only by information. They were giving me some information and tasks, and I came back to my department and worked there. Now, it's different. We are changing our communication level with executive team to more business oriental and decision making focused. We have to work together in a better way and make more decisions together”.

Then we talked about necessity of IT knowledge among executives. Respondent had a very interesting opinion that it’s his job as a member of executive team to communicate and show them what IT can do for the teaching and whole university. “We can say that some executives are not mature in the way of understanding IT, but it’s my goal to show what IT can do for them. And usually it means not talk IT, it means talk business. We should not talk about technical principals of cloud servers, but what opportunities they can give for us”.

Strategic alignment: processes and structure

First question in this section was about participation of executives in IT strategic planning. According to respondent, since IT strategy depends on goals stated in whole university strategy, there is already big influence from executive board. However, university managers, especially from different institutional units, are not taking some IT responsibilities in their departments. “They have systems and they should take more responsibilities for it. For example, Human Resource Department should take more responsibilities for their information system and I will of
course support them with it. And so on, in each department...”.

When I asked IT manager how does he participate in whole university strategic planning he answered “I told to all executives that I want to be in their planning activities to explain and show how they can use IT to support business. Don’t see me only as IT person, see me as a business partner who can help you to achieve goals. Now we are moving in this direction”. With a next question I asked when IT managers usually starts participate in major university projects. Respondent answered “It’s a very good question because very often it’s too late. I try to convince all managers and executives to let us in as soon as possible. Because sometimes they can already decide what system they want to buy or develop and then it’s too late. It’s not often, but sometimes it did happen...”. About the influence on IT from merger of two universities in Kalmar and Vaxjo, respondent said that his main task in this area was to create one general IT Department instead of three different IT units with different culture and organization.

About the centralization of IT in Linnaeus University, respondent explained that there is different level of decision freedom in Vaxjo and Kalmar. He said “It's actually both – centralized and decentralized. Kalmar has around 90% centralized, and this is a culture of this part of Linnaeus University, because they have been working like this for a long time. In Vaxjo it's something around 60% of centralization. There are three or four institutions in Vaxjo who have their own IT”. Thus, we can say that most of University is centralized, but a couple of institutions are decentralized.

Next question was “Who have decision-making rights and responsibilities for IT?”. CIO answered that he has IT policy, account policy, security policy and other which everybody must follow. However, IT manager is responsible only for 65-70% of staffing. “We have these three or four institutions with their own technicians. And they do staffing by themselves. You also can see difference in purchasing rules. IT Department always prepares framework and tell that we should buy for example this hardware from these suppliers with this price, and we actually do purchasing in 70% of time, but again, there are 3-4 institutions who buy it by themselves. They buy exactly the same hardware which we recommend to them, but still we have separated flows of money”. According to respondent, this is his priority task right now to look over whole IT process for whole university and make it to one IT process.

Strategic alignment: alignment capabilities

First question in this section was “How can you characterize the status of IS/IT in our University?” Respondent said that IT in Linnaeus University has double status as a support provider and a partner. “When we talk about administration, it’s usually a partnership, but of course our main goal is to find way how we can help them. When we talk about institutions, it’s usually only support and no more”. Some of institutions are very far away in the future and they want to adapt very early, but there are some institutions who is far behind and they don’t really want to change. “In general IT in Linnaeus University is pretty strong, but we have some issues which other universities don’t have because we consist of two different campuses that joined together only 2 years ago”. Then we were talking about problems in work of IT in Linnaeus University. Respondent said that he can’t remember any big IT project failures, but for him some technical problems are also important. “When some web like “my.lnu” is down for one hour is a big issue for me. Such things happen rarely, so administration, departments, and institutions usually have good understanding”. According to respondent, they always try to solve all problems as soon as possible and then explain why it happened. However, sometimes they can’t see that something is wrong. “There was an incident in Kalmar when the system in library that supports student client computers was down and nobody told us about it: students didn’t tell us and employees from library didn’t tell us about the situation. So, the first time we were aware about this was when a student went to the media and we read this in newspaper in Kalmar. It’s a good example of communication failure”.
Next question was about attitude to changes in Linnaeus University. According to respondent, some people in Linnaeus University like to live in changing environment and adapt to new things, but there are people who are not adaptive at all. About the changes in IT, he said that “some people want to have 10 years old solution to live forever. However, most of the people in Linnaeus University understand that we live in changing environment and we have to adapt to it in a good way. Yes, some of systems can and should live 10-15 years, but we absolutely should get rid of some another systems”.

Regarding investments policies in IT, respondent answered that now university doesn’t have any overall plan for investment in IT. There are still some departments who don’t discuss these issues with IT Department. IT manager said that “it’s my mission to talk to everybody and to understand the needs, and make all department collaborate and see if it possible to make overall investment IT strategy”.

Last question was about training programs in Linnaeus University for IT and non-IT staff. According to respondent there are no special IT training programs, where staff can find out more about opportunities of IT for their work. If IT manager see that somebody from IT Department need some additional knowledge he can send him to outside courses or find a person inside university who can help him. However, HR Department also provides some training programs about administration, education, leadership, etc.

5.2.4 Interview with Quality Coordinator from Planning Department

Last interview with Quality Coordinator from Planning Department was conducted on 14th of June at 1 pm at Rector Office. At the beginning of the interview I repeated a purpose of research and explained the structure of interview. Questions were asked from Planning Department Interview Guide (Appendix C). The whole time of interview was approximately 30 minutes.

The same as in previous interviews few first questions were related to respondent’s experience and main responsibilities. Official job title of respondent is Quality Coordinator and her main responsibilities include support, planning and follow up of university strategic development. Respondent has been working in Kalmar University since 2001 and from 2010 she has been occupying current position in Linnaeus University. She usually works on university board level, so she reports directly to University Director and Rector.

General questions related to alignment

Planning Department has 10 people which are located in both Kalmar and Vaxjo. There are no specific units within this department, but one group is mainly focused on external financial support for research, and other people are focused on planning and follow up for rector and university board.

Next question was about information systems, which Linnaeus University uses. Respondent said that it’s not really her area of work, but she knows that there are several systems for employees, students, human resource, economy, etc. “We are planning and following up system which is more like platform that combines different information systems, so then we are able to perform some statistics analyzes”. When I asked respondent how important connection of IT with other parts in Linnaeus University, she answered “Sure, it’s very important. Even if now IT is not a big part in strategic planning of whole university, we see that importance of IT is growing every day. It is vital for University to have good support from technology and I don’t think that we are using it as much as we should now. We very depend on information systems which we use, and I can’t see our everyday work without them”.
Strategic alignment: resource level, processes and structure

When I asked the respondent to describe the level of communication and partnership between IT managers and managers from Planning Department in Linnaeus University, she answered that mostly people who are responsible for economics and statistics communicate with IT Department. “Sure, they help us when we need, so mostly it’s about support. However, there are employees from Department of Planning who are involved in developing this platform for connecting databases, and they communicate with IT Department a lot”. According to respondent, there are annual university meetings where university prepare plan for next year where executives discus all issues related to finance, quality development, etc. “It’s one of my main responsibilities – to develop annual quality development plan which is mostly about priorities. When we do this paper, we suppose to look upon all university policies such as sustainable development policy, for example. This year is different because now we also have IT-policy, so it will influence overall planning process”.

Then we talked about a merger of Kalmar and Vaxjo Universities and how it did influence the way of planning. According to respondent, first of all there was a lot of planning before the merger, because everybody wanted to do it right. “Later, when Linnaeus University was established, we had a little bit from Vaxjo, a little bit from Kalmar, but now we see Linnaeus University not as two different old universities together, but as one new. New Rector who came from outside also had strong influence on it. Planning is totally different now. Smart planning starts to be vital, because of unique character of our university and its big size and separated location. You have to formalize planning when you grow bigger, and we do it now”.

Strategic alignment: alignment capabilities

Next question was “How can you characterize the status of IS/IT in Linnaeus University?” and respondent answered “Most people see IT more like a support tool then a strategic, but I see that situation is changing now”. When I asked if she remember any big IT failures, she answered “No, I can’t remember any really big problems. Sure, sometimes we have small technical problems and it’s one of favorite topics in coffee rooms to complain about, but in fact I think everybody satisfied with work of IT here”.

Then we were talking about changes in university and overall attitude to these changes. Respondent explained that if we talk about university as a whole then it seems pretty positive. University is such kind of organizations where you always must to adjust to changing environment. According to respondent, there are some people who don’t want to change almost anything, but they are in the minority. “And there are also different kinds of changes in university. People who are working as a teachers, they more concern about changes in their areas of work. Many people are working now the same as they worked in Vaxjo or Kalmar Universities. However, people from administration and management are all about changes and adaptation to them”.

Last question was about attending different training programs in Linnaeus University. According to respondent, Human Resource Department provides several programs and courses for staff. There are a lot of programs – from university teaching and management training to courses to be better in Excel or presentation technologies.
6 Discussion and Conclusion

6.1 Discussion

6.1.1 General Alignment Issues

After presenting empirical findings it should be discussed which implications they give and then connect it to the theory. Series of interviews were conducted in order to see how the concept of the alignment is really working in practice and how organizations can achieve it. Managers and executives usually reluctantly share information about these aspects of the company’s work. This problem has been partly overcome by choosing Linnaeus University as a case organization. Three respondents from Senior Executive Board, IT and Planning Department were interviewed in order to explore the research problem from different perspectives. Below, all the important issues will be discussed in comparing with theory statements and connected with all the essential aspects of the alignment.

Research has showed that Information Technologies is an essential part in educational organizations such as Linnaeus University. Employees at all levels can’t imagine their work without it. Information systems allow collecting and sharing knowledge across the organization, connecting different departments and institutions, supporting learning process, provide communication between students and teachers, cooperation with external organizations, etc. IS/IT is especially important for Linnaeus University because of its unique structure – the University consists of two separated campuses in Vaxjo and Kalmar. This situation requires a high level of the collaboration, so communication information systems play a vital role here. However, after this research, we see that it’s not enough to only buy technology. If the organization wants to get a maximum value from IT, they should use it strategically – create and sustain a high level of IS/IT alignment. Linnaeus University uses all four types of information systems which were mentioned by Fahmy et al. (2002): sensing, displaying, analyzing and communication technologies.

The discussion should be started by determining IS/IT activities which IT Department runs in Linnaeus University. A set of traditional IT/IS activities which serve to the needs of the organization was mentioned in the beginning of this paper (Chapter 2.1 IT/IS activities). After interviews with respondents and the document analysis we can identify those activities where IT in Linnaeus University is undoubtedly mature:

- Installing, PC, servers, cables;
- maintenance of hardware and updating of software;
- new service development;
- systems analysis, design and evaluation;
- programming and software evaluation;
- application maintenance;
- problem resolution / first line user support;
- security / access control.

However, there are some areas where university should pay more attention, develop, cultivate and expand these activities:

- IS/IT strategy development;
- new technology options “evaluation”;
- coordination of IT investments;
- IT planning;
— participation in whole university planning;
— information management;
— training;
— suppliers and contracts management.

It doesn’t mean that Linnaeus University does nothing in these areas but according to the respondents’ view and my own observation, IT Department and the whole university should improve these activities. University executives and IT managers should also discuss some issue related to the strategic planning which will help to achieve the needed level of the alignment. They should ensure that all potential business advantages from IS/IT are identified and exploited, priorities are reconciled and appropriate resource levels are established. University must monitor the IS/IT activities which are critical for business and achieve a balance between the centralization and decentralization of IS/IT decision making.

During this research the concept of the alignment was investigated from all four alignment dimensions: strategic, structural, cultural and social. The requirement for the strategic alignment is the existence of formal business and IT strategies. The description and analysis of Linnaeus University whole strategy and IT strategy were presented in the previous chapter. Goals and tasks in IT-policy document are perfectly connected to the document “Linnaeus University. Strategy 2010-2015.” According to the respondents, IT Department transforms goals from the university strategy in some specific tasks for IT and in this way supports the accomplishment of the university mission. In the strategic dimension we see a perfect IS/IT alignment in Linnaeus University. However, a connection between strategic documents is not enough. We also investigated a structural dimension – all issues related to physical location of IT within Linnaeus University, centralization and decentralization of IT decisions, report relationships, etc. Cultural and social alignment dimensions were discussed as well. We analyzed relationships between IT managers and other executives, linkage between IT and business planning processes, attitude to changes in the organization, knowledge management issues, innovation and investments management.

Next, all the components of the alignment which we included in theoretical framework are discussed and it’s shown how they really work in practice. The discussion will be divided according to model levels: resource level, structure & processes and competence level.

6.1.2 Resource Level

During the research I paid attention to several most important resources according to many authors (Peppard and Ward, 2004; Chan and Reich, 2007; Chan et al., 2006; Luftman and Brier, 1999; Kearns and Sabherwal, 2006; Campbell, 2011): IT knowledge, skills and experience of business managers; business knowledge, skills and experience of IT managers; behaviors and attitudes; communication between business and IT executives.

Undoubtedly, business managers must have some level of IT understanding, participate in IT projects and share some IT responsibilities. Managers must know how work information systems which they are responsible for. This will lead to the improvement of IT-business integration and contribute to the achievement of IS/IT alignment. Depending on our findings in the research, we can determine the most critical areas which university managers should be aware of in order to strategically and successfully use IT:

- Managers should be always aware about internal information assets and information technology opportunities;
- Business managers should understand the potential and value of information technologies;
- See the “big picture” of IT business.
However, during our research we found that the most important and critical issue here is executives’ understanding about the potential and value from the information technology. This is an ideal situation when business managers have deep IT knowledge but it’s not that obligatory as it was stressed in the theory. Business managers don’t have to know a lot about IT but they should be open-minded and ready to discuss opportunities that IT can bring to the organization. And this is really enough for a productive communication and achieving IS/IT alignment. The most significant role here is played by IT managers. They should show and explain to other managers what advantages IT can give them and “talk not IT, but business”. He or she should not expect that people will easily understand all the technical issues related to IT. That’s why IT manager must focus on the clarification how IT can help to achieve organization’s main goals stated in the strategy. We found that one of the most important components for IS/IT alignment which was not mentioned in the theory is “IT manager’s Leadership”. It turns out that very often it is an IT manager who is responsible to establish a productive work with executives and he or she should take a leadership role here. Furthermore, it can be concluded that an IT manager must have deep understanding of the business if he or she wants to convince executives about something because you obviously should know how something works if you are going to propose how to improve it. Since we decided that IT should take a leadership role in establishment of the cooperation with executives, we can conclude that business knowledge of IT managers is much more essential than IT knowledge of executives and other managers. It’s totally opposite to the statements in the theory, which says that business knowledge of IT managers has a limited impact on achieving a high communication level. However, the findings in this research prove that it works in a different way in practice.

The next important factor in the resource level is the behavior and attitude, more specifically – the level of communication between IT managers and executives. All the authors agree that this is one of the most critical components of IT alignment. The empirical findings support this opinion because without a high level of the cooperation it’s impossible to successfully implement any information system which will effectively serve university needs. Communication is vital for the mutual understanding of the situation. We can’t say that the communication between IT and executives in Linnaeus University is perfect but it’s important that they both understand the necessity of it and do steps towards each other. In the theoretical chapter we presented a Staged Model of Galliers and Sutherland (1991) which shows the levels of communication between IT and executives. After the analysis of the findings I can try to classify Linnaeus University’s level of communication. Stages 4 and 5 could represent the communication level in Linnaeus University because IT specialists recognize the need to work in cooperation with business managers for achieving strategic goals and university executives recognize that IT can deliver new, potentially strategic, benefits through the innovative use. There are still many things to improve, but they both want to cooperate and eventually this will lead to integrated harmonious relationships. However, there are some difficulties in communication between IT managers and managers from university institutions. Mostly it’s related to the authority of IT decisions in the university and sharing the responsibilities.

6.1.3 Structure and Processes Level

IT managers should participate in business planning and business managers should participate in IT planning – these are also two components of IS/IT alignment in the organization. This leads to a better understanding of colleagues’ planning process and establishment of the shared domain knowledge. According to the empirical findings, IT managers don’t actually participate in Linnaeus University strategic planning. The only way they can participate in planning of each other is through the main university strategic document – “Linnaeus University strategy 2010-2015. A journey into the future.” Each unit in the university including IT Department depends on this document and follows it. IT Department didn’t participate in the formulation of
this document but always can make some proposals about it. In the same way, business managers don’t participate in IT planning. It seems that the only indirect way of the participation in each other’s planning processes is by strategy documents. However, according to respondents they recognized this issue and are doing some steps in this direction, so in the nearest future the situation will change.

The next step in the development of relationships between IT managers and line managers is a partnership between business and IT people. Such relationships are critical for the successful deployment of IS/IT and the way how the organization adjusts to a constantly changing environment. IT and business should have productive partnership relations, so they will be able to understand present and future business opportunities, choose the most appropriate technology option and discuss the needed functionality. The organization should build a culture of partnership at all the levels of the organization. Linnaeus University has two main directions of communication with IT: IT Department – Executives and IT Department – Managers from university units. The university tries to improve both directions but it seems that while the partnership between executives and IT managers is almost achieved, there is still a lot of work in the second direction. Depending on interviews findings, the university must clarify boundaries of the authority and responsibilities between IT Department and different university units.

All the employees in Linnaeus University play roles according to their “job descriptions”, and usually they perform different roles in different time. Roles for an employee are determined by their experience, skills, and knowledge. After the analysis of the research findings we can say that today IT managers have to perform four critical roles for achieving IS/IT alignment (this is of course besides their main IT roles):

— Leadership;
— Partnership builder;
— Delivered;
— Visionary.

The structure of the organization is very important for the alignment. Below I will discuss issues related to the organization size, location of IT Department, centralization/decentralization of IT, and authority of IS/IT decisions.

The first factor which was mentioned in the theory is the organization size because it can affect how the organization manages IT. A small organization usually doesn’t need any explicit mechanism for maintaining alignment, while a big organization always has to clarify all relationships and responsibilities, and they need an explicit mechanism for the alignment. However, Chan et al. (2006) claimed that the organization size can affect the level of the alignment only in profit companies but not in non-profit organizations such as universities. I verified this statement in the research and came to a conclusion that this statement could be wrong. Linnaeus University was established only two years ago by a merger of two universities in Vaxjo and Kalmar. Referring to research findings, when the university size changed to a relatively large, it influenced the way of strategic planning and managing the IT in a new university. According to all respondents, the university is growing in size and has a unique structure with two campuses, and all this resulted in the situation when the university has to formalize all the responsibilities, rules, clarify connections between different units, and make sure that each function including IT works for the achievement of goals and mission for the whole university. We can conclude that changes of organization size in Linnaeus University had great influence on the level of IS/IT alignment in university.

According to theory, physical location of IT Department also can influence IT/IS alignment. However, the findings show that it’s not obligatory that IT Department should be located in the same building where the senior management office is situated. It depends on the physical structure of the organization. For example in Linnaeus University IT Department is located in two different campuses in Vaxjo and Kalmar. The structure of Vaxjo campus leads to
the situation when many university units are located in different buildings. IT Department is also physically separated from the Rector Office and other units but it doesn’t seem like a big deal. They are located in different buildings but it’s not a problem with modern communication technologies, and they always can arrange life meetings if it is needed. It’s much more important not to have a mental separation between business and IT people than that everybody will sit in the same building. Thus, there were no proves found that a separated location of IT can negatively influence the level of the alignment, at least in Linnaeus University.

The next important component that influences IS/IT alignment is a centralization or decentralization of IT. Usually it depends on the independence of a decision making of IS/IT central function and organization units. Each choice has its own advantages and disadvantages. Decentralization leads to the situation when business units have better responsiveness to changing business needs, while centralization structure gives to the organization a great control, better efficiencies and economies of the scale. However, there are always some things that should be centralized, while others have to be decentralized. Linnaeus University has an interesting situation in this area. As it was mentioned before, this university has two campuses in Vaxjo and Kalmar. Each campus has different ratio of the centralization: Kalmar has 90% of the centralization and Vaxjo – 65-70%. There are three-four departments which are quite independent in IT decision making rights. According to the research findings, one of the most prioritized tasks for Linnaeus University now is to clarify decision making rights and responsibilities because now the decision boundaries of IT Department and university units are indistinct. It’s normal when some areas of work in the organization are decentralized but it’s not good for the alignment when some whole units are separated from IT Department. Linnaeus University has a difficult situation because of its unique structure with two separated campuses. Such situation requires on the one hand a strong central coordination but on the other hand - some level of independence in the decision making for the university units. Referring to the findings, it would be wise for the University to create a so-called “federal” system. Each unit will have its own responsibility, for example for using and running its own information system, but there still will be central coordination and control from IT function. It would give for Linnaeus University several advantages:

- University units ownership of information systems;
- Users control IS priorities;
- Better responsiveness to changing business environment;
- Central control of standards;
- Common investments strategy;
- Critical mass of skills;
- Synergy;
- Group-wide IS/IT strategy for core infrastructure.

It’s expected that this system will lead to the situation when IT managers will want to cooperate with line managers and executives. Eventually it will lead to a shared domain knowledge between IT and business, productive partnership, planning sophistication and finally – to a high level of IS/IT alignment.

All organizations including universities have somebody who has a general authority for IS/IT. It could be someone from the board of directors, business unit, finance or actually CIO. Each kind of the authority influences the way how the organization manages IT and how IT is aligned to the whole organization. CIO has the main authority for IT decisions in Linnaeus University but there are three-four institutions which manage their IT by themselves. An IT manager has IT policy, account policy, security policy and other which everybody must follow but he doesn’t have all the authority for staffing, investments decisions and purchasing. The University now is trying to change IT authority to more centralized and clear because the current situation leads to the duplication of the data, unnecessary costs and an overall weakness of the infrastructure. A more
centralized IT authority in the hands of CIO will lead to a system integration and strict cost control. There is an opinion in the theory that CIO authority for IT can lead to not-aligning IT. However, the role of an IT manager in Linnaeus University has been changing now from a simply “technical specialist” to a “business partner”, so the situation will be different. CIO authority can give for the university all the advantages and overcome pitfalls by effective communication with university units and executives.

One of the best practices for IS/IT alignment is the establishment of a so-called “steering groups”. This is a cross-functional team of managers from different business and IT units which main goals are providing IS/IT alignment, the improvement of the attitude to IT, strategic planning and increasing communication between business and IT managers. Such group can evaluate new ideas, judge their worth and initiate their implementation and follow up. Linnaeus University doesn’t have such structure in the organization. Partly, the University Administration Team plays this role but the goals of this team are totally different. However, the participants in this Administration Team are perfectly matched to the criteria of steering group members. There are people from the University Director Board, heads of all university units and institutions and IT managers. These people have a comprehensive view on the organization, a high credibility and deep knowledge of the university and IT. One of the options for the University is occasional arranging meetings of this group where the main topic of the discussion will be using IT in the university work. It could be a good alternative for the establishment of a new steering group.

One more process on which the organization should pay attention to is outsourcing. Sometimes it’s the best solution to outsource some responsibilities in order to create better services for employees and clients. Linnaeus University is open for the discussion in this area, and already outsourced some functions (e-mail system) to external vendors. The effective cooperation with external partners is also vital for any organization, so external alignment should also be considered.

6.1.4 Competencies Level

In this part of the discussion all the essential competencies for IS/IT alignment which the organization can achieve by a correct utilization of the existing resources of the existing structure and the processes will be presented.

The first competence that is widely acknowledged in the theory is a shared domain knowledge. A high level of the communication between IT and business managers, IT managers’ knowledge about business and business managers’ knowledge about IT will essentially lead to the situation where IT and business managers respect each other’s contribution, understand and participate in each other’s key processes. The shared domain knowledge allows managers to talk “common language”, so they are able to share and receive knowledge and what is more – integrate new knowledge that are not common for them. Linnaeus University is at the beginning of this road but if they will correctly manage all resources and processes in the university they will achieve this competence very soon.

The status of IT in the organization also plays an important role in achieving the alignment. The attitude to new IS/IT opportunities is very often affected by the past experience of implemented IT systems. If the organization has big IT failures in the past, it influences the credibility of IT and affects how managers and executives see the competence of IT Department. Very often past failures bring many difficulties to create cooperation relationships, mutual trust and support between IT and business managers. On the other hand, a past successful implementation of systems leads to the situation when business managers are eager to cooperate with IT and look for new opportunities. According to the empirical finding, Linnaeus University doesn’t have any big IT failures in the past, so IT status in the organization is pretty high. Small technical problems are not bothering them and a fast response to such issues from IT Department convinces people even more in IT credibility. Employees see in IT Department a strong support, so they are willing to cooperate. This situation positively affects the level of the alignment in
The partnership and mutual participation in business and IT planning processes lead to the next competence – planning sophistication. Linnaeus University has perfectly connected documents of IT-policy and the whole university strategy, but they need to focus on actual participation in each other’s planning processes.

Today, the information technology and systems are the essential part of the knowledge management in every organization including universities. According to the research findings, the emphasis on knowledge management is one of the main priorities in Linnaeus University. The university uses many information systems, and almost all of them are the instruments for the creation and sharing of the knowledge. Reducing separated systems and the creation of new decision-making ones is a task on the agenda. Such systems will connect different institutions and units which in turn will be a platform for the creation of new knowledge, their evaluation, and further decision making.

The next important competence is the ability to effectively manage changes. The organization must perform organizational, IT and business changes in order to maximize the benefits from IT. Referring to the research findings, Linnaeus University manages changes pretty well. Sure, there are some people who don’t want to adjust and accept changes but managers understand it and have approaches how to influence this situation. The world around the university is changing every day and the managers’ work is to listen, watch, analyze, decide what they should change and then do it. The alignment helps the organization to respond for the outside IT demand and it won’t work if the organization can’t effectively manage changes. There is one more competence which is connected with the management of changes, - managing of innovations. Each organization, commercial or non-profit must look for new and emerging potential technologies, estimate and implement the proper ones. According to the research findings, Linnaeus University is open for new opportunities and effectively manages existing innovations.

The University as any another organization must have a coherent strategy for all the investments where IT investments are a significant part of them. Unfortunately, it seems that Linnaeus University doesn’t have the overall strategy for IT investment because some units even don’t discuss these issues with IT Department. One of the main tasks of CIO is to analyze IT needs of the whole university and through the collaboration with all the institutions and functions create the overall strategy for IT investments.

The last competence that should be discussed in this research is business and IS/IT staff development competence. There are two main directions to work here. First, Linnaeus University must ensure the appropriate recruitment process for IT staffing and their further training and development. The problem which the University should solve in this area – is the integration of IT staffing process because now it seems a little scattered. The second direction here – providing opportunities to non-IT staff to learn more about IT and how they can use it in their work. The main task here is to teach university units how to most effectively use new and existing information systems. It will be also good to provide a leadership and management courses for IT staff in order to encourage them to participate in the strategic planning.

Almost all components of Alignment Unified Framework are remained the same but during the analysis and discussion it was found that IT Leadership is also critical for IS/IT alignment, so it should be included into the framework. There are no proves that IT Department location can affect the alignment, so it will be reduced from the framework. The focus in the resource level should be changed from IT knowledge of business managers to business knowledge of IT managers. The final version of the Alignment Unified Framework is presented on figure 6.1.
Figure 6.1 – Alignment Unified Framework (final version) (Peppard and Ward, 2004)
6.2 Conclusion

This chapter concludes this research by answering research questions. All the answers are based on the analysis and discussion of empirical findings. In order to answer the first research question, three research sub questions will be answered first.

**RQ 1.1: What resources are important in order to achieve and maintain IS/IT alignment?**

During my research it was found three critical resources for achieving and maintaining a high level of IS/IT alignment: communication between IT and business managers; IT knowledge of business managers; business knowledge of IT managers. Business and IT managers should communicate in planning processes of each other’s, share common goals, create a mutual understanding and see each other as partners. A controversial issue is the knowledge of managers. There are statements in the theory that IT knowledge of business managers are vital for IS/IT alignment and the business knowledge of IT managers are only desirable. However, according to the empirical research findings if the organization wants to achieve IS/IT alignment it should focus exactly on business knowledge of IT managers because it seems that IT must take a leadership role in developing of relationships between business and IT.

**RQ 1.2: Which processes and structure components in organization influence IS/IT alignment?**

Organizations utilize existing resources by their own processes and structure in order to build new competencies. It was found that the most significant processes and structure components which can influence IS/IT alignment are:

- partnership between business and IT managers;
- participation of business managers in IT planning;
- participation of IT managers in business planning;
- allocation of IS/IT decision-making rights;
- organization size;
- establishment of steering groups;
- authority for IS/IT;
- IT leadership.

The partnership and participation of each other’s planning processes lead to the situation when IT will go from simply IT projects planning to a coherent support of the business strategy. Eventually it will lead to the development of a shared domain knowledge competence and IS/IT alignment. The size of the organization also affects the alignment because big organizations need to clarify all the responsibilities, roles and relationships including IT management and planning. The organization must as well clarify allocation of decision-making rights and the authority for IS/IT. The implementation of some kind of “steering group” for business and IT integration seems also as one of the best practices for IS/IT alignment. According to the research findings, the leadership in all these processes should be taken by IT.

**RQ 1.3: What competencies should organization have in order to achieve and maintain alignment?**

Resources themselves can’t bring a value but the organization can generate the value by the utilization of these resources. The competence is the ability of the organization to utilize a
combination of different resources for performing tasks and achieving the desired result with unique intangible and tangible processes and structure. Following the list of competencies it was found as critical for achieving and maintaining IS/IT alignment:

- shared domain knowledge;
- emphasis on KM;
- planning sophistication;
- high IS/IT status in organization;
- coherent IT investments decisions;
- managing changes and innovations in organization;
- business and IT/IS staff development.

Now, there are answers for the main research questions:

**RQ 1: How to achieve and maintain strategic alignment in organizations?**

During this research it was confirmed that IS/IT alignment is an ongoing process which should be maintained. It’s obvious now that there is no single combination of activities which will be suitable to every company. Relationships with the outside environment and an internal business climate are unique for every organization and they are constantly changing over the time. Each organization has to find its own strategy to achieve and then support IS/IT alignment. However, during this research, some factors, which can help for organizations to see on which areas they should pay attention to in order to achieve and maintain IS/IT alignment, were determined.

The organization’s managers should try to maximize, encourage and consolidate those activities that lead to the alignment and find and minimize those which inhibit it. They should create in the organization the environment for deep communication between IT function and business, encourage managers to participate in each other’s planning processes, create some shared domain knowledge for effective sharing of information, establish one comprehensive IT process for the whole organization and wisely manage changes, innovation and investments in IS/IT.

You can’t develop the alignment in one day or even in one year. It’s a dynamic complex process which takes time. And after you achieve your goal you should make a lot of efforts to maintain it. However, if you succeed, it will give your company a strategic competitive advantage which will lead to the increased efficiency and profitability of your organization. You will be able to adjust to a changing environment and be on the crest of the wave.

### 6.3 Recommendations for Linnaeus University

During the research, the problem of achieving and maintaining IS/IT alignment was studied. It was investigated how this concept really works in practice and determined essential components. Therefore, based on the results of this investigation, i.e. its empirical findings and theoretical studies, some practical recommendations for Linnaeus University, which could help to achieve and maintain high level of IS/IT alignment, are presented here:

1) Encourage and develop a communication of IT managers with executives and university units;
2) Create one IT process for whole university;
3) Create a coherent investment strategy for IT;
4) Establish clear boundaries of IT responsibilities between IT Department and University Units;
5) Include representatives from IT in strategic planning process;
6) Provide IT courses for the university staff;
7) Encourage leadership of IT;
8) Include representatives from IT in early stages of main projects;
9) Analyze and clarify IT decision making right (creation of federal structure);
10) Continue to develop new information systems which will connect different areas and units of university;
11) Provide “steering group” meetings for coordination of actions in IT;
12) Effectively manage changes and IT innovations;
13) Create effective recruitment process;
14) See IT as a business partner, not only as a technical support.

6.4 Future Research

The transformation of IS/IT alignment concept from an ill-defined theory into an effectively workable method requires more than could possibly be accomplished during this research. The aim of this research was to look on IS/IT alignment from a new perspective – a resource-based theory, to start a discussion and create the foundation for a future research. The concept of IS/IT alignment seems very controversial but as we all know “from the clash of opinions emerges the truth”. Here there will be presented possible future researches in this direction.

First of all, there is a need for a further qualitative research of the created framework. Since it was investigated in only one organization, it could be interesting to make a similar research which includes different organizations from commercial and non-profit areas in order to be able to generalize the findings. In this case, researches will be able to determine a difference in the ways how an organization manages IS/IT alignment.

Qualitative researches are often used as an instrument for getting prior suggestions and their evaluation about some concept, and then a researcher can specify it by a quantitative study. The current research findings need statistical reliable numerical proves, so another possible research is a quantitative study which can enhance and validate the findings. Such research will allow to generalize the findings because it would be not only opinions and suggestions but a quantitative estimation of most important components of IS/IT alignment concept. The results of such research could be spread and used among many organizations because the authors will be able to use a more diversified random sampling, for example by online survey. Such research will lower the risks to make wrong decisions and chose incorrect components for organizations.

Moreover, in the future research it could be interesting to study more in details some particular components of IS/IT alignment framework such as shared domain knowledge, planning sophistication in organizations, establishment of steering groups, etc. It would be also interesting to investigate those components which were the most controversial in this research: assessment of importance of business managers’ IT knowledge in comparing to IT managers’ business knowledge; the influence of the organization size on IS/IT alignment; IT leadership in communication between business and IT. In the last issue future researches can even investigate the ways and practical tools how IT managers can take leadership role and demonstrate the benefits from a strategic using of IT.

The future researches could also study the connection between different elements in the presented framework because it shows the initial location of components. A proper quantitative or mixed method research could more closely investigate the utilization of which resources by which processes lead to certain competencies. The current study was also focused only on the internal alignment and didn’t asses the connection with external partners. Today, many organizations are tightly connected with their partners and suppliers in the IS/IT area as well, so the research of external IS/IT alignment would be also very valuable.
References


## Appendices

Appendix A (Interview Guide: Senior Management)

### Interview guide: Senior Management

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<th>Respondent name:</th>
<th>Profession:</th>
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<td>Department:</td>
<td>Date:</td>
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#### Section 1  General questions about respondent:

**Question 1:** What is your official job title and main responsibilities?

**Question 2:** How long do you work in Linnaeus University? How long do you work on current position?

**Question 3:** What is the job title of the person to whom you report?

#### Section 2  General questions about alignment:

**Question 4:** How important Information Technology in our University?

**Question 5:** Does Linnaeus University use any information systems? If yes, how successful their usage?

#### Section 3  Strategic alignment: Resource level

**Question 6:** How can you describe the level of communication between IT top managers and other executives in our University?
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<th>Question 7: Do you think it necessary that university executives should have some level of understanding of IT? Do you think it necessary that IT managers should have some level of understanding of education market?</th>
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<td><strong>Question 8:</strong> What roles does IT management take in university strategic plan formulation process?</td>
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<td><strong>Question 9:</strong> When do IT managers start participate in major projects? On early stages? Or just on stages of implementation?</td>
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<td><strong>Question 10:</strong> How did a merger of two Universities: Kalmar and Vaxjo influenced the way of management and planning?</td>
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<td><strong>Question 11:</strong> Does the University provide any kind of steering groups in order to coordinate planning activities?</td>
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### Section 5: Strategic alignment: alignment competencies

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<td>Question 13: Could you remember any big IT failures? If yes, did this influence the relationship between IT Department and other parts of the University?</td>
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<td>Question 14: How does the University manage knowledge? Follow-up: What does the University do in order to codify knowledge and make them available to all interested actors (academic staff, students, etc.)?</td>
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<td>Question 15: How could you characterize overall attitude to changes in the University? How successfully does the University implement new systems and change existing ones?</td>
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<td>Question 16: How does the University manage innovations?</td>
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Appendix B (Interview Guide: IT Management)

**Interview guide: IT Management**

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<td><strong>Question 1:</strong> What is your official job title and what are your main responsibilities?</td>
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<th>Section 2</th>
<th>General questions:</th>
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<tr>
<td><strong>Question 4:</strong> Could you describe the structure of IT Department in Linnaeus University: main units, number of employees, physical location, etc.?</td>
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<td><strong>Question 5:</strong> What are the main responsibilities and the objectives of IT Department in Linnaeus University?</td>
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<td><strong>Question 6:</strong> Does our University have a formulated IS/IT strategy?</td>
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<tr>
<td><strong>Question 7:</strong> What roles does IS/IT undertake in our University (for example: software development; user support; database specialties; business analysis, etc.)?</td>
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</table>
**Question 8:** What information systems does our University use? What areas are covered by IS/IT applications in our University (finance, human resources, education process, administration, etc.)?

### Section 3  
**Strategic alignment: Resource level**

**Question 9:** How can you describe the level of communication and partnership between IT managers and other executives in Linnaeus University?  
Follow-up: Do you think high level of communication could affect the successful implementation of IS?

**Question 10:** Do you think is it necessary that university executives should have some level of understanding of IT? Do you think is it necessary that IT managers should have some level of understanding of education market?

### Section 4  
**Strategic alignment: processes and structure**

**Question 11:** How do university executives participate in IT planning process?

**Question 12:** How do IT managers participate in overall university strategic planning process? Do IT managers attend university planning meetings?

**Question 13:** When do IT managers start participate in major projects: at early stages or just at stages of implementation?
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<tr>
<th><strong>Question 14:</strong> Did a merger of two universities: Kalmar and Vaxjo had influenced the way how IS/IT is managed? Do you think a university size can affect the level of strategic alignment?</th>
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| **Question 15:** Which control of IS/IT resources does Linnaeus university use – centralized or decentralized?  
**Follow-up:** Who have decision-making rights and responsibilities for application development; purchasing of hardware and software; staffing IT positions; developing of infrastructure? |
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<tr>
<th><strong>Question 16:</strong> Does the university provide any kind of steering groups in order to coordinate and integrate IS/IT with other parts of University?</th>
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| **Section 5**  
**Strategic alignment: alignment competencies** |
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<tr>
<th><strong>Question 17:</strong> How can you characterize the status of IS/IT in our University? <strong>Follow-up:</strong> How this status affects the relationship between IT and other parts of University?</th>
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<tr>
<th><strong>Question 18:</strong> Could you remember any big IT failures? Did they influence the relationship between IT Department and other parts of our University?</th>
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| **Question 19:** How does Linnaeus University manage knowledge?  
Follow-up: What does the university do in order to codify knowledge and make them available to all interested actors (academic staff, students, etc.)? |
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<td><strong>Question 20:</strong> How could you characterize overall attitude to changes in the university? How successfully does the University implement new systems and change existing ones?</td>
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<td><strong>Question 21:</strong> How does the University manage innovations? Innovations in IT?</td>
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<td><strong>Question 22:</strong> How does the University manage the investments in information systems, technology, etc.?</td>
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<td><strong>Question 23:</strong> Does the University provide any training programs for IT staff?</td>
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## Interview guide: Quality Coordinator

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<tr>
<th>Section 2</th>
<th>Questions related to Planning Department:</th>
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<tr>
<td><strong>Question 4:</strong> Could you describe the structure of the Department of Planning in Linnaeus University: main units, number of employees, physical location, etc.?</td>
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<td><strong>Question 5:</strong> What are the main responsibilities and the objectives of the Department of Planning?</td>
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<td><strong>Question 6:</strong> Do you know what information systems does our University use?</td>
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<td>How can you describe the level of communication and partnership between IT managers and managers from Planning Department in Linnaeus University?</td>
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<tr>
<td><strong>Question 16:</strong></td>
<td>Does the University provide any training programs for staff?</td>
</tr>
</tbody>
</table>