Diagnosing Innovation Capabilities

- A Case Study at E.ON Sverige AB

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Abstract

Title: Diagnosing Innovation Capabilities
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Issue of Study: Theoretical studies assessing innovation capabilities often tend to be general. This literature might not be completely applicable in practice when it discussing utilities, which are heavily affected by their external environment. The Business Innovation department, at E.ON Regional Unit Sweden, is currently challenged to gain a full understanding of how to improve its practices. It needs support in developing a measurement system for its own use.

Purpose: The thesis aims to identify macro- and organizational factors affecting a utility. Based on these factors, the current innovation capabilities of Business Innovation are assessed. Founded in these capabilities, strategic- and operational metrics are developed for the department, to use for future diagnostics.

Method: Having the format of a single, qualitative case study, gathered information has been continuously processed, and reanalyzed, adjusting scope and focus areas based on key findings. Collected data has mostly consisted of interviews with E.ON employees.

Conclusions: It has during the study become evident that the utility industry differs from other industries in several aspects, such as being greatly affected by political decisions and legal regulations: shaping both company structure and internal collaboration. It has also been shown that utilities are experiencing major changes in social- and technology trends. This affects several innovation capability areas: increasing the importance of some of them. An example of this is innovation culture and customer involvement, becoming increasingly vital for utilities. With these changes, the environment of utilities is becoming increasingly similar to other industries. As a result, general innovation management literature has been determined to be highly relevant for energy utilities. The finding encourages energy utilities to use innovation management literature for evaluating and developing their innovation processes.

As for the practical purposes, E.ON RU Sweden have shown to be well developed in many areas important for utilities. Some improvement of innovation capabilities can however be made in the areas that have recently grown in importance due to the changed conditions. This study has highlighted the most important factors to prioritize: including developing a more complete project portfolio system, creating stronger incentives for innovation and receiving more continuous customer input. In order for BI to continuously diagnose these areas, a set of seven strategic- and three operational measurements have been suggested. The practical purpose in the thesis is however limited to E.ON, and cannot be viewed as an inspiration for other utilities.

Key Words: Case Study, Innovation, Innovation Capabilities, Metrics, Macro Environment, E.ON, New Product Development

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Abbreviation

BI	Business Innovation
BU	Business Unit
EBIT	Earnings before interest and taxes
EIC	E.ON Innovation Centre
Exploitation	Term used to describe the process of refining existing solutions to increase effectiveness
Exploration	Term used to describe the process of discovering problems and finding solutions
NPD	New Product Development
HIC	Head of E.ON Innovation Centre
PM	Project Manager
RU	Regional Unit
T&I	Technology & Innovation

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1 Introduction

The first chapter provides a brief introduction to new product development (NPD) theory, the utility industry and the Business Innovation department at E.ON Regional Unit Sweden. It aims to highlight and explain the lack of directly applicable NPD theory for energy utilities, due to their specific environmental conditions. Afterwards the practical usage of the thesis for BI is discussed.

1.1 Background

Developing projects or launching new products is difficult and of high risk (Cooper, et al., 2004a). Simultaneously, renewing the company offering is of greatest importance in order to stay competitive. As argued by Ireland & Web (2007), firms that do not innovate, risk being left behind when new technologies arise. There has been plenty of literature written within the area of innovation management (Goffin & Mitchell, 2005; Martin, 2009; Rehn, 2010) and papers stating best practices for NPD (Cormican & O'Sullivan, 2004; Cooper, et al., 2004a). Since studies often tend to be either general or focus on manufacturing companies (Riek, 2001), applying the theoretical frameworks might be difficult in certain industries.

The utility industry[1] is heavily affected by macro-environmental factors, affecting organizational structure, strategy, and so forth. It is an industry that is considered to be slow paced, with heavy investments and innovations originating from the last century still being most profitable. Moreover, the relationship with end customers has traditionally been less prioritized, as utilities traditionally make profit from producing rather than selling energy. (Further discussed in chapter 4.1) As a result, theory concerning innovation strategy, organizational structure and project methodology might not be completely applicable for utility firms.

Now interested in developing its ability to innovate, E.ON, a large scale utility company, believe that the utility industry is on the edge of experiencing new market conditions, where energy production is decentralized and new energy sources dominate the market. E.ON is therefore currently restructuring its organization. (Olsson, 2012) Last year, E.ON created three new departments to tie innovation closer to the company strategy. *Technology & Innovation* (T&I) is the global department, located at the headquarters in Düsseldorf, with coordination responsibility. In Sweden, are *Business Innovation* (BI) and *Retail Strategy* & *Business Development* (RS&BD) newly created departments. BI coordinate cross-functional projects and collaborate with T&I, while RS&BD participate in these projects and performs market trials.

[1] In this thesis, energy utilities are defined as electric power companies that generate, transmit and distribute energy, such as electricity and heat, for sale.

Being a new department, BI is currently working to gain a full understanding of how to improve its practices. For this reason, BI are currently requesting support in developing a measurement system of innovation for own usage. Since a measurement system should be aligned with the company strategy, as well as processes (Ahmed & Shepherd, 2010), analyzing which innovation capability areas that are of importance is a necessity for determining measures needed.

1.2 Issue of Study

There are plenty of both internal and external factors differentiating large scale utility companies from companies in other industries. Based on the literature study performed by the authors, there is currently no literature examining the specific innovation capabilities and central factors for innovation at large scale utilities. Exploring which factors that drive innovation in a utility would therefore cover a gap currently existing in innovation management literature. A theoretical contribution in this area could therefore help energy utilities develop their innovation processes in general.

Being a new department, BI has yet to gain full understanding of the projects and functions it is supporting. There is a gap in knowledge between the innovation work of E.ON RU Sweden and its business units (BUs). Evaluating these processes and recommending measurements for future use would therefore be beneficial for the department.

1.3 Purpose

The theoretical purpose of the thesis is to explore which factors that affect and indicate effective innovation processes in an energy utility company. These have been divided into two areas; macro factors, describing the external environment, and organizational factors, covering internal innovation capabilities. The aim is to understand what innovation management theory that is applicable on a company such as E.ON, as well as where utilities differ.

- How do macro factors affect the innovation capabilities of the utility industry?
- How do organizational factors of a utility company affect its innovation capabilities?

The practical/empirical purpose of the thesis is to map innovation work within E.ON RU Sweden and develop a framework of BI’s innovation capabilities. This is done to assess which factors within each innovation capability BI need to improve and to thereafter develop proposal metrics for BI to use.

- Which factors should BI prioritize in order to improve its innovation capabilities?
- Which measurements should be used for BI to perform diagnostics on these factors?

Summarizing, the thesis aims to identify environmental- and organizational factors affecting the innovation capability of a utility. Based on these, the need to improve central factors within each innovation capability area is assessed. Founded in the factors most important to improve, strategic- and operational metrics are developed for BI to use for future diagnostics.

1.4 Scope

- The study will be limited to BI and the functions it collaborates with.
- The theoretical scope of innovation capabilities is limited to nine capability areas discussed in the theory section.
- While metric suggestions are made, metric implementation falls outside of the scope of the report

1.5 Target Group

The target group for this master thesis is the case company E.ON RU Sweden and the academic world. The target group is assumed to have basic knowledge within the energy market domain. Other companies in similar situations might value certain parts of the thesis.

2 Theoretical Framework

This chapter covers innovation theory based on a framework consisting of nine innovation capability areas. Firstly, innovation capability is generally discussed. Secondly, each chosen area is examined, and summarized into central factors.

2.1 Innovation Capabilities

There has been a great amount of literature written describing which areas to focus on in order to improve innovation capabilities. For instance, Cooper, et al. (2004a) studies 17 areas in their paper of best NPD practice, ranging from areas such as strategy to project processes. According to Davila, et al. (2006), the main dimensions include strategy, organization, processes, and resources. Similarly, Cormican & O'Sullivan (2004) define the five best practice areas for innovation to be strategy & leadership, culture & climate, planning & selection, structure & performance and communication and collaboration. When developing an "innovation compass" used for assessing innovation capabilities, Noke & Radnor (2004) analyzed capabilities based on structure, leadership, output, teams and context. A paper made by Kahn, et al. (2012) gives another example, defining the dimensions for best NPD practice to be strategy, process, research, project climate, company culture, measurements and commercialization.

These papers present different models for defining areas of importance in order to improve innovation. However, there are plenty of similarities to be found: often strategy, organization and projects are highlighted as main focus areas, with other areas as sub-dimensions to them. The literature study was initially divided into strategy, organization and processes, and resources based on the general framework suggested by Davila, et al. (2006), but was further developed based on empirical findings. It is evident that innovation capabilities can be categorized in various ways. The empirical findings shaped the theoretical areas in this study: nevertheless, the selected innovation capability system was considered to correlate well with common innovation management systems described in literature. The process for developing the framework is further described in chapter 3 of this thesis. The areas that will be examined are summarized in figure 1.

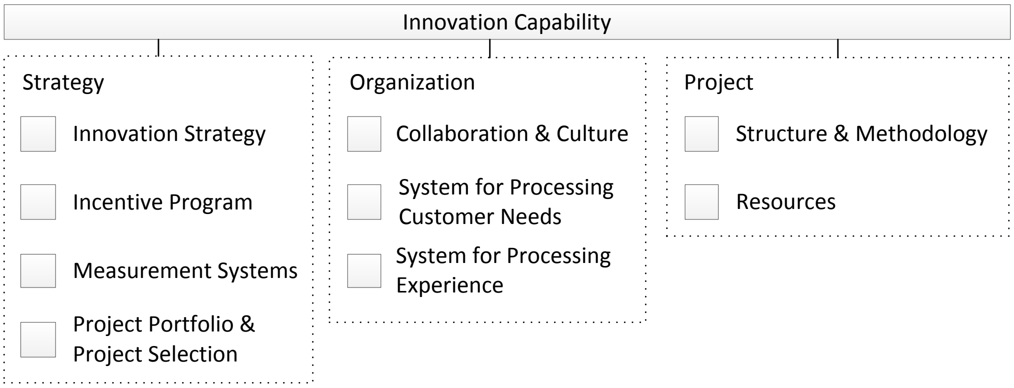

FIGURE 1: Illustrating the nine innovation capabilities.

It is to be highlighted that the selected innovation capabilities areas in this thesis are assessed to not only concern utilities, and the aim of the literature study is to show results from theory within innovation management in general.

2.2 Strategy - Innovation Strategy

Considered to be the most important dimension for successful NPD practices among businesses (Kahn, et al., 2012 and Nicholas, et al., 2011), innovation strategy is vital for successful innovation, regardless of company size, since it sets the purpose of the innovation system. Long term strategy and goals should ultimately decide which projects that are invested in (Emerald Group Publishing Limited, 2010). From an organizational perspective, it is relevant to look at innovation from a company- as well as project level. Managing innovation from a company level focuses on innovation strategy connected to revenue, while the project level often concerns new product development and processes enhancing innovation. (Goffin & Mitchell, 2005) According to Keeley (2004), it is vital to consider all the dimensions of innovation rather than mainly focusing on product improvements. (The innovation dimensions are discussed further in chapter 2.4)

Another perspective on innovation strategy is the division of innovation systems into exploratory or exploiting. According to Martin (2009), start-ups tend to focus on solving a problem and exploring different solutions. As a solution is created, focus is shifted towards exploiting the solution, turning it into an algorithm in order to maximize profits. Established companies tend to remain in the phase of exploiting rather than exploring, meaning focusing on improving their current solution rather than searching for new solutions. Since new undeveloped solutions might be better than old developed ones, being able to explore as well as exploit improves companies chances to find blue oceans, as well as profit from them to a greater extent. This view is further supported by Muller, et al. (2005), who points out that industries are lead by innovators. However, market leaders tend to change, meaning companies experience difficulties in developing sustainable innovation capabilities.

Complexity also increases when considering that innovation systems promoting different heights of innovation tend to differ. Height of innovation depends on the newness of the business or technology, creating a scale from incremental- to radical innovations. Incremental innovation requires clear metrics during all phases of the project, and monitoring is based on milestones and expectations. On the other hand, radical innovation-metrics focus on input and monitoring is based on subjective evaluations. (Davila, et al., 2006) While applying clear metrics and using stage gates improves effectiveness, radical innovation is harder to measure and calculate, meaning that regular stage-gate processes often kill radical ideas.

As a part of setting program goals, innovation strategies can be divided into “play-to-win” (PTW) or “play-not-to-lose” (PNTL). Typical for high technology start-ups is to focus on bringing new technology or business models to market companies use PTW-strategies to outpace competitors. When successful, companies often shift to more incremental investments, improving and protecting their initially semi-radical- or radical innovations. Although larger firms tend to take less risk by broadening project portfolios, it is still possible to implement at PTW approach by investing significantly into project with a larger innovation height. On the contrary, external and internal factors can force companies to focus on primarily incremental innovations, being able to lessen risk and adapt quickly to market changes. PNTL companies may still invest in semi-radical- and radical innovations in order to understand where the market is headed in order to increase reaction speed. When deciding to implement either a PTW or PNTL strategy both external and internal factors should be considered. External factors include macro-environmental factors such as rate of technological change. Internal factors include technical- and organizational capabilities, current business model, funding and vision. There is not one correct, everlasting formula, meaning that the innovation strategy should be revalued continuously. PTW often involves larger risk, but enhances the possibilities to become market leader by leaping away from competition through new technology or business models. Whichever strategy selected, it is evident that it needs to be communicated clearly and have well-defined guidelines. (Davila, et al., 2006)

Summarizing, there are many perspectives on innovation strategy that complement each other. By developing a clear innovation strategy that takes the innovation dimensions (Keeley, 2004) and innovation systems into consideration (Martin, 2009), it is possible to develop clear guidelines for decision making and information gathering. Based on the reviewed literature, central factors for innovation strategy can be concluded as:

1. Clear innovation strategy, guidelines and goals (Davila, et al., 2006)
2. Focus on multiple innovation areas and levels (Keeley, 2004; Martin, 2009)

2.3 Strategy - Incentive Program

It is vital that frames for innovation metrics provide the motivation to drive the company innovation strategy. When using cross-functional teams for innovative projects, creating the right incentives for participating is important according to Wang & Yuanjie (2008). In their article, they suggest having a dynamic compensation program based on input for contributing departments. Martin (2009) recognizes that personal success in public companies is most often gained through focusing on and refining existing solutions: exploiting rather than exploring, or not developing new solutions to old problems. In order to create a problem solving-culture which encourages employees think twice, reward systems should not only be focused on revenue, but on solving problems as well. Based on the reviewed literature, central factors for incentive programs may be concluded as:

1. An incentive program encouraging departments to participate in cross-functional projects (Wang & Yuanjie, 2008)
2. An incentive program with individual incentives for problem solving and exploring (Martin, 2009)

2.4 Strategy - Measurement Systems

Measurement in innovation may be considered as somewhat of a necessity and a key trigger for action (Ahmed & Shepherd, 2010). According to Goffin & Mitchell (2005) a measurement system has the role of defining and communicating the company strategy, monitoring performance and helping in identifying new opportunities. This view is similar to the one of Micheli & Manzoni (2010), whose paper states that metrics are used for diagnostics, communication, setting boundaries and establishing beliefs. Finally, it can be said that metrics set behavior, as they communicate and create awareness of factors considered important by management.

As Källman & Sandqvist (2010) state, the purpose of measuring is not simply collecting data, but to draw knowledge and to develop from the data collected. Measuring creates visible results from which feedback; learning and improvement can be developed. In order to be able to perform diagnostics, storing and making historical data traceable creates transparency and is considered best practice by Nicholas, et al (2011).

While often generically discussed in theory, measurements can be distinctly different depending on application level: being either strategic or operational and used on different organizational levels (Ahmed & Shepherd, 2010). Metrics on a strategic level should be linked to the metrics on a project level, but differ in perspective and purpose. On a strategic level, each project can be compared towards the strategy and other projects, while the project metrics are often, although linked to the strategic metrics, more concerned with actual resources and other operational issues. (Davila, et al., 2006)

There are many ways to structure a measurement system to cover the whole product development process. Metrics can be divided in various ways depending of purpose and preference, such as qualitative versus quantitative and historical versus predictive. (Tatikonda, 2008) Källman & Sandqvist (2010) divide metrics into “input / process / output”, “task / organization / finance / market”, as well as “amount / balance / efficiency / effectiveness”: deciding the when, what and how of the metric. In what can be seen as a disagreement with these twelve categories, Muller, et al. (2005) stress keeping metrics simple and apprehensive, not using more than ten and including at least one or two customer driven metrics; such as sales from new products.

There are several barriers that are to be taken into consideration when designing a measurement system. One conclusion from the study made by Källman & Sandqvist (2010) is that although measuring is important in order to optimize management support and recourse allocation, developing a selection of metrics is difficult. This is often due to lack of organizational transparency or a common innovation terminology. Transparency is further affected by the nature of innovation: O´Connor (2008) states that it takes at least three years for an innovation activity to have a financial impact on the company, an important consideration when measuring outcome. Davila, et al. (2006) identify several barriers for performance measurement that have to be taken into consideration when designing metrics. For instance, overvaluing objective measures, as well as IT-systems, are common mistakes: measurement systems provide information but not answers. Furthermore, if the business model is flawed with a focus on the wrong levers of value creation, incorrect variables will be measured. Measuring what is simple to measure, rather than necessary can also produce unwanted results: in these cases, Källman & Sandqvist (2010) emphasize that it is better not to measure at all then to measure wrong.

The importance of metrics is widely accepted in theory: for instance, Kuczmarski (2000) identifies lack of metrics as a top five barrier to innovation. However, studies by Kahn, et al. (2012) and Nicholas, et al. (2011) show that businesses consider other dimensions that affect innovation to be more valuable. Arguments can be made that the study conducted by Källman & Sandqvist (2010) shows low interests in metrics as well, with less than a fifth of the participating companies measuring input, throughput and output.

In conclusion, the following central factors can be identified:

1. A measurement system used at a strategic as well as an operational level (Ahmed & Shepherd, 2010)

2. Measurements covering input, throughput and output (Källman & Sandqvist, 2010)
3. A measurement system that assists in defining and communicating the company strategy, monitoring performance and identifying new opportunities (Goffin & Mitchell, 2005)
4. A system that stores prior measurements, making them traceable so that diagnostics based on historical data may be performed (Nicholas, et al., 2011)

2.5 Strategy - Project Portfolio & Project Selection

Improving the mixture of projects and creating systems for selecting the right ones can be one of the most effective ways to increase NPD performance (Emerald Group Publishing Limited, 2007). Managing a project portfolio means coordinating and optimizing recourses as well as making sure that the projects are connected to the company vision and strategy (Tonnquist, 2012). Projects can vary in many ways: for instance, they are often categorized based on length and innovativeness. It is vital for firms with many ongoing projects to have a system for managing them. Having a misaligned portfolio may, for instance, result in carrying out projects whose costs surpass benefits, or which do not contribute to the strategy. Meredith & Mantel (2012) recommends having a project portfolio in order to gain an overview of where recourses are allocated and for what purpose. Besides being categorized based on length and level of innovativeness, the project itself can target different areas of innovation. Keeley (2004) have identified four innovation areas: "Delivery, Finance, Offering & Process". These consist of the subcategories found in figure 2 below.

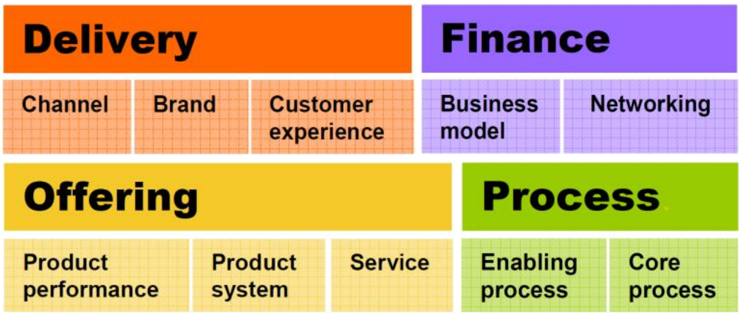

FIGURE 2: Keeley´s four innovation areas, each divided in more specific subcategories. Keeley, L. (2004)

While product performance tends to be in focus, it is actually the innovation area that yields the lowest return of investment. Creating a diverse portfolio where all areas are invested in is considered best practice, since they combined might act as a platform and grant each other leverage.

When selecting new projects for a portfolio, comparing them towards the already existing portfolio is a key factor. (Nicholas, et al., 2011) Moreover, when evaluating the potential of a project, Meredith & Mantel (2012) propose using evaluation models in order to make it comparable to similar projects. Evaluation models can either be numeric- or nonnumeric. Numeric models mean analyzing profit through, for example, payback or cash flow. Nonnumeric models include setting up factors such as operating- or competitive necessity, or by breaking down the perceived benefits of each project. Tonnquist (2012) suggests using criteria to determine if a project should be conducted, such as strategic fit, necessity, complexity, amount of recourses required and whether or not a procurer exists. Summarizing, new projects should be compared to the existing portfolio, and selection should be supported by guidelines as well as criteria: both activities are considered to be best practice within innovation management by Nicholas, et al. (2011).

However, some criticize the usage of criteria: it might be suitable on some occasions, but not for determining the creativity and greatness of an idea according to Rehn (2010). He argues that if all product ideas were judged and killed on the basis of not being innovative enough, companies such as Google and McDonalds would never have become market leaders. Good ideas might be innovative, but does not have to be in order to be of value: they might as well simply be good copies of something already existing. Therefore it is important not to merely focus on being highly innovative; incremental innovations are not necessary bad innovations.

In conclusion, the following factors have been identified as central concerning portfolio management and project selection:

1. The project portfolio aligns with the Innovation Strategy (Tonnquist, 2012)
2. The portfolio is divided into multiple areas, such as innovation dimension & height of innovation (Keeley, 2004; Davila, et al., 2006)
3. Project selection is supported by guidelines and a criteria system (Nicholas, et al. 2011)
4. When selecting projects, they are evaluated relative to other projects in the portfolio (Nicholas, et al. 2011)

2.6 Organization - Collaboration & Culture

It is vital to understand basic organizational structure to grasp the inherent strengths and weaknesses, and this affects innovation work as well. How functions and subsidiaries are expected to interact is often visible in the organizational chart. Having a sufficient number of both formal and informal communication channels has a significant impact on collaboration (Kahn, et al., 2012). However, as company structure differs so does the platform on which projects are structured. Commonly, companies are either structured as functional-, project-, or matrix organizations.

A matrix organization is a result of trying to combine the strength in functional- and project organizations, by being a standalone project organization overlaid on the functions in the firm. The organization can take various forms by being either more function- or project heavy. It is also able to be flexible, by temporary drawing talent from a function. Experts can be made available for multiple projects within the company. The approach can also be more holistic, making the balancing of resources, as well as applying companywide policies easier. An obvious disadvantage is the power balance between the functional- and the project Manager: each employee in a matrix organization tends to have two supervisors whose incentives differ. This may lead to various difficulties in areas such as recruiting team members and project priorities. (Meredith & Mantel, 2012)

As to improve innovation practices, company structure plays a large part in how well a company explores. For instance, decentralization increases the surface exposed towards the outside world and thus strengthens the ability to explore. Centralization, on the contrary, improves efficiency and exploitation. (Martin, 2009)

On a similar note, culture affects the organizational ability to innovate. Although enhancing the culture of a company is proven to improve innovation, a study by Kahn, et al. (2012) shows that this is often considered less important than other innovation dimensions such as strategy, research, commercialization or processes. Culture is, however, considered more important than project climate and metrics. One key to successful innovation is to allow failure. While large failures are expensive, failing at earlier stages in the development processes is less costly and improves learning. A risk avoidant mindset therefore significantly hinders innovation. (Järrehult, 2011) Having top management that supports and appreciates entrepreneurship is considered as best practice for innovation culture among companies. (Kahn, et al., 2012)

Another significant dimension of an innovative culture originates from collaboration with external partners. As a study by Brettel & Cleven (2011) shows, firms with a heterogeneous network of collaborative partners tend to perform better in term of new product turnover. When comparing different external partners, customer collaboration improves performance the most. However, solely collaborating with customers may be problematic, developing products serving a very specific customer group.

Based on the literature above, following central factors has been identified for having good communication and an innovative culture:

1. Formal and informal communication channels exist throughout the organization (Kahn, et al., 2012)
2. Exploration occurs widely across the organization (Martin, 2009)

3. Management supports entrepreneurship and allows failure, understanding that it is a necessary part of innovation (Järrehult, 2011; Kahn, et al., 2012)
4. Collaboration occurs with a heterogenic group of external partners (Brettel & Cleven, 2011)

2.7 Organization - System for Processing Customer Needs

It is essential for innovations to be rooted in needs. (Davila, et al., 2006) While traditional market research use direct questions through surveys or focus groups to obtain customer input, customers do not always understand or are able to articulate their needs. Goffin & Mitchell (2005) suggest performing hidden needs analyses: a collective term when combining more research and creativity activities such as attribute association and discrete observations. A key factor is testing ideas practically at an earlier stage: for instance through experimentation or rapid prototyping. In a study performed by Cooper, et al. (2004b) it was evident that companies often failed in receiving the necessary market- and customer input, resulting in inadequate product definitions, target markets, value propositions, and etcetera.

The following factor has been identified as central for processing customer needs.

1. Customer- and market input is received and taken into account throughout the project, through various activities (Goffin & Mitchell, 2005; Cooper, et al., 2004b)

2.8 Organization - System for Processing Gained Experience

Processing project experience is vital for being able to continuously develop operational practices (Davila, et al., 2006). Tonnquist (2012) divides monitoring the project into two categories: reviewing and assessing. Reviewing concerns analyzing the past, in order to improve future activities. Assessing concerns analyzing the future, in order to understand where the project is headed. For reviewing, Riek (2001) presses the importance of benchmark trials and tribulations rather than success stories for learning experiences. In his study, he suggests developing checklists based on cases from prior projects in order to improve future practices.

Following has been identified as central factors:

1. Projects are continuously assessed as well as reviewed (Tonnquist, 2012)
2. Both successes and failures are benchmarked and developed into checklists for future projects (Riek, 2001)

2.9 Project - Structure & Methodology

Project structure and methodology affects efficiency and the overall success of projects. Each project involves a number of typical roles, including one project sponsor and one project Manager. The project sponsor owns the project and decides the project goals, as well as selects the project Manager. The Manager has a more operational role, being responsible for the project to reach its goals. Larger projects tend to have a steering group, and larger firms tend to have project directors. The steering group is selected by the project sponsor, and is responsible to make sure that the project aligns with the company strategy and the set goals. The steering group gathers continuously throughout the project with meetings led by the project Manager. It usually has the mandate to change the project scope or terminate it entirely. (Tonnquist, 2012) Project success is largely supported by continuous cooperation between the project Manager and the project sponsor (Andersen, 2012). When having multi-functional project teams Fleming & Koppelman (1998) points to the role of the project office, providing Staff-type support to project Managers.

Although there are plenty of project models and project methodologies in literature, they tend to consist of three parts: a process structure, project roles and standard documents and checklists. A standard system increases efficiency and control, but too much structure risks lowering creativity. Simplicity is often key when creating a model, in order for it to be easy to use and largely applicable. Furthermore, it is vital that the established model is promoted and educated within the organization for it to be used. (Tonnquist, 2012)

Summarizing, central factors are identified as:

1. Clear roles and tasks between the project Manager and sponsor, as well as within the project group (Tonnquist, 2012; Fleming & Koppelman, 1998)
2. Availability of a process structure, standard documents and checklists supporting the PM in creating a project structure (Tonnquist, 2012)
3. The PMs are educated and informed in the use of the supportive tools for developing their projects (Tonnquist, 2012)

2.10 Project - Resources

The availability of resources has a clear impact on project success. Owning the resources and leading the project is often two separate tasks. It is always preferable that the budget required throughout the project is available during the initiation phase of the project, thus granting the project leader more control. (Tonnquist, 2012) While strict structures might be necessary to keep funding under control, Managers might find them too hard to acquire to be worth the effort, rewarding those with connections to top management rather than those with the best ideas. (Meredith & Mantel, 2012)

When developing new products, it is vital to invest in both technology- and market trials. Czernich (2004) showed that market failure was more than eight times more common than technology failure. This shows that while technology is likely to be well tested before released to the market, market trials tend to be inadequate during NPD projects.

When it comes to viewing team members as resources, having cross-functional teams tends to improve NPD processes. Yet, quality in the team is what affects the outcome most (Cooper & Kleinnschmidt, 2007). On a similar note, Dyer (2004) supports having cross-functional teams on innovative projects as they tend to be better on implementing new ideas. Still, Tonnquist (2012) states that team-members should first and foremost be assigned to projects based on competency, although personal chemistry also matters. As a result, project roles should not be assigned by the project leader but the resource owner, since the project leader tends to recruit people based on liking rather than competence.

In reality, finding the right competence might be difficult as well since people often need to be “borrowed” from functional departments in the organization: creating a conflict of interest between the project- and the function Manager. (Meredith & Mantel, 2012) This is a problem that might be solved by hiring consultants, but this solution is costly and creates difficulties in keeping acquired knowledge within the organization after the project completion.

Based on the reviewed literature, central factors within project resource management have been identified as:

1. Sufficient investments in both technology- and market trials (Czernich, 2004)
2. A cross-functional project team (Cooper & Kleinnschmidt, 2007; Dyer, 2004)
3. Recruitment to the project team is performed by the resource owner (Tonnquist, 2012)
4. Recruitment to the project team is primarily based on competence (Cooper & Kleinnschmidt, 2007; Tonnquist, 2012)

A summary of the studied innovation capabilities and central factors can be found in figure 3.

Innovation Capability & Central Factors

Strategy

☐ Innovation Strategy
- Clear innovation strategy, guidelines and goals
- Focus on multiple innovation areas and levels

☐ Incentive Program
- An incentive program encouraging departments to participate in cross-functional projects
- A reward system with individual incentives for problem solving and exploring

☐ Measurement Systems
- A measurement system used at a strategic as well as an operational level
- Measurements covering input, throughput and output
- A measurement system that supports in defining and communicating the company strategy, monitoring performance and identifying new opportunities
- A system that stores prior measurements, making them traceable so that diagnostics based on historical data may be performed

☐ Project Portfolio & Project Selection
- The project portfolio aligns with the Innovation Strategy
- The portfolio is divided into multiple areas, such as innovation dimension & height of innovation
- Project selection is supported by guidelines and a criteria system
- When selecting projects, they are evaluated relative to other projects in the portfolio

Organization

☐ Collaboration & Culture
- Formal and informal communication channels exist throughout the organization
- Exploration occurs widely across the organization
- Management supports entrepreneurship and allows failure, understanding that it is a necessary part of innovation
- Collaboration occurs with a heterogenic group of external partners

☐ System for Processing Customer Needs
- Customer- and market input is received and taken into account throughout the project, through various activities

☐ System for Processing Experience
- Projects are continuously assessed as well as reviewed
- Both successes and failures are benchmarked and developed into checklists for future projects

Project

☐ Structure & Methodology
- Clear roles and tasks between the project Manager and sponsor, as well as within the project group
- Availability of a process structure, standard documents and checklists supporting the PM in creating a project structure
- The PMs are educated and informed in the use of the supportive tools for developing their projects

☐ Resources
- Sufficient investments in both technology- and market trials
- A cross-functional project team
- Recruitment to the project team is performed by the resource owner
- Recruitment to the project team is primarily based on competence

FIGURE 3: Summery of the central factors within each innovation capability.

3 Methodology

The following chapter provides an explanation of the methodology approach used in the thesis. The chapter covers research design, data selection and collection, and data analysis. Lastly, reliability and credibility are discussed.

3.1 Research Design

The research is based on a single case study of E.ON RU Sweden, a company operating in the utility sector. Since the actual processes and dynamics of the structure and ongoing processes were of primary interest, the case-study design suggested by Thomas (2009) seemed the most appropriate choice of research method. In addition, both Thomas (2009) and Punch (1998) have pointed out the value of performing single case studies in order to get an in-depth understanding of processes. The apparent back-draw of in-depth single case studies is the difficulty of producing a generalisable result: In this thesis, the purposes have been divided into being theoretical or practical. The theoretical purpose of analyzing the applicability of innovation management literature on energy utilities stems largely from a broader macro analysis, and is therefore generalisable. The practical purpose focuses on E.ON to a larger extent, and is therefore too narrow to be considered to be generally applicable: it may however, serve as inspiration or contain directly applicable elements for energy utilities.

As studies on inter-organizational matters tend to be complex, using a qualitative method is more suitable in order to gain a deeper understanding of the subject (Punch, 1998). The data on which the study is based consists mostly of in-depth interviews with the people involved in the NPD-process, but also on meeting observations and relevant documentary data. During the study, all data, including interviews, observations, letters, email, secondary data, etc. has been saved as text documents in a folder structure.

Being a qualitative case study, gathered information has been continuously processed, and reanalyzed, adjusting scope and focus areas based on key findings. We have applied an abductive method of scientific reasoning throughout the study, in the sense that an iterative process has been applied when developing the literature study and collecting empirical data. This has allowed more flexibility and the possibility to perform a deeper analysis through continuously developing and adapting both the theory as well as the empirical research. (Paul, 1993) The process is illustrated in figure 4.

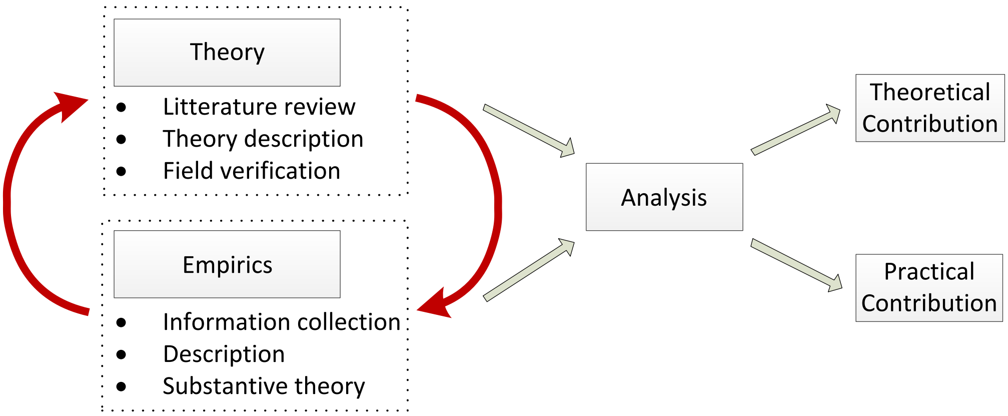

Figure 4: The theory and empirics have been performed in correlation with each other.

3.2 Data Selection & Collection

The data has been collected from primary sources such as interviews, group interviews, observations and documentary data at E.ON. Secondary data was used to understand the utility industry. The following section describes our approach for each data collecting method.

3.2.1 Interviews

We have applied the following process when selecting interviewees as proposed by Jacobsen (2009):

1. Gain an overview of the whole population
2. Divide the population into categories
3. Choose criteria for selecting interviewees (random, width and variation, typical, extremes, mix)

We initially gained an overview of the process that BI was a part of and which projects, functions and subsidiaries that were connected, aided by our supervisor at E.ON RU Sweden. The population was divided into categories based on company functions, with the ambition to gain width and interview representatives from each category. Individuals became selected slight randomly based on interview availability in each category. As Jacobsen suggests (2009), all but one of the interviews were face-to-face, and recorded in those cases when accepted by the interviewee. In addition, notes were taken during the interviews as a complement to the recordings. The interviews have been paraphrased.

The purpose with the interviews was to gain an understanding of how the different functions worked with and experienced the strategy, organization and process at

E.ON RU Sweden. A total of 19; 30-60 minutes long interviews were conducted with E.ON employees in order to map the innovation process and gain an understanding of the challenges the employees were experiencing. In addition, one phone interview, and one group interview was held. Staff members, Managers or PMs from the following BUs were interviewed:

Round 1

- E.ON RU Sweden
- E.ON RU Sweden, BI
- E.ON RU Sweden, Sales (group- and individual interviews)
- E.ON RU Sweden, Grid
- E.ON RU Sweden, Heat
- E.ON RU Sweden, Wind

Round 2

- E.ON, T&I (telephone interview)
- E.ON RU Sweden, BI

The interviewees will be referred to as Staff, project Managers or Managers throughout the report. When conducting interviews, a semi-structured interview format was used, with an agenda set on topics, with planned time limits and follow-up questions. As argued by Thomas (2009), using a semi-structured model is suitable for qualitative studies where complex constellations are present, since it allows some flexibility in adapting and pursuing information about prior “unknown unknowns”. The same format was used for the group interview which was conducted in this format due to being the only option given. Both interviews in round 2 were structured, since the data of interest during round 2 was more specific (Thomas, 2009). The interview templates are shown in Appendix 1.

3.2.2 Observations

A main strength of conducting observations in addition to interviews is the possibility to understand actual processes, rather than how processes are described. (Jacobsen, 2009) The observations performed were open; meaning people were aware of our presence, but non-participating; we simply took notes rather than participated in the activities.

The aim of the observations conducted was to gain a more in-depth understanding of how the project groups structured their projects. As recommended by Punch (1998), the unstructured method was used for the observation: not using predetermined classifications allows a more open-ended approach. As a result, no categories of findings were predetermined. Two of BI´s larger projects were observed. Both projects have been assessed to be representative for the category of projects that BI will oversee, with team members from a large number of departments and subsidiaries. The observations were each approximately two hours long. Both authors took notes, which afterwards were compared, discussed and written down.

3.2.3 Documents

Internal material from E.ON was either collected from the company intranet, or given by interview subjects after conducting interviews. It is important to understand that information in documents cannot be taken for granted: it is for instance not certain that the document describes the actual situation. (Punch, 1998) For this reason, documentary data generally has been avoided, or only used after consulting with the person responsible for the document.

3.2.4 Secondary Sources

As described by Thomas (2009), secondary sources are only preferable when other data is difficult to collect. Due to time restrictions, secondary sources such as industry analyses performed by IBM, Arthur D Little and Capgemini, were used as empirical data for describing macro factors affecting the utility industry. This allowed us to grasp forces and ongoing trends within the utility industry to an extent that would be very time consuming by the use of only primary sources.

3.3 Data Analysis

As suggested by Punch (1998), the analysis consists of three main components:

- Data Reduction
- Data Display
- Conclusions

The goal of data reduction is to decrease the amount of data without any significant loss of information. Data reduction initially occurred during the early stages of the data processing through summarizing and data editing. Later in the data processing stages, data reduction took place when clustering and analyzing data patterns.

Data displaying through organizing, compressing and assembling information was used throughout the study. Charts based on innovation capability areas identified in literature were initially used to organize data during the collection phase. A chart based on a general framework described by Davila, et al. (2006) was initially used, dividing data into, strategy-, organization-, process- or resource related.

The general framework was made specific through adapting it based on gathered data. It became evident which areas that employees experienced as problematic or important during the semi-structured interviews. This information was used for both reduction and development of a framework. While the empirical findings decided the theoretical areas, we consider the selected innovation capability system to

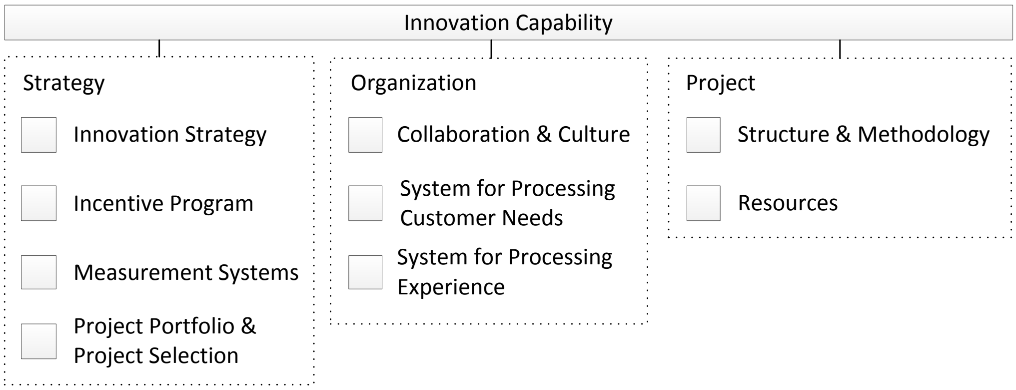

FIGURE 5: The nine innovation capabilities sorted in three categories.

correlate well with common innovation management systems described in literature. The final innovation capability areas are displayed in figure 5:
Following the reduction and display of data, the identified need for improving the practices of BI was identified. This is similar to the method used by Cormican & O'Sullivan (2004), where quantitative assessments of innovation capabilities were compared with theoretical best practices. However, instead of identifying gaps compared to theory based on quantity based ratings, the comparisons are based on qualitative assessments where both macro- and organizational factors are taken into consideration. Theory was questioned based on the results, in order to estimate the priority E.ON should have to improve each factor.

Based on the authors' estimates, the need for improving each factor was determined as either of high-, medium- or low priority. The factors classed as high priority were considered as critical for a good innovation management system. Medium priority factors were defined as clear, but not vital, improvement areas. Low priority means practices are considered to be of less importance for E.ON, already well developed, and/or expected to be improved by other efforts.

Afterwards, factors were grouped together based on priority levels and metrics, addressing the factors considered as high priority, were identified. This breakdown, from BI's capabilities as a whole to selecting metrics for central factors within each innovation capability area, is illustrated in figure 6.

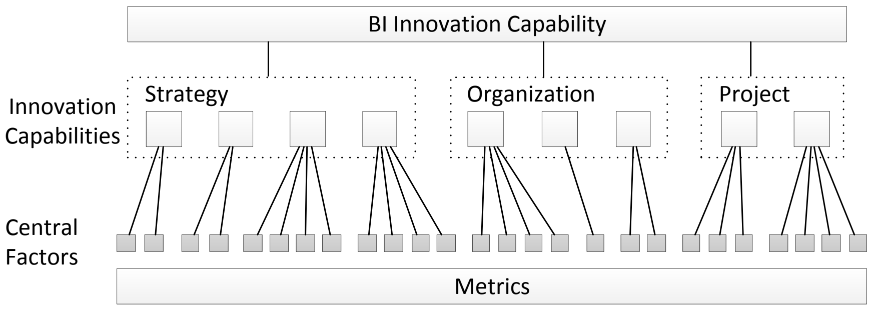

FIGURE 6: Schematic description of the analytical process.

3.4 Criticism of the Sources

Reliability and validity need to be taken into consideration for the relevance of the study. Our methods for creating information that is both as reliable, valid and objective as possible is described below.

3.4.1 Reliability

Empirical reliability may be defined as information that is believable and trustworthy. Attaining a high degree of reliability can be more complex in a qualitative study, since the data collection through semi-structured interviews and unstructured observations is more complex: bounded perception and bias means focusing parts of the information received rather than the whole picture. (Jacobsen, 2009)

The following precautions were taken in order to attain greater reliability:

- Having the questionnaire used for interviews reviewed by our supervisors
- Performing face-to-face interviews to minimize risk of misunderstanding
- Both authors participating on interviews to lessen risk of bias
- Both authors summarizing and recording interviews in order to revisit and compare information

3.4.2 Validity

Empirical validity can be defined as information that is relevant and correct. Validity can be improved by comparing it to other theory or empirics or by critically analyzing the sources, (Jacobsen, 2009). Continuously evaluating the progress, reviewing collected material & adding data are examples on methods for maintaining validity. We have aimed to reach a high degree of validity through the following measures:

- Weekly reviews and assessments of the work process
- Reviewing recordings and notes from interviews before paraphrasing
- Adding additional data through a second round of interviews

4 Empirics

In chapter 4, empirical information is presented, divided into three parts. The first part covers the macro factors affecting the utility industry. In the second and third part, an introduction to relevant processes at E.ON is presented, as well as findings in relation to this. The chapter is structured after the PESTEL-framework, and the findings are related to the nine innovation capability areas identified in the theory chapter.

4.1 Macro factors – Industry Specific

Bellow follows a PESTEL framework[2], used for describing which external environmental factors that affect companies within the industry.

4.1.1 Political Factors

The utility industry in Europe is highly regulated and affected by political decisions. For instance, current Swedish goals are set at increasing renewable energy sources to 50% of the total usage by 2020. The government steers towards this goal through regulations as well as economic incentives, such as carbon oxide taxes or energy certificates supporting producers of clean energy. (Energimyndigheten, 2011)

Sudden changes in politics can severely change market conditions. For instance, the 2011 nuclear power accidents in Japan affected nuclear power opinions worldwide. The German government decided to phase out nuclear energy in Germany: rendering prior investments in German nuclear power unprofitable. (Olsson, 2012)

Summarizing, utilities have been clearly affected by political factors during the last years. (Energimyndigheten, 2011; Olsson, 2012) As a result, when global utilities set global agendas, each regional unit is required to take political aspects into consideration and adjust the global innovation strategy accordingly. The importance of taking political factors into consideration can also be seen to increase the benefit of collaboration with governmental institutions.

4.1.2 Economic Factors

The energy utility industry is very capital investment heavy (Cannell, 2009). There are many examples of projects within the industry with a calculated return of investments stretching over decades. (PM 3, 2012) Changes in economic growth have been shown to affect investments in energy: the 2008-09 economic and financial crises resulted in utility companies launching cost cutting and operational performance programs to improve results. (Capgemini, 2011)

[2] PESTEL stands for "Political, Economic, Social, Technological, Environmental & Legal": and is a framework for analyzing macro-environmental factors.

Summarizing, utilities have been clearly dependent on economic factors, something which has become obvious during the last years. (Cannell, 2009; Capgemini, 2011; PM 3, 2012) As a result, utilities are required to take economic factors into consideration when setting innovation strategies.

4.1.3 Social Factors

There are few ways in how utilities may distinguish their products, since it is hard to add benefit or differentiate commodity goods such as electricity, gas or heating. (PM 2, 2012) Offering "green energy" is one option. However, while environmental issues are on the global agenda, a report by IBM shows that European customer willingness to pay more for green energy dropped slightly between 2007 and 2008, indicating that this differentiation is not enough. (Valocci, et al, 2009)

Simultaneously, younger demographics show strong willingness to pay monthly fees for energy management services or self-management tools. (Valocci, et al, 2009) This might be seen as a social trend towards increased consumer consciousness, which brings advantages for the industry in other regards as well. Energimarknadsinspektionen (2008) states that increased consumer involvement would result in an improved energy market with stabilized energy prices and lesser risks for energy shortages.

As a result, while customers have played a historically small part in the utility industry, social trends show increased customer consciousness and an increased possibility to create new energy services. (PM 2, 2012; Valocci, et al, 2009) Being able to involve customers in product development, as well as market trials, can therefore be seen as increasingly important within the utility industry.

4.1.4 Technological Factors

As shown in a survey performed by Arthur D. Little (2005), the utility industry is slow paced compared to other industries. This is something pointed out by a project Manager at E.ON RU Sweden as well; utilities still make most earnings on products that are centuries old. (PM 3, 2012).

It is however, still evident that the way energy is produced will change. For instance, fossil fuels are finite resources: as Campbell & Laherrère (1998) argue, it is only a question of "when" oil will become rare and expensive. Furthermore, utility technology is becoming more distributed and dynamic, with a higher degree of consumer control. IBM foresees that the utility industry is moving towards a participatory network, which is described as:

"A wide variety of grid and network technology evolves to enable shared responsibility, and consumers' strong interest in specific goals creates new markets, virtual and physical, and new product demands, which balances benefits more equally between the consumers and utilities". (Valocci, et al., 2009, p.3)

E.ON also believe that this is the direction where the industry is headed. (Olsson, 2012) As argued by employees, the development of self-supporting housing solutions risks decreasing the usage of current grid systems in the future. (Staff 9, 2012) Simultaneously, other demands for electricity may arise, such as an infrastructure supporting electric cars. (PM 4, 2012)

Summarizing, while the utility industry is historically slow moving, technological trends, as described by Valocci, et al. (2009), show that the technology is becoming more distributive and dynamic. In order to not risk losing competitiveness and being left behind, utilities need to become more exploratory. This can be argued to affect the design of portfolios, as well as the type of culture and incentives that should be promoted. It might also create a larger need for collaboration with external partners, and an increased importance of market trials.

4.1.5 Environmental Factors

As the intergovernmental panel of climate change is convinced that human activities have affected global warming (IPCC, 2007), reaching a low carbon society is on the global agenda. Global targets, as well as regulations have been set for this purpose. These are frequently discussed in global forums since further regulations are needed for the emission targets to be reached (Atomium Culture & Lund University, 2009). This topic is likely to stay on the agenda for the foreseeable future and may affect regulations, taxes, opinion and applied research (Energimyndigheten, 2011).

Emissions may be lowered through lessening demand, increase production efficiency, increase the production of renewable energy, or making other production cleaner through, for instance, carbon capture and storage (Atomium Culture & Lund University, 2009). Whichever method being discussed, large-scale utilities play a central role and will be affected by any law change or similar.

Summarizing, utilities are clearly affected by environmental changes, as these affect regulations, taxes, opinion and applied research. (Energimyndigheten, 2011) As a result, utilities are required to take environmental factors into consideration when setting innovation strategies.

4.1.6 Legal Factors

Besides the regulations and incitements described in previous chapters, other legal factors add complexity to the utility industry. In 1996, a free electricity market was established in Sweden (Regeringen, 2011). Now, all electricity produced in Sweden is sold to Nord Pool Spot, where prices are regulated and then sold back for consumption (Nord Pool Spot, 2012). As a result, the end consumers gain purchasing power. However, there is no direct connection between the producers and the end consumer.

Heating production does not need to abide to the same market rules, meaning heat can be sold directly to the end customer (Staff 8, 2012). Furthermore, grid services are considered functioning as monopolies, meaning that all grid services must be placed in a separate entity, and comply with specific regulations (Staff 1, 2012).

Summarizing, legal factors add complexity to organizational structure and the collaboration and communication between functions within a large-scale utility. (Regeringen, 2011; Staff 8, 2012; Staff 1, 2012). Due to this, organizational ambiguity easily occurs.

4.2 Formal Organizational Structure

In this section, the organizational structure and processes surrounding Business Innovation (BI) will be explained. This section mainly aims to give background information, with a mixture of today's structure and ongoing changes, in order for the next section, where findings in relation to innovation capabilities are presented, to be understandable.

4.2.1 Organizational Structure

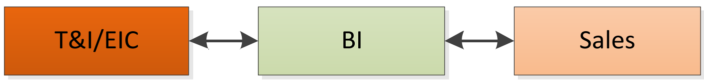

FIGURE 7: Schematic process over the innovation workflow for E.ON´s innovative cross-projects. (PM 5, 2012)

Technology & Innovation (T&I) is part of group management and sets the overall technological and innovation strategy for the E.ON organization and coordinate the global innovation portfolio. The *E.ON Innovation Center*s (EIC) are a part of T&I and they are divided into specific business areas. (Staff 3, 2012)

On a regional level, an innovation project might have the following process: *Business Innovation* (BI) coordinate and perform the project while Sales reviews it from a market perspective; through market trials and performing business cases (Sales group, 2012). After an identified market potential, Sales develop the concept and make it to a market-ready product. Finally, Sales creates an offer to the targeted customer (Staff 5, 2012). A figure of the schematic process can be found in figure 7.

4.2.2 Global Steering

T&I can be divided in three parts, where Innovation Energy System, Portfolio Management and Technology Scouting and have a more overall strategic responsibility, while the EICs´ have a more executive role. The EICs´ can be grouped into four focus areas: *Conventional generation*, *Renewable generation*, *Infrastructure* and *Sales & End Use*. Each EIC is responsible for approval upon suggested projects from regional units within their specific area. The suggestion has to meet certain targets. The projects are executed by the regional units. On a higher level, most projects belong to a certain EIC, by which the project budget is set and funded through. (Manager 2, 2012; Staff 4, 2012; Staff 10, 2012). The organization is illustrated in figure 8.

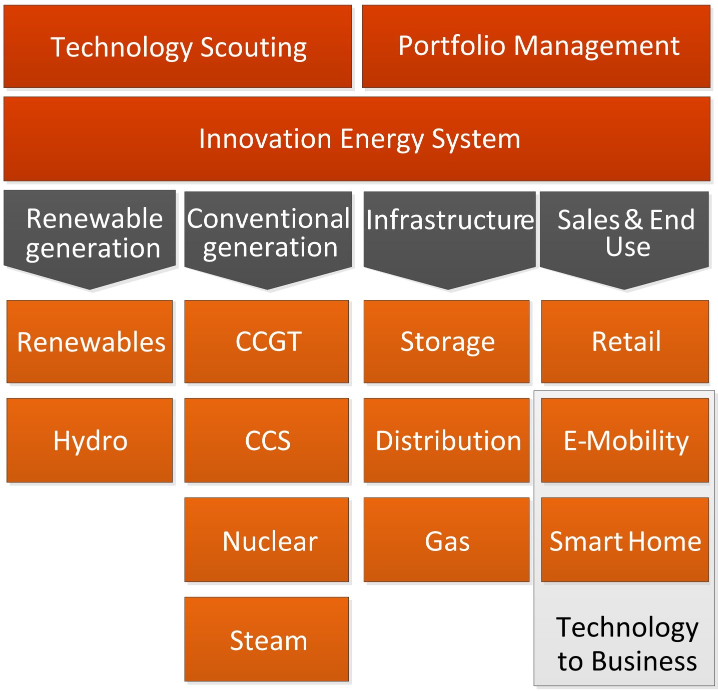

FIGURE 8: E.ON Innovation Centers (Staff 4, 2012; PM 5, 2012)

4.2.3 Business Innovation

The structure of BI is quite new and therefore still subject to change in the near future. At the moment BI consists of three major areas; Program Office (PO), Innovation Office and cross-functional projects. The purpose of the department is to deliver and support projects and project management, create and maintain a structure for innovation and facilitate for cross functional project managers (PM) to deliver their project results. Finally, BI has the responsibility to keep an overall strategic view of the innovation within E.ON RU Sweden. (Staff 7, 2012)

Within the BI organization there are at the moment eight project Managers leading cross functional projects. The project members are represented from different subsidiaries and external partners. The size of the project can differ quite a lot, since E.ON has projects covering both small technical test of new technology and large projects, such as building sustainable city districts for the future. (PM 5, 2012; Staff 7, 2012)

4.2.4 Project

The Project Manager receives the responsibility for the project result, when the project has been approved (Staff 7, 2012a). During the screening process, the framework for the project, such as initial scope, timeframe, budget and goals, are developed together with the Regional Unit (RU) (PM 5, 2012).

The project group consists of employees from those business units who contribute with relevant expertise to the project (Staff 7, 2012a), with Sales as a frequent member, bringing Sales perspective early in the process (Sales group, 2012), and making the transition later onto the market and sales departments easier (PM 5, 2012). Other participants for a project can be consultants or various collaborators, when the needed competence does not exist in-house. There are, for instance, R&D projects run together with universities, other companies, or the government (Staff 7, 2012a & Staff 6, 2012).

The project steering group has the purpose of supporting the project in both decision making and eventual information input. The members can consist of stakeholders from all parts of the organization, with the authority to make major decisions how to carry out the project. (PM 5, 2012)

4.2.5 Sales

One of Sales purpose is to investigate future business opportunities for E.ON, by running pilot projects and trying new business models (Staff 5, 2012). These can be projects handed over from other parts of E.ON or initiated by Sales (PM 5, 2012). The handover from BI to Sales is often based on a longer collaboration within BI's projects (Sales group, 2012). Sales create deep business cases for decision making in whether to integrate the project into Sale's product portfolio (PM 5, 2012). If the business case has good opportunities, a concept is developed and the project is passed on for development of the product. If however, a concept from BI already has a known market and a developed business case, the project is handed over directly to the development department at Sales, where it is introduced to the market directly. (Staff 5, 2012)

4.3 Innovation Capabilities

The section below describes in general how E.ON works within the different fields on the Nordic market. It is mainly based on interviews and observations.

4.3.1 Strategy - Innovation Strategy

Technology development is important for E.ON, who aims to play an active role in steering the society into tomorrow's energy solutions (Staff 3, 2012). Therefore, the technology and innovation strategy set by group management has a clear technology focus. The innovation and technology strategy is followed by the E.ON Innovation Centers (EIC) and later broken down by each EIC. (Staff 7, 2012a) Since Business Innovation (BI) is a quite new department, they are still improving the innovation- and portfolio strategy. (Staff 7, 2012)

The global technology and innovation strategy is yet to be completely communicated to the regions (Staff 3, 2012), the work has started but not finished. Because of that, many employees within E.ON Regional Unit (RU) Sweden still have different understanding of the innovation strategy, since the current innovation strategy differs between different Business Units (BU), from clear to fuzzy to nonexistent. (Staff 1, 2012; Staff 5, 2012; Staff 6, 2012)

Since the market is about to radically change, E.ON finds it challenging to set the innovation strategy, (PM 2, 2012). Even communicating innovation can be seen as tricky since E.ON is currently making major organizational changes. (PM 5, 2012)

4.3.2 Strategy – Incentive Program

According to employees, it is experienced to be low incentives in working with the cross functional projects at Business Innovation (BI). There is currently no system for sharing ownership or profit from a cross-functional project covering different BUs. Seen from an incentive perspective, it is the revenue for the own unit that counts. Therefore it happens that subsidiaries are better of focusing on their own business rather than looking at E.ON as one company. (PM 3, 2012; PM 4, 2012; Sales group, 2012; Staff 9, 2012)

As for individual incentives, the incentive program at E.ON RU Sweden sets compensation based on the result of the E.ON Group, the performance of the RU, and on individual goals set together with the employee's Manager. (PM 5, 2012)

4.3.3 Strategy - Measurement System

The measurement activities on an operational level vary between different BI-projects, but usually are only time, budget and goal fulfillment used. These are followed up by the steering group. (Staff 6, 2012; PM 1, 2012; PM 2, 2012; PM 3, 2012; PM 4, 2012; Staff 1, 2012).

According to the interviews, some project managers (PM) are satisfied with simpler "trend arrows" or "traffic lights" as reporting tools for a complex project's progressing (Manager 2, 2012; Staff 10, 2012). However, the current measurement system only measures on expected deliverables which makes the ability to change the direction of a project much harder. (PM 2, 2012) At the moment, BI is not following up any measurement data for strategic purpose, due to the newness of the department (Staff 7, 2012a).

4.3.4 Strategy - Project Portfolio & Project Selection

The innovation portfolio setup is divided into the different EICs, where the EIC is responsible for projects within its field. Projects can be suggested by the regional units and a proposition is then created, stating a basic description, budget and time plan to the EIC (Staff 10, 2012). While not fully up and running yet, BI´s role will be to overview the E.ON RU Sweden's business interest to make sure that development projects meet market's need. The department is to give feedback to EICs concerning the fit of a specific project to the regional market. Ultimately, granting a budget is still the EICs decision to make. (Manager 2, 2012)

At the moment, the development budget is separated between the different EICs and later on it will also be sorted by height of innovation. The goal is to develop a portfolio strategy, which clearly shows the level of innovativeness. (Staff 3, 2012)

When asked about the division between the categories of finance, process, product and offer, suggested by Keeley (2004), E.ON estimated a main focus on process and product. (Staff 3, 2012; Staff 7, 2012b; PM 5, 2012) BI does not yet have a system for dividing its budget over different innovation categories. Still, BI is able to analyze its portfolio from different perspectives: a quick assessment performed by PO estimated a clear focus on projects of large innovation height and an even spread of investments across finance, process, product and offer. (Staff 7, 2012b)

For the concept screening process itself, it is mostly based on strategic fit and the correlation to other projects in the portfolio. (PM 4, 2012) Projects funded by an EIC go through a screening process that is based on two gates. During gate one, the strategic fit is mostly up for review, while gate two focuses more on financial measurements, such as for example estimated return of investment. (Staff 4, 2012) There is some ambiguity in how projects can be completely objectively compared and selected based on these two criteria, since financial numbers often are hard to approximate. As one employee explains, there is often a discussion and an agreement between the sponsor and the applicant before any applications are sent, making the written application a formality at times. (PM 4, 2012) Currently, the innovation system varies within E.ON RU Sweden; some subsidiaries are using independently well developed selection systems. For example, Heat selects and compares concepts based on weighted criteria such as “level of innovativeness” and “customer-benefit”. (Staff 8, 2012)

4.3.5 Organization - Collaboration & Culture

The communication between innovation work on global level and regional level is considered to be frequent and work well both between departments and EICs and projects, (PM 4, 2012; Manager 1, 2012). When it comes to communication with external parties, many BI projects have a wide network, from governmental departments to contractors. As the purpose of BI projects often is to gain knowledge or explore the future energy solutions, searching for knowledge outside of the organization has come without enforcement. (Staff 6, 2012; PM 4, 2012; Team Meeting 2, 2012; Team Meeting 1, 2012)

One of the challenges discovered through interviews, was the lack of information and experience sharing from innovation work. Today, there is no sufficient system for this, resulting in an overall lowered organizational transparency. (Staff 1, 2012, BI-Head, 2012) It is yet to be formalized how internal and external collaboration is handled at BI, and this is being looked over by the PO. (PM 5, 2012) BI aims to improve the overall collaboration between the units in cross functional projects: through contributing with a formalized process towards T&I, supporting in acquiring a budget and providing projects with PMs and a project methodology. (Manager 1, 2012)

Within the cross-functional BI projects, there is no formal handover from technology development to other departments, such as Sales. The handover occurs somewhat gradually, based on the need of each individual project. When it comes to collaboration between the units, Sales is represented in all customer focused projects where BI is involved. (Sales group, 2012)

The communication between BI and Sales happens mostly through project meetings. According to Sales, they would like to improve the numbers of different communication forums since project meetings are not optimal for every discussion. Sales, often in collaboration with Heat, perform various exploratory activities. There is mention one specific activity mentioned by Sales employees, called “Creative rooms”, used for idea generation and need finding. Maybe, BI also could gain from participating in these activities in the future. (Sales group, 2012)

When it comes to innovation culture, employees have declared that E.ON is a conservative company that lives on old innovations, as the methods for producing and delivering energy has not been radically changed during the last century. (Manager 2, 2012; PM 3, 2012). New ideas are hard to promote: one PM stated that lengthy procedures and strong individual efforts are required to promote larger innovative projects. In a few cases, low priority from participating BUs has been experienced: making the BI PMs require formal support from management board to move the project forwards. Furthermore, employees have stated a willingness to continue to improve the innovation culture. (PM 3, 2012; PM 2, 2012)

4.3.6 Organization - System for Processing Customer Needs

While prominent in handling customer needs within its traditional business areas, employees have expressed that E.ON is not being proficient in handling the needs that go beyond the traditional business model. Today, collecting information about customer needs is not a task performed by BI, instead Sales is responsible for this area. (PM 2, 2012; Staff 6, 2012; PM 5, 2012) Historically, customer needs has not been of high matter within the utility industry since the end product, electricity or heat, does not improve in the eyes of the customer. (PM 2, 2012) Since BI does not work actively with customer insight, most customer experience comes through the market trials performed by Sales, usually towards the end of the project process. (Staff 7, 2012a)

When it comes to different subsidiaries within E.ON RU Sweden, there is a clear difference in how BUs work with customer needs. The less regulated Heat sell products directly to customers and have a well-developed collaboration with Sales when it comes to processing customer needs. Heat participate in customer meetings, and receive ideas from Sales, which have contact both with customers and universities. For Heat this has for long been a natural process since they own the whole value chain from production to customer. Heat also uses a databank for collecting ideas from employees. (Staff 8, 2012) Regarding Sales, the department has frequent meetings concerning customers and competitors and the department acknowledges that the customer knowledge gathered within Sales could be used and communicated even more widely internally. (Sales group, 2012)

4.3.7 Organization - System for Processing Experience

There are no formal assessment methods utilized by BI PMs, instead the managers apply informal methods for project assessments. There is a formal assessment method that is currently being developed and spread within the organization, which uses “traffic lights”. (Team Meeting 2, 2012)

Projects that are funded by EICs go through decision gates that have a follow up process: where the projects are reviewed. These reviews are performed within the specific EIC, where the project belongs. Since the process is performed within each EIC, there is at the moment no good solution to create a regional overview. This has made the ability to spread and share experiences within the regional unit somewhat difficult. (Staff 4, 2012, Staff 7, 2012) When it comes to knowledge and experience sharing from innovation work, there is no general system for this. The gathered information about project status is stored on global level at the moment. However, the regional level could gain from taking part of this information as well. (Staff 7, 2012; PM 4, 2012; PM 1, 2012)

E.ON RU Sweden does not have an official system for storing and processing experience from innovation work in general. While some see benefits in a common system (Staff 9, 2012), others see information spreading through word of mouth as sufficient. (Staff 10, 2012)

4.3.8 Project - Structure & Methodology

The BI projects are experienced to all have clear role assignments, both within, and surrounding the project (PM 1, 2012; PM 2, 2012; PM 3, 2012; PM 4, 2012; Team Meeting 2, 2012; Team Meeting 1, 2012). As previously mentioned all cross functional projects are managed through BI and have their own project manager; who is responsible for the project result. Program Office also has a clear role at BI, providing support to the managers and coordinating from a RU Sweden perspective. (Staff 7, 2012) On a higher level, all projects belong to a certain EIC.

BI aims to improve supporting documents for project methodology and structure that can complement or replace the current official project methodology templates for E.ON RU Sweden. (Manager 1, 2012). At the moment there is no official project methodology used by BI, since the existing one is in Swedish and cannot be used due to the new organizational structure. (PM 5, 2012) However, there are still some guideline templates that E.ON RU Sweden has, that can be used and are used by some PMs. Since the guidelines are not up to date, they are currently being redesigned. (Staff 4, 2012)

The awareness of the project methodology templates varies widely within E.ON RU Sweden. Some of the PMs are well introduced to them and uses them in their projects, while others are not even aware of their existence. (PM 1, 2012, PM 2, 2012)

4.3.9 Project - Resources

BI supports RU Sweden projects in their communication and reporting to the EICs. Manager 1, 2012) Bringing technology developments to market can be quite a challenge within E.ON. This because, the technology development is funded by group management, whiles the market trials is funded by regional units. Since the innovation process is divided on two different budgets, there is no guarantee for a project to move on to a market trial. (Staff 7, 2012; PM 4, 2012) Nevertheless, Sales pointed out that the department is satisfied with its overall approved project proposals. (Sales Group, 2012) However, they would like to find a better solution for making minor early market trials, since this have been experienced as difficult by employees. (Staff 5, 2012; PM 4, 2012)

Since the decision on market trial is often made towards the end of the project it can be difficult for Sales to quickly respond to the decision due to limited human resources. Sales would prefer a better structure for how the investments are divided between market and technology trial. They would also prefer an improved process for initiating a market trial. Today, it is not a common sense for E.ON to easy try and let go of projects. Some employees have expressed that it would be preferable if Sales could easier test and learn in the new product development process, but this needs dedicated budget and resources. (Sales group, 2012; Staff 5, 2012)

In the cross functional projects, there are members from different business units and together they represent a wide variety of competence. (Team Meeting 2, 2012; Team Meeting 1, 2012) In order to ensure the customer perspective, sales are always involved in cross functional projects with market focus, from an early stage. (Manager 1, 2012; Staff 2, 2012)

Regarding recruitments, BI PMs have experienced recruiting personnel from BUs to be challenging in general. Since the cross functional project members are employed by different business units, most project members will keep their everyday task to handle, besides being a part of the project. Some PMs have highlighted, that they would like to have a better solution for this, where lending employees from BU become easier and incentives support cross-functional projects. (PM 2, 2012) Through interviews, it was also described how there is no formal recruitment process for cross functional projects to rely on: often resulting in the recruitments being made through the personal network of the PMs. (PM 3, 2012, PM 4, 2012)

5 Analysis & Discussion

The chapter consists of three main parts. Initially, theoretical innovation capabilities are compared with results from the case study. Moreover, conclusions of BI's need to improve each central factor are estimated during this comparison. Metrics are then developed based on the factors that are considered to be of high priority. This is followed by a conclusion and recommendation.

The central factor of each innovation capability identified in the theory chapter is compared with the macro factors of the utility industry, as well as BI- or E.ON's organizational factors. Each central factor is analyzed and discussed from both a theoretical and practical perspective: the needs of improving these practices are thereafter estimated based on the following categories.

- High priority
- Medium priority
- Low priority

In order to be classed as high priority, factors need to be considered as critical for a good innovation management system. Medium priority shows clear, but not vital, improvement areas. Low priority means practices are considered to be of less importance for E.ON, already well developed, and/or expected to be improved by other efforts.

5.1 Strategy - Innovation Strategy

The first central factor within innovation strategy has been identified as having a clear innovation strategy, guidelines and goals (Davila, et al., 2006) As shown in the empirics, utilities have been clearly affected by political, environmental and economical factors during the last years (chapter 4.1.1, 4.1.2 & 4.1.5). In the case of E.ON, when global utilities set global agendas, each regional unit is required to take these aspects into consideration and adjust the innovation strategy accordingly. A global technology and innovation strategy exists created by group management, but with a distinct focus on technology rather than business development. The last updated version of strategy is yet to be communicated entirely to the rest of the organization and has therefore created different perceptions of what the strategy are among the employees. (see chapter 4.3.1)

While the initiatives at group management can be seen as a move in the right direction, all changes have not yet been executed: which has led to confusion among regional PMs. The global innovation strategy would benefit from further development in order to cover business strategy as well, something that group management are aware of and is working on improving, currently being in the process of collecting data to estimate investments in incremental- and radical innovations. There are no empirical findings supporting a disagreement on the theoretical central factor of having a clear innovation strategy, guidelines and goals. (Davila, et al., 2006; Goffin & Mitchell, 2005) On the contrary, macro-based evidence strengthens the need for a regionally adjusted and up-to-date innovation strategy for utilities. BI are therefore in need of having a clearer innovation strategy, guidelines and goals. This is expected to be communicated by T&I, but has to be adjusted to suit the regional unit afterwards. Summarizing, BI's need to improve the factor is estimated to be of high priority.

Focus on multiple innovation areas and levels of strategy has been identified as the second central factor within innovation strategy (Keeley, 2004; Martin, 2009). The empirics from E.ON show that E.ON Group have a mixed innovation portfolio based on different EIC areas. On a regional level, BI do not currently have a clear and fully developed portfolio strategy. This is considered being mainly due to the newness of the department. (see chapter 4.3.1)

Measuring and analyzing the balance of incremental- and radical projects in a portfolio aligns well with theory. However, taking the balance of investments within Keeley's innovation dimensions into account would improve the usefulness of the portfolio system even more, as a larger platform of innovation areas would be taken into consideration. BI's lack of a mixed portfolio strategy is understandable due to the newness of the department and newness of T&I, since T&I do not yet have an updated framework to offer as a foundation. This becomes a clear issue, as the regional macro-environmental factors strongly require regionally adjusted strategies, as for instance regional politics affect favorable areas of investments. BI would benefit from developing a mixed innovation project portfolio strategy, both for decision-making and for communication with group management. If BI were to keep track of their own mixed portfolio, communication with T&I would improve as it would be easy to pinpoint investments. There is no disagreement with Keeley (2004) or Martin (2009) found within the empirical data, rather an agreement that improvement is needed. In conclusion, BI's need to improve the factor is estimated to be of high priority.

5.2 Strategy - Incentive Program

The encouragement for departments to participate in cross-functional projects has been presented as the first central factor for incentive programs (Wang & Yuanjie, 2008). While the utility industry is historically slow moving, technological trends, as described by e.g. IBM, show that technology is becoming more distributive and dynamic. In order not to risk losing competitiveness and being left behind, utilities need to become more innovative. As shown in the empirics, incentives should exist for exploratory efforts and problem solving. (see chapter 4.1.4) The results from E.ON present that E.ON RU Sweden provide no formal incentives for subsidiaries participating in cross-functional projects led by project managers from BI. This is due to the gains from cross-functional projects not being equally distributed to the participating subsidiaries. This has been perceived as a challenge by both project managers and the strategy department at E.ON RU Sweden, as it sometimes has led to difficulties in receiving commitment from subsidiaries in some projects. (see chapter 4.3.2). Since E.ON was established, incentives for innovation have historically not been highly prioritized. The current technological trends within the industry now support Davila, et al. (2006) meaning that rewarding innovativeness has become more important among utilities. Therefore, in alignment with theory concerning incentives, many employees highlighted need of incentives for participating in innovation projects as crucial for business improvement within E.ON. Summarizing, E.ON's need to improve the factor is estimated to be of high priority.

An incentive program with individual incentives for problem solving and exploring has been considered as the second central factor (Martin, 2009). As seen in the case of E.ON, some parts of the individual rewards are based on the organization´s financial performance. On the other hand, a large part of the incentive is based on personal goals set by the employee and his/her manager. (see chapter 4.3.2) There are ways of promoting exploration when setting individual goals, if supported by the manager. In order for managers in business units to support individual incentives for innovation on a cross functional level, it is required that the business units experience benefit from participating in cross-functional BI projects. As a result, since the two factors are related, improving the practice of the first factor will improve the second. Innovation incentives at a business unit level, combined with a flexible individual incentive system, would allow for innovation in a less rigid way then a top-decided incentive. This is especially true when the incentives are developed in collaboration with involved employees. Because of this reason, there is no real need to develop the specific individual incentive suggested by Martin (2009). Summarizing, E.ON's need to improve the second factor is estimated to be of low priority.

5.3 Strategy - Measurement System

Central factors for well-functioning measurement systems have been defined as systems using metrics both on a strategic- and an operational level (Ahmed & Shepherd, 2010), and metrics covering the whole NPD process (Källman & Sandqvist, 2010). The system is to assist in defining and communicating the company strategy, monitoring performance and identifying new opportunities (Goffin & Mitchell, 2005). It is also considered preferable if systems store prior measurements and make them traceable so that diagnostics based on historical data may be performed (Nicholas, et al., 2011).

The empirics from E.ON show that there are no metrics being used on a strategic level by the newly developed BI. On an operational level, PMs at BI are required to deliver variables to the project supervisors. These variables vary, but are usually throughput-based and consist of budget, time and activity/result. The operational measurements are mainly used in a diagnostic purpose and the results from projects are currently not stored in a formal way that allows performing diagnostics on regional level. (see chapter 4.3.3)

As currently only operational metrics measure throughput, there are gaps between the theoretical central factors and BI's practices. BI would benefit from developing a measurement system for the program office to use, in order to perform diagnostics and to be able to analyze the development of its practices. Strategic measurements would help BI to improve and communicate their input, processes and output, while operational measures would help PMs in determining how projects are progressing. There is no identified result suggesting a contradiction to theory, as BI request a more complete measurement system, and the main reason for BI not having a more well-developed system is the newness of the department. As a result, BI's need to improve its measurement system is estimated to be of medium priority.

5.4 Strategy - Project Portfolio & Project Selection

The first central factor identified in theory is the alignment of the project portfolio with the innovation strategy (Tonnquist, 2012). As the empirics from E.ON point out, the innovation strategy has yet to be revealed by T&I, the relation between the portfolio controlled by BI and the upcoming innovation strategy is difficult to assess (see chapter 4.3.4). As the EICs fund most of the projects, they are likely aligned with the global business strategy. Nevertheless, it is ambiguous how the portfolio of BI aligns with the new technology and innovation strategy. There are no results indicating a contradiction to theory: on the contrary, some employees have expressed confusion and hope for improvement. This naturally requires that T&I unveil their innovation strategy first; still it has to be considered of BI´s interest to understand the correlation between its portfolio and the innovation strategy at T&I. Summarizing, BI's need to improve the factor is estimated to be of high priority.

The next central factor considered, has been whether the portfolio is divided into multiple areas, such as innovation dimension and height of innovation. (Keeley, 2004; Davila, et al., 2006) As shown in the empirics, utility technology is becoming more distributive and dynamic and it is becoming increasingly important to make sure that the project portfolio covers new technologies, as well as business solutions. (see chapter 4.1.4) In the case of E.ON, BI is newly developed and do not currently have a formal portfolio system. It is, however, assessed that the projects within BI cover all dimensions suggested by Keeley and have a high degree of innovativeness. (see chapter 4.3.4) While thorough portfolio management has been of less importance within utilities, technology trends indicate a larger applicability of portfolio management models. BI is currently only managing a handful of cross-functional projects, which decreases the importance of a system. Still, not using a formal project portfolio system leads to some ambiguity and lessens focus on which innovation dimensions resources are invested in. This will become increasingly problematic if the department grows. Developing a clear portfolio system would create transparency and improve communication to both the PMs and T&I. In conclusion, BI's need to improve the factor is estimated to be of high priority.

The third factor concerns how well project selection is supported by guidelines and criteria systems. (Nicholas, et al., 2011). The empirics from E.ON show that EICs perform the concept screening on those projects that apply for funding. The screening is mostly based on a subjective assessment of strategic fit, but on financial estimations as well. BI is to support the PM and may review the applications before they are sent to T&I. For their internal projects, Heat uses another system with more criteria, taking factors such as "level of innovativeness" and "customer-benefit" into consideration. (see chapter 4.3.4) Project selection is further developed compared to portfolio management at BI. Concept suggestions are currently evaluated based on two factors, where one is numerical and one non-numerical. While these factors are relevant, the subsidiary Heat has a further developed selection system for assessing the quality of projects, which BI could be inspired by and take into consideration before applying to T&I. Overall, the criteria systems align well with the one suggested by Nicholas, et al. (2011) and there are no results conflicting with theory. Summarizing, BI's need to improve the factor is estimated to be of low priority.

The last central factor for project selection concerns whether they are evaluated relative to other projects in the portfolio when selected (Nicholas, et al. 2011). Seen in the case of E.ON, as EICs make the assessment concerning strategic fit, the concept is compared to the existing projects within the portfolio. (see chapter 4.3.4) The practice aligns well with theoretical suggestions and is considered to work satisfactory. Moreover, if the portfolio management was to improve with a larger range of analyzable data, so would the assessments without any additional undertakings. As a result, there is no visible conflict with theory, and the practice is to improve if other factors are focused on. BI's need to improve the factor is estimated to be of low priority.

5.5 Organization - Collaboration & Culture

The existence of both formal and informal communication channels throughout the organization is a central factor. (Kahn, et al., 2012) As shown in the empirics, legal factors add complexity to organizational structure and how functions may collaborate and communicate within a large-scale utility; meaning organizational ambiguity easily occurs. (see chapter 4.1.6) As seen in the case of E.ON, there are several formal and informal communication channels connecting BI to the rest of the organization. These can be seen as complementary, aligning with what is suggested in theory. While the communication with T&I is well-developed and works satisfactory according to BI employees, the communication with Sales mostly occurs through project meetings. Sales have expressed an interest in creating more forums. Employees within E.ON RU Sweden have pointed a need of improvement for information and experience sharing from innovation work. (see chapter 4.3.5)

During the study, no collaboration issues between T&I and BI were noticed. When it comes to collaboration with Sales, increasing the amount of communication channels between BI and Sales would be beneficial according to both sides. As employees point out, there are currently fewer forums than would be optimal. Summarizing, BI's need to improve the factor is estimated to be of medium priority.

Factor number two concerns how well exploration occurs widely across the organization. (Martin, 2009) The empirics from E.ON show that the projects run by BI are, to a certain extent, exploratory by nature: often aiming to develop understanding and solutions for future business areas. There are also other forums for exploration within E.ON RU Sweden and its subsidiaries: both Sales and Heat arrange various need-finding-based activities, which BI currently do not take part in. (see chapter 4.3.5) The way BI projects tend to operate is in line with suggestions by Martin (2009), which is experienced to work well. Nevertheless, practices could be further improved: BI could take part of some of the activities arranged by Sales in order to explore more. Furthermore, common need-finding activities would be a natural way to increase the amount of communication channels with Sales. In conclusion, BI's need to improve the factor is estimated to be of low priority.

The third central factor concerns how well management support entrepreneurship and allow failure, understanding that it is a necessary part of innovation (Järrehult, 2011; Kahn, et al., 2012). As shown in the empirics, the technical trends can also be argued to point at an increased need for a more innovative culture within large scale utilities. (see chapter 4.1.2) As seen in the case of E.ON, the majority of the interviewed PMs have expressed a feeling of rigidity in the culture at E.ON. (see chapter 4.3.5) While an innovation culture, as argued in theory, has not been of importance among utilities to the same extent as within other industries, trends show that this is changing. Rigidity in culture lessens the possibility of developing minor ideas and experiencing failures, which hurts the ability of test spinoff projects and promoting innovation among employees. While not all ideas have to be pursued, not allowing trial and error in a smaller scope is problematic, since trying is a great way of learning. Moreover, failing early does not have to be expensive. Summarizing, BI's need to improve the factor is estimated to be of high priority.

The last central factor for collaboration and communication is stated as how well collaboration occurs with a heterogenic group of external partners. (Brettel & Cleven, 2011). As seen in the empirics, the political and technological trends indicate an increased importance of collaboration with external partners within the utility industry (chapter 4.1.1 & chapter 4.1.4). Shown in the empirics from E.ON, the projects supervised by BI tend to have a wide range of collaborative partners. Focus groups with customers are held by Sales, but there is currently no formal way of sharing customer insight between BI and Sales. (see chapter 4.3.5). As a result, political and technological factors increase the importance of a wide collaborative network, strengthening the arguments made by Brettel & Cleven (2011) even more.

This practice is well developed within the BI projects. Yet, there are examples of subsidiaries with activities with external groups where it would be beneficial for BI to be involved, such as Creative rooms at Sales. As a conclusion, BI's need to improve the factor is estimated to be of low priority.

5.6 Organization - System for Processing Customer Needs

The central factor identified for a system processing customer needs, addresses how customer- and market input is received and taken into account throughout a project, through various activities (Goffin & Mitchell, 2005; Cooper, et al., 2004b). While customers have played a historically small part in the utility industry, social trends show increased customer consciousness and a larger possibility to create new energy services. As shown in the empirics, the ability to process and understand customer needs is therefore increasingly important within the utility industry. (see chapter 4.1.3) As seen in the case of E.ON, PMs have expressed that BI do not gather customer needs that go beyond the traditional business model or are flexible at taking them into account. Market trials are usually only performed towards the end of the development process. (see chapter 4.3.6) While previously considered less important, social trends show it is currently becoming increasingly important for E.ON to involve customers in its NPD processes, supporting Goffin & Mitchell (2005) and Cooper, et al. (2004b). Among the BI projects, there is currently no common structure for involving customers or performing market trials until the concepts are reaching their final stage. This is an issue that can be seen as closely related to the culture of not supporting smaller trial and errors. The argument can be made that all BI-projects stem from needs identified at T&I, however, BI would likely be better off in receiving customer input more frequently throughout the development process, rather than mainly during the beginning- and end stage. Summarizing, BI's need to improve the factor is estimated to be of high priority.

5.7 Organization - System for Processing Experience

A central factor for processing experience concerns how well projects are continuously assessed as well as reviewed, according to Tonnquist (2012). The empirics from E.ON point out that a formal reviewing process exists for the projects funded by the EICs. While the projects are reviewed after completion, BI do not have a system for storing this information. A formal method for project assessments is currently being developed. (see chapter 4.3.7) If BI was to improve their experience storing capabilities by having the program office collecting and processing reviews, it would allow their PMs to quickly gain knowledge from each other. This would be especially important if the turnover of PMs was high, or if the number of PMs were to grow. There have been no results contradicting theory: as a conclusion, BI's need to improve the factor is estimated to be of medium priority.

The second factor covers making sure both successes and failures are benchmarked and developed into checklists for future projects (Riek, 2001). As seen in the case of

E.ON, as BI do not store this type of data, developing checklists through the suggested process is not possible. (see chapter 4.3.7) Since it is essential that information is stored before this can be done, having checklists based on previous trial and errors can be seen as a “step two”. Nevertheless, this would support less experienced PMs and be beneficial for BI. Summarizing, BI’s need to improve the factor is estimated to be of low priority, and dependent of the first central factor. Furthermore, there is no contradiction to theory observed in the result.

5.8 Project - Structure & Methodology

The first central factor concerns clear roles and tasks between the project manager and sponsor, as well as within the project group. (Tonnquist, 2012; Fleming & Koppelman, 1998) As shown in the empirics from E.ON, the organization has a clear system for how roles around a project are divided (see chapter 4.3.8). The system for how projects are owned, managed, and supported is experienced to be well known and solid, with no actual need for improvement: aligning well with what is suggested in theory. Summarizing, BI’s need to improve the factor is estimated to be of low priority.

Availability of a process structure including standard documents and checklists supporting the PM in creating a project structure is the second central factor (Tonnquist, 2012). As seen in the case of E.ON, while BI do not have an official model for project methodology, E.ON RU Sweden have guideline templates which are used by some PMs. As these guidelines are not up to date, they are currently being redesigned. BI are aiming towards developing a more specific project methodology for projects within E.ON RU Sweden. (see chapter 4.3.8) As the old documents have not been well known among the PMs, and new are currently being developed, waiting for the new documents to be released before adjusting them to suit BI’s specific needs is probably most suitable. Summarizing, BI’s need to improve the factor is estimated to be of low priority, as other functions are working on improving it. There is a clear alignment of BI’s practices and what is considered as central in theory.

The last central factor for project structure and methodology concerns how well the PMs are educated and informed in how to use the supportive tools for developing their projects. (Tonnquist, 2012) The empirics from E.ON show PMs describing the use of a formalized guideline template, as well as PMs describing lack of support for developing a project. (see chapter 4.3.8) The awareness concerning the supportive tools has varied between the employees, which has led to some PM finding their own solutions which has been quite time consuming for both PM and project. While BI were not developed when the current BI projects were initiated, future PMs should be supported with information concerning the supportive tools. Summarizing, BI’s need to improve the factor is estimated to be of medium priority, and there is no observed result contradicting with theory.

5.9 Project - Resources

Sufficient investments in both technology- and market trials, are stated as the first central factor for project resources (Czernich, 2004). As seen in the empirics, social- and technology trends show an increased importance for utilities to involve customer- and market input. (chapter 4.1.3 & 4.1.4) The empirics from E.ON show that while there are dedicated resources for funding technology trials within E.ON, market trials do not have dedicated resources in a similar way and usually occur towards the end of the projects. A better balance between market- and technology trials have been seen as preferable from multiple employees. (see chapter 4.3.9) Current trends show stronger customer influence, meaning that utilities need to involve customers more. It is therefore important to increase the priority of performing market trials and gaining customer input. Experienced as an issue by some employees at E.ON RU Sweden, it is important to make sure that market trials may be performed continuously. As a suggestion, this should be considered already during the initiation phase of a project. In conclusion, E.ON's need to improve the factor is estimated to be of medium priority.

Cross-functional project teams are the second central factor (Cooper & Kleinnschmidt, 2007; Dyer, 2004). As seen in the case of E.ON, most projects within BI are cross-functional and include representatives from many departments. The projects of all interviewed BI PMs include a representative from BU Sales, providing a business perspective. (chapter 4.3.9) This is a practice that is experienced as well developed. BI's practices align completely with what is suggested in theory, are seemingly working well, and therefore in low need of improvement.

The third central factor is whether recruitment to the project team is performed by the resource owner (Tonnquist, 2012). The result from E.ON points out that the PMs at BI recruit project team members through an informal system, and recruitment to the projects have been conducted by the PMs themselves. (see chapter 4.3.9) This affects the ability to develop project teams, and to receive the right competence. In theory, this should be done by the project sponsors and as there is no real experienced benefit from the PMs, rather the contrary, there is no suggestion that E.ON is better off with its current practices. Nevertheless, current teams are experienced as cross-functional, including required competencies. In summary, BI's need to improve the factor is estimated to be of medium priority.

The fourth and last factor is recruitment based on competence (Cooper & Kleinnschmidt, 2007; Tonnquist, 2012). As seen in the case of E.ON, recruitment have largely been based on the personal network of the PM; convincing BUs to dedicate personnel has been experienced as difficult by many PMs at BI. (chapter 4.3.9) The improvement of this factor is clearly connected to the way of recruitment. Letting the steering groups handle recruitment could, for instance, ease negotiations with subsidiaries. Summarizing, E.ON's need to improve the factor is estimated to be of low priority, since it clearly would be positively affected if the recruitment process were changed. There is no contradiction to theory observed in the empirics.

5.10 Summary

Summarizing, the results show many macro-factors strongly affecting the utility industry, such as political decisions and legal regulations: shaping both company structure and internal collaboration. Moreover, it is clear that utilities are experiencing major changes in social- and technology trends: resulting in a more disruptive and dynamic industry.

The utility industry is therefore becoming increasingly similar to other industries: the innovation management literature presented in the thesis can therefore also be considered to be ever more applicable. An example of this is how innovation culture and customer involvement is becoming vital for utilities. As a result, innovation capabilities such as innovation strategy, incentives for innovation, collaboration & culture, and processing customer needs have become increasingly important for utilities.

E.ON RU Sweden and BI have shown to be well developed in many areas important for utilities. However, according to the study, the organization can gain from improving the recommended high priority innovation capabilities. As a result by new conditions within the industry, a clear majority of the high priority factors can be seen as innovation capabilities that have recently grown in importance. The capability factors have been clustered into groups based on stated importance for improvement: this is illustrated in figure 9. The letters "A-F" are used for reference those factors with high priority in chapter 6.

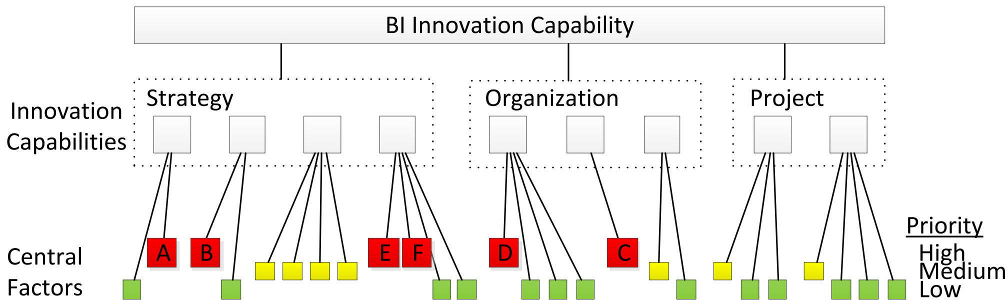

FIGURE 9: schematic description of the process.

5.10.1 High Priority

- A An incentive program encouraging departments to participate in cross-functional projects (see chapter 5.2)
- B The portfolio is divided into multiple areas, such as innovation dimension & height of innovation (see chapter 5.4)
- C Customer- and market input is received and taken into account throughout the project, through various activities (see chapter 5.6)
- D Management support entrepreneurship and allows failure, understanding that it is a necessary part of innovation (see chapter 5.5)
- E Focus on multiple innovation areas and -levels (see chapter 5.1)
- F The project portfolio aligns with the innovation strategy (see chapter 5.4)

5.10.2 Medium Priority

- A measurement system that assists in defining and communicating the company strategy, monitoring performance and identifying new opportunities (see chapter 5.3)
- A measurement system used at strategic as well as operational level (see chapter 5.3)
- A system that stores prior measurements, making them traceable so that diagnostics based on historical data may be performed (see chapter 5.3)
- Measurements covering input, throughput and output (see chapter 5.3)
- Continuous assessment and review of projects (see chapter 5.7)
- Recruitment to the project team is performed by the resource owner (see chapter 5.9)
- Sufficient investments in both technology- and market trials (see chapter 5.9)
- The PMs are educated and informed in how to use the supportive tools for developing their projects. (see chapter 5.8)

5.10.3 Low Priority

- An incentive program with individual incentives for problem solving and exploring (see chapter 5.2)
- Availability of a process structure, standard documents and checklists supporting the PM in creating a project structure (see chapter 5.8)
- Successes as well as failures are benchmarked and developed into checklists for future projects (see chapter 5.7)
- Clear innovation strategy, guidelines and goals exist (see chapter 5.1)

- Formal and informal communication channels exist throughout the organization (see chapter 5.5)
- Project selection is supported by guidelines and a criteria system (see chapter 5.4)
- Recruitment to the project team is primarily based on competence (see chapter 5.9)
- Clear roles and task division between the project manager and sponsor, as well as within the project group. (see chapter 5.8)
- Collaboration occurs with a heterogenic group of external partners (see chapter 5.5)
- Exploration occurs widely across the organization (see chapter 5.5)
- The project team is cross-functional (see chapter 5.9)
- When selecting projects, they are evaluated relative to other projects in the portfolio (see chapter 5.4)

5.11 Measurements and Indicators

Metrics used to diagnose the high priority needs are presented and discussed below. The suggested metrics have been divided into input, throughput and output. The metrics highlight important areas and provide guidelines to making it possible to perform future diagnostics. The following factors were considered to be of high priority:

A An incentive program encouraging departments to participate in cross-functional projects (see chapter 5.2)

B The portfolio is divided into multiple areas, such as innovation dimension & height of innovation (see chapter 5.4)

C Customer- and market input is received and taken into account throughout the project, through various activities (see chapter 5.6)

D Management support entrepreneurship and allows failure, understanding that it is a necessary part of innovation (see chapter 5.5)

E Focus on multiple innovation areas and -levels (see chapter 5.1)

F The project portfolio aligns with the innovation strategy (see chapter 5.4)

The metrics are recommended to be used either at a strategic level at the BI Program Office, operational level by BI PMs or by both. The presented set of metrics is a suggestion and could be further developed by BI once the system has been implemented within the organization.

5.11.1 Input Metrics

Portfolio budget divided into Delivery, Finance, Offering & Process

The suggested metric is to show how well the portfolio or project is focused on multiple innovation dimensions, and can be used by BI to identify if there is any area not receiving enough attention, or to communicate to T&I where investments are focused. It is a clear input metric as it is decided by investments rather than turnover, suggestively to be collected based on the annual budget. The suggested metric is to be used both on a strategic- and operational level: Program Office receive the budget information from each BI PM, who performs the estimate for the managed project. The metric focuses on central area B, E and F: it highlights how the portfolio is divided, and gives BI the possibility to analyze how well aligned the portfolio is with the innovation strategy.

Portfolio budget divided into height of innovation within technology and business.

This metric is to show how much of the portfolio that is focused on radical solutions within technology- and/or business. Similar to the metric above, it can be used by BI to identify if there is any area not receiving enough attention, or communicate to T&I where investments are focused. This, as well, is a clear input metric, focused on investments only, advisedly collected annually based on the annual budget. The suggested metric is to be used on a strategic level: PO makes an estimate of the innovation height of each project, consulting with the PM if unable to make own estimates. The metric focuses on central area B, E and F: it highlights how the portfolio is divided, and gives BI the possibility to analyze how well aligned the portfolio is with the innovation strategy.

Percent of budget invested into technology- and market trials.

Being a clear input metric as expenditure is measured, it is to be used both on a strategic and operational level. It assists BI in knowing the amount spent on testing annually, as well as customer involvement. Also for BI PMs to keep track of their investments in both technology- and market trials, making sure that end customers are enough involved throughout the project. The metric focus on central area C, as keeping track of market trial spending makes sure customer and market input remains in focus. The metric also somewhat targets D, as low spending on market trials may indicate that management do not support quick trial and errors.

5.11.2 Throughput Metrics

Average BI PM satisfaction with functional collaboration (Low Satisfaction 1-5 High Satisfaction).

The proposed metric shows how satisfied BI PMs are with cross-functional collaboration. Measuring collaboration levels within projects, it becomes a throughput metric indicating efficiency and effectiveness. It is to be used as a strategic metric, collected by the program office. The metric focuses on central area A, as a need of support from functions would result in a low score and used to highlight the need of incentives to participate for certain functions. While this metric does not target incentives directly, any low score invites to discussion and analysis in order to improve collaboration. In order to not miss these opportunities, the metric is suggested to be collected twice every year.

Number of customer activities within a BI project.
The suggested metric shows how many times BI projects tend to receive customer input, thus encourages PMs to gain better knowledge about customer needs throughout the project. It is mainly an operational throughput metric. However, in order for PMs to get an indication of expected number of trials, program office should collect this metric to provide an average. The metric focuses on central area C and D, as it encourages trials and customer involvement. In order to communicate the importance of regular activities, it is suggested to be collected annually.

5.11.3 Output Metrics

Return on investment of innovations.
This metric is to indicate the return of investment for the whole BI innovation project portfolio, and requires collaboration with Sales to get sales data on innovations. If cooperation with sales is not possible, expected returns should be measured instead. It is to be used at a strategic level, as ROI as an operational metric may restrain projects and disallow failure. The metric affects all central areas, as unwanted results require the strategy, the organization and projects to be reexamined. Measuring actual or expected turnover, it is a clear output metric to be collected annually.

Other value gained through projects (qualitative reviews by PMs).
This metric is suggested as a complement to the ROI, since it would mean that project office stores all qualitative assessments of gained value on BI projects. This is to help communication, and to make more fair assessments of the value of the BI projects. The metric affects all central areas, as unwanted results require the strategy, the organization and projects to be reexamined. Since the metric is a complement to the ROI, measuring gained value besides turnover, it is a clear output metric to be collected annually.

Summarizing, the suggested metric system can be displayed in figure 10.

	INPUT	THROUGHPUT	OUTPUT
STRATEGIC	Portfolio budget divided into Delivery, Finance, OfferIng & Process Measures annually	Average level of BI PM Satisfaction with functional collaboration (Satisfaction 1-5) Measured twice a year	Return on investment of innovations Measures annually
STRATEGIC	Portfolio budget divided into height of innovation within technology and business Measures annually	Average number of customer activities within a BI project Measures annually	Other value gained through projects (Qualitative reviews by PMs) Measures annually
STRATEGIC	Percent of budget invested into Technology- and Market Trials Measures annually		
OPERATIONAL	Portfolio budget divided into Delivery, Finance, OfferIng & Process Measures annually	Number of customer activities within a BI project Measures annually	
OPERATIONAL	Percent of budget invested into Technology- and Market Trials Measures annually		

FIGURE 10: Displays the measurements´ spread and the coverage of priority areas.

The figure above contains seven strategic– and three operational metrics. No operational output metrics are suggested as PMs already have clear output goals in their projects. The picture below, figure 11, shows how each metric covers the high priority areas.

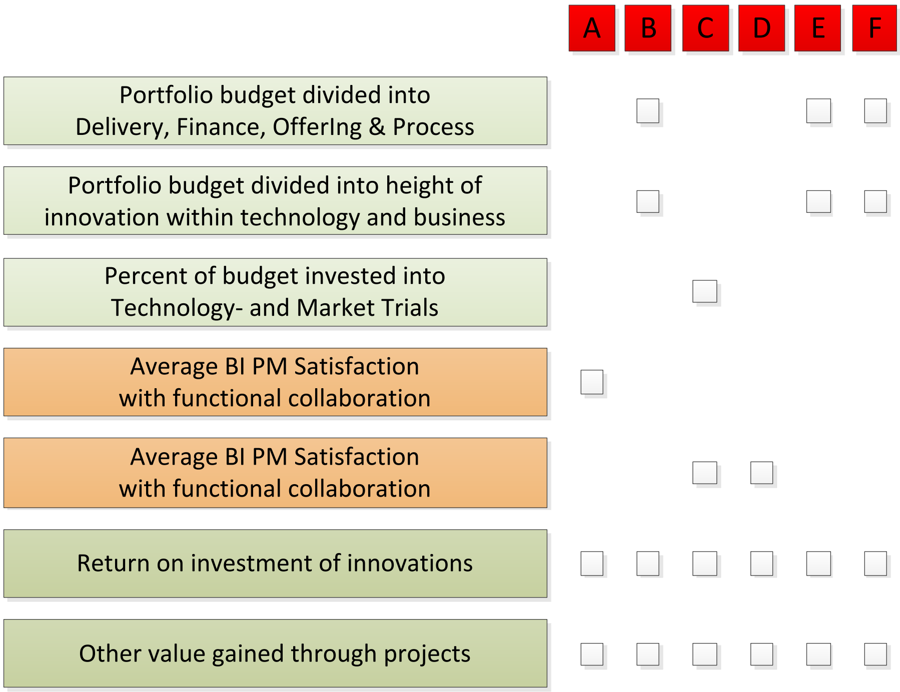

FIGURE 11: Displays how the prioritized capability areas are covered by the recommended metrics.

While not being addressed in the metric system, recommendations on how to further improve medium- and low priority factors are suggested in Appendix 2.

6 Conclusion & Recommendations

The purpose of the master thesis was to identify factors affecting the innovation capabilities of utilities in general. Moreover, the innovation capabilities of BI were assessed. Founded in these capabilities, metrics were developed for BI to use for future diagnostics.

It has during the study become evident that the utility industry differs from other industries in several aspects, such as being greatly affected by political decisions and legal regulations: shaping both company structure and internal collaboration. It has also been shown that utilities are experiencing major changes in social- and technology trends. This affects several innovation capability areas: increasing the importance of some of them. An example of this is innovation culture and customer involvement, becoming increasingly vital for utilities. With these changes, the environment of utilities is becoming increasingly similar to other industries. As a result, general innovation management literature has been determined to be highly relevant for energy utilities. The finding encourages energy utilities to use innovation management literature for evaluating and developing their innovation processes.

As for the practical purposes, E.ON RU Sweden have shown to be well developed in many areas important for utilities. Some improvement of innovation capabilities can however be made in areas that have recently grown in importance due to recent trends. This study has highlighted the most important factors to prioritize: including developing a more complete project portfolio system, creating stronger incentives for innovation and receiving more continuous customer input. In order for BI to continuously diagnose these areas, a set of seven strategic- and three operational measurements have been suggested. The practical purpose of the thesis is however limited to E.ON, and can only be viewed as an inspiration for other utilities.

During the research, it was obvious that E.ON RU Sweden are experiencing large internal changes. Collecting information during a period of shifting conditions and uncertainty was somewhat challenging, though a rewarding experience. If more time for the research had been possible the measurements would have been further tested and discussed more extensively with the involved employees. Besides time limitations, there are two additional reasons why recommendations for metric goals are not given. Firstly, it is initially required that BI diagnose current ratings within each metric, before assessing metric goals. Secondly, the purpose of the metrics is to diagnose and create clarity, rather than state what is good or bad practice: as this change over time. It is suggested that BI perform a workshop with the employees affected by the metrics in order discuss these questions further. Still, the implementation of innovation metrics has been outside the scope of the study: this could be the subject of a future thesis. A study in how to implement innovation metrics could be performed in a more general sense as well, if similar organizations were to be involved.

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7.1.3 Interviews

Staff 1	(2012) E.ON [in person] 2012-02-09
Staff 2	(2012) E.ON [in person] 2012-02-13
Manager 1	(2012) E.ON [in person] 2012-02-24
Staff 3	(2012) E.ON [telephone interview] 2012-03-23
Staff 4	(2012) E.ON [in person] 2012-02-22
Staff 5	(2012) E.ON [in person] 2012-03-06
Staff 6	(2012) E.ON [in person] 2012-02-17
PM 1	(2012) E.ON [in person] 2012-02-10
PM 2	(2012) E.ON [in person] 2012-02-14
PM 3	(2012) E.ON [in person] 2012-02-17
PM 4	(2012) E.ON [in person] 2012-02-22
PM 5	(2012) E.ON [in person] 2012-03-15
Staff 7	(2012a) E.ON [in person] 2012-03-23
	(2012b) E.ON [in person] 2012-03-28

Sales Group	(2012) E.ON [in person, group interview] 2012-02-29
Staff 8	(2012) E.ON [in person] 2012-02-07
Staff 9	(2012) E.ON [in person] 2012-02-13
Manager 2	(2012) E.ON [in person] 2012-02-17
Staff 10	(2012) E.ON [in person] 2012-02-16

7.1.4 Observations

Team Meeting 1	(2012) *Team meeting* [in person] 2012-02-28
Team Meeting 2	(2012) *Team meeting* [in person] 2012-03-19

7.1.5 Speeches

Olsson, Anders (2012, March) *Speech*, E.ON Sverige Headquarters, Malmö, Sverige

Appendix 1 – Interview Templates

There were two rounds of interviews. The first round aimed to understand the structure of the organization, and a grasp of the internal innovation capabilities. Being a semi-structured interview, questions were divided into being main questions, and follow-up questions, used when assessed to be necessary. Round two was performed to gain complementary information: and contained more detailed questions about the innovation strategy and portfolio management system.

Interview Structure, Round one

- Presentation of the Master Thesis

Understanding the Organization

- Describe your assignments
    - How do you perform them?
    - What are your responsibilities?

- What is the purpose of your BU?
    - What are the goals of your BU?

- What parts does a project process consist of at your BU?
    - In what order are they performed?

- Can you describe how your BU collaborates with other units?
    - What type of work is executes and what kind of information are exchanged?
    - In what order do the collaborations occur?

- What measurements do you know exist?
    - Which ones are used by you?
    - Which ones are used by others?
    - Are they documented?

Innovation Capabilities

- Does E.ON have a definition of innovation?
    - What is innovation to you and your Business Unit?

- What would you like to change/add to reach a better result?

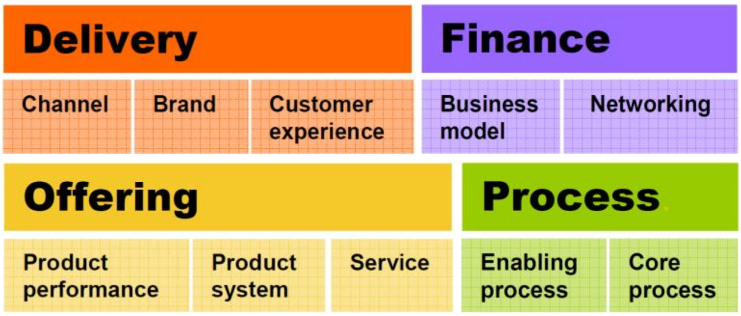
- At your Business Unit/Project?
- Within the E.ON Organization?
- What measurements would improve the process?

Interview structure, round two

- Do you think there needs to exist a strategy for innovation
  - If yes; what should it consist of?

- What difference do you think there should be between innovation strategy and technology strategy?

- How is the budget distributed between these areas below?



Appendix 2 – Further Recommendations

Comments concerning all medium- and low priority factors follow below. These are suggestions on what could be done to improve the practices within each factor even further.

Medium Priority Factors

The metrics factors (see chapter 5.3)
The factors concerning metrics are dealt with through the development of the metrics set. These are still considered to be subjects of further development: for instance, additional metrics could be added if BI would like to monitor more factors. Some of these possible metrics are suggested below.

Projects are continuously assessed as well as reviewed (see chapter 5.7)
Program Office could take part of the project reviews from finished or cancelled projects, and store these in order to keep track of the accumulated project experience and help less experienced PMs. There is a possibility to develop a metric in order to make sure that this practice is performed well. For instance, comparing the number of gained reviews with the number of finished and/or cancelled projects each year would give an indication whether reviews are collected or not.

Recruitment to the project team is performed by the resource owner (see chapter 5.9)
Having resource sponsors handling recruitment could improve the team selection. A metric could be used to calculate, relatively, how many new projects that had teams recruited by the sponsors over the last years.

The PMs are educated and informed in how to use the supportive tools for developing their projects (see chapter 5.8)
If Program Office contain all necessary documents, and make sure new Project Managers become informed, it should be sufficient to address this factor. A metric could be developed to address this, asking the PMs about the usefulness of the supportive tools in order to assess needs for improvement in the area.

Formal and informal communication channels exist throughout the organization (seechapter5.5)
While most communication seem to be satisfactory, BI and Sales should develop additional forums for communication in addition to the current project group meetings. One suggestion is for BI PMs to participate in creative rooms. Another suggestion is to continuously send out newsletters from Sales or from BI to all employees in BI projects concerning findings, progress, or issues.

Sufficient investments in both technology- and market trials (See chapter 5.9)
This issue is targeted through the metric system and the measurement of relative investments.

Low Priority Factors

An incentive program with individual incentives for problem solving and exploring (see chapter 5.2)
Room for creating individual incentives for innovation already exist, this factor will simply improve if there were larger gains for participating in cross-functional projects among all subsidiaries. Suggestion for improving this is presented in the metric´s set.

Availability of a process structure, standard documents and checklists supporting the PM in creating a project structure (see chapter 5.8)
Our recommendation is that Program Office should wait until the new documents are released by E.ON Sweden. If these are experienced to need more improvement, a modified version should be developed by Program Office: suggestively in collaboration with the PMs.

Both success and failure are benchmarked and developed into checklists for future projects (see chapter 5.7)
As reviews are being collected, experiences and learning should be structured and clustered in order to be concise and easily apprehensible. This could initially be done by Program Office, and later, when a clearer structure exists, by the PMs.

Clear innovation strategy, guidelines and goals (see chapter 5.1)
Our recommendation is that BI should wait until the global innovation strategy is communicated by T&I. In the meantime, continue developing the project portfolio should be of priority as this would allow quicker actions once the strategy has been communicated.

Project selection is supported by guidelines and a criteria system (see chapter 5.4)
The strategy department at Heat should be consulted concerning its project selection system. It is seemingly suitable for BI projects and has already been tested through usage.

Recruitment to the project team is primarily based on competence (see chapter 5.9)
Our recommendation is to have a more neutral and higher ranked party handling team recruitment would highlight the problem and make it a more prioritized matter.

Clear roles and tasks between the project manager and sponsor, as well as within the project group (see chapter 5.8)
No issue has been detected within this factor, thus no suggestions for improvement have been identified.

Collaboration occurs with a heterogenic group of external partners (see chapter 5.5)
This factor is experienced to function well. Still the number of collaborators within each project could be measured and developed into a mean, in order to highlight the importance of collaboration and for PMs to reflect on whether having additional partners could prove helpful or not.

Exploration occurs widely across the organization (see chapter 5.5)
While exploration generally is well developed, BI could, for instance, be more involved in the creative rooms arranged by Sales.

The project team is cross functional (see chapter 5.9)
This practice seems to function well; there are no obvious suggestions for improvement.

When selecting projects, they are evaluated relative to other projects in the portfolio (see chapter 5.4)
Once again, this practice is experienced as well developed, meaning that there are no obvious suggestions for improvement.