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Enterprise IT Project Outsourcing – Internal Competence Requirement Perspective

Yaoyu Ma

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Opponents: Nora Uotila, Fitsumsew Gebremedhin

E-mail: yaoyu.ma@gmail.com

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Abstract

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Author Yaoyu Ma	**Group** MABBA08
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The objective of this Bachelor's Thesis is to find out in outsourced enterprise IT projects as to the minimum of internal technical competence needed to ensure the successful execution of the project.

The theoretical frame of reference begins by dealing with the concept of service outsourcing, followed by project management theory. The purpose of the theoretical frame of the study is to support the empirical research.

The research method used was a semi-structured qualitative research through face-to-face and telephone interviews. The interviews were conducted during 2011 with six IT experts with extensive experience in outsourced projects.

The empirical research introduces the research, objective and the research process. The findings from the research are presented in the research findings chapter. The researcher also discusses the research process and findings and gives some suggestions for further research.

During the research, it is noted that the strategic decision to outsource IT development work to external suppliers has a long-lasting impact of availability of internal technical competence. The lack of internal competence is seen as directly attributing to project failures.

Key concepts
Project, Outsourcing, Competence

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1 Introduction

Today's multi-national enterprises are increasingly dependent on sophisticated IT solutions to carry out their core business activities, from running and monitoring automated production lines, customer relationship management, sales planning and forecasting, purchasing, human resource management to financial planning and legal reporting. Often, there is no ready-made out-of-box solution to fully support the unique business requirements that each enterprise may have. Thus, a business often needs to develop its own IT solutions or heavily customize some third party software products to fully meet its business requirements. Both approaches place a strong demand on IT expertise. However, due to the nature of the short duration of IT project development work and the challenge of recruiting competent specialists at short notice, many businesses are increasingly looking into the possibility of outsourcing some of their IT projects to external professional IT service providers and leverage on external experts' technical skills and experience in these projects. But the complexity of many IT projects often means that outsourcing brings its own challenges. This study intends to determine the impact of a business's various competence areas (IT/project management/business process etc.) on the success of partly outsourced projects, and the minimum internal competence requirement to achieve satisfactory results.

1.1 Background to the study

The author has been working in the IT organization in Nokia and Nokia Siemens Networks for nearly a decade, in a number of different positions such as Application Specialist and most recently as IT Service Manager. Over this long period of time, the author has worked in many enterprise IT projects, mostly in financial reporting area. Also the author has constantly been in close contact with many other projects that require data exchange with the IT service that the author has been working directly with.

Like many other companies, Nokia is heavily dependent on its various IT systems to provide its global work force of over 60000 the technical solutions to work effectively. Also, operating in a fast-moving industry, Nokia has gone through several strategy ad-

justments and made very frequent organizational changes to respond to the competition and market condition. Many of the changes translate into many IT projects that need to be executed very quickly and cost-efficiently.

The majority of the IT experts in Nokia IT are heavily working on supporting the IT systems that are already in production use, thus the capacity of internal resources for the additional IT projects is very limited. Hence, Nokia IT has formed strategic partnership with a few global IT service providers and outsourced many projects to them.

The author has been in close contact with many colleagues working in outsourced projects and had the opportunity to learn about many interesting and challenging projects. The lively discussions with colleagues lead the author to explore more deeply into the question of finding the optimal balance between internal and external technical skills to ensure the success of the projects.

1.2 Research problem setting

Since IT outsourcing is to buying service from an external provider, and the nature of service product is that the customers are part of the product creation, it is important to have competent internal experts taking part in the projects. Also, internal experts are needed to define the technical specification, monitor the project progress, at the end of the project evaluate the quality of the work done and eventually take the system into production use and provide the needed support to the end-customers.

Despite the fact that IT projects require very active participation and contribution of internal experts, one often cited reason for an organization to outsource IT development work to external partners was the lack of resources/competence to do the work in-house.

This study aims to find out, to ensure the smooth execution and desired outcome of enterprise IT projects, what are the most important internal competences needed, and in each of the competence areas, what should the internal experts' minimum skill level be compared with the external specialists.

So the investigative questions are:

IQ 1: What are the technical competences areas that should be kept in-house?
IQ 2: For the technical competences that are partly acquired from outside the company, what is the minimum skill level in-house compared with the outside experts, to ensure the success of the enterprise IT projects.

The results of this study covers only some of the factors that affect the outcome of enterprise IT projects, to make it a topic of suitable size for the thesis work. The other factors should never been under-estimated, they may include things like the culture, communication, company strategy etc.

The results of this study will help the IT leadership to choose a proper approach to outsource its enterprise IT projects and have the optimal IT organization (including people) to execute these projects.

1.3 Business and International aspect

IT outsourcing has been a fast growing business for over one decade, despite the global economic recession in the past years, the market of IT consulting, system integration service and outsourcing is expected to grow from 657 billion USD in 2008 to 873 billion USD in 2013 (Bartels 2012, 6). Enterprises invest heavily in IT because the modern IT tools are now vital for a business to carry out its core activities and stay ahead of competition.

As cost is one of the main drivers of IT outsourcing, many IT projects of Finnish companies are fully or partly outsourced to offshore low cost countries, such as India, Philippines, Malaysia and more recently to the Eastern Europe and Baltic states. Managing an international multi-site project creates additional challenges to the projects, which should be even more carefully planned and managed.

Outsourcing is not limited to Finland, nor to the IT industry. India and China had been ranked top in the Global Services Location Index (Jorek et al. 2009, 2.). Also there is a growing trend of low-cost countries outsourcing work to each other, better leveraging on each other's strengths and achieve best business performance (Jorek et al. 2009, 11.).

The following things contribute to the international aspect:

- IT outsourcing is very international. The rapid development of Information and Communications technology has dramatically decreased the cost of international communication, making it virtually cost-free for project team members around the global to communicate with each other.
- IT work force is typically very international. The standard language in the global IT industry is English. Having a common language has made it possible to have a global workforce
- IT consultancy firms are increasing moving their operations to countries where labour is cheap to serve their clients.

1.4 Demarcation

The successful execution of an outsourced IT project requires many skills, such as communication, human resource management and sourcing. This study focuses on only the technical competences needed, which include the IT technical competence, project management competence, as well as the business process competence.

This study is limited to only projects that develop an IT solution to fulfil the needs of a specific enterprise, not for the solutions that are sold to other customers. The enterprise IT project can create something from zero (for example develop a customer relationship management system) or it can be deploying some standard IT products and heavily customize it to suit the enterprise's own specific needs.

1.5 Benefits of the research

Enterprises have long realized the importance and necessity of feasible IT solutions and invest heavily in IT. According to Bartel (2012, 6.), in 2012, global business and government spending on IT products and services will be over 2.1 trillion USD. This is expected to grow by 8% in 2013 (Bartel, 2012, 7.).

According to Bélissent (2009, 6.) in Western Europe, 26% of enterprise IT budget is spent on custom-built software, just slightly below purchased software, and above the budget of either computer hardware or networking and communication hardware. Thus, it is paramount to ensure that the investment on customer-built software deliver the expected benefits to the business.

As IT service manager in Nokia, the author has led/participated in many outsourced IT projects, with variable outcome. Some of the external experts are very expensive, up to 30,000 euro per week, thus, hiring them is an expensive business investment which is expected to bring tangible and preferably immediate business benefits. However, it is not uncommon to have project delays and even cancellations which have resulted in big losses to the company. As an IT service manager who oversees many projects, one of the author's key tasks is to ensure that there is a good mix of internal/external technical specialists which would ensure the successful execution of various projects in the author's own area, which are often partly outsourced to our preferred partners. Also the author needs to ensure that upon the completion of the project development work, there is a smooth transition of knowledge from the system development team to the support team and ensure that the cost for running the system is on a reasonable level and there is proper support for the system to meet the Service Level Agreement . The author is particularly interested in what kind of skill set is needed from a company's internal specialists to ensure the project success, in various technical areas, such as programming skills, requirement management, architecture design and project management.

Managing IT projects is a global challenge, Standish Group's CHAOS study estimates that 19% of IT projects have failed in 2006, which translates into wasted investment of 53 billion USD in the United States alone (Schwalbe, 2010, 14.). Though many factors

can contribute to project failures, the author aims to clarify the impact of internal technical competence on the project outcome.

1.6 Definition of key concepts

The key concepts of this research are: enterprise IT project, competence, IT outsourcing, onshoring, offshoring, project and SLA.

Enterprise IT project – in this study, the author defines enterprise IT project as an IT project that fulfils one or several specific internal business requirements, this is different from the software development projects for commercial software like Microsoft Office etc.

Competence – McClelland D. defined competence as the knowledge, skill and attitude to do a certain job (McClelland D. 1973, in this study, the author will focus only on knowledge and skill part

IT Outsourcing – Willcocks et al. 1998 defined IT outsourcing a decision taken by an organization to contract-out or sell the organizations IT assets, people, and/or activities to a third party vendor, who in return provides the services for a certain time period and monetary fee. In this study, the focus is put on IT project development activities contracted out to third party vendors. This is different from the outsourcing of more standardized IT activities such as technical support and service desk functions in terms of length of contract, competence requirement, risks and involvement of internal specialists.

Onshoring – Chakrabarty 2006 defined onshoring as the service provider is located in he same country as the client. In this study, the location is most meaningful during the execution of the IT project, thus, having a group of Indian specialists working in a project in Finland where the client is located is considered onshoring.

Offshoring – the service provider is located in a country that is geographically far away from the client's country (Chakrabarty 2006)

Project – a temporary endeavor undertaken to create a unique product, service, or result. (PMI, 2008)

SLA – Service level agreement, a document describing the IT service, service level targets and specifies the responsibility of the IT service provider and the customer. (ITIL, 2007)

1.7 Structure of the thesis

The thesis consists of five parts: the introduction, the theoretical framework of reference, the empirical research, the research results and the discussion.

The theoretical framework of reference discusses the topics of project management and service outsourcing.

The empirical research demonstrates methodology employed in the research. It provides information on objectives, selection of interviewee and research process of the study.

In the discussion chapter, the validity and the reliability of the study are discussed. The author gives recommendation on the desired project team setup for enterprise IT projects. It also discusses the author's own learning through the research process.

2 Theoretical frame of reference

This chapter deals with key concepts of the research. The theory starts with service outsourcing to understand the nature of purchasing a service in comparison to purchasing a product. Later the author introduces the theory of IT project management and commonly used project management methodology in modern enterprises.

2.1 Service outsourcing

Services are produced in close cooperation between the service provider and customers. To ensure successful and smooth cooperation, a good communication channel is needed and fast feedbacks are needed, also, both parties need to be willing to make quick adjustment to their way of working to adapt to the project requirements.

Buying service is very different from buying goods also in other aspects, services are very often intangible, and since service is very often produced and consumed at the same time, the service delivered can not be 100% consistent. Still, there needs to be mechanism in place to ensure that the quality of service is closely monitored.

2.2 IT service outsourcing

There are various reasons why enterprises choose to purchase IT services from suppliers. These include (Schwalbe, 2006, 464.)

- Cost reduction. Enterprises often aim to leverage on the outsourcing supplier's economy of scale and ability to provide the needed services from lower-cost countries to reduce the cost of project development through offshoring. Also, compared to have some external experts only for the duration of the project development work, having permanent in-house IT staff is a fixed repeating cost that many enterprises aim to avoid.
- Focus on core business. Many enterprises want to put its focus on its core businesses, and choose to procure from suppliers the competences that are not considered as directly contributing to its core businesses.

- Access skills and technologies. Many enterprises lack the internal competence for certain IT technologies, ramping up such competence can take years. Thus, the only feasible way to execute a project is to purchase the needed skills from outside.
- Provide flexibility. Many enterprise IT projects have a relative short life-span. Thus, it is possible that the need for the technical competence is only short-term. Having these competences in-house would require recruiting/training and then firing/redeploying the employees involved in the project. Thus, having external employees is seen providing greater flexibility.
- Increase accountability. When the service is provided by external parties, there is a written contract which clarifies the responsibilities of the buying and selling party. This can increase the accountability of the service provider.

When buying IT service, the experts of the buying party need to be very actively involved in the whole project lifecycle to ensure that the project is progressing according to pre-agreed schedule, all the project deliverables are in place (including all the source code, design document and support instructions), also quality of service provided by the service provider is at the agreed level.

Due to the technical nature of IT outsourcing, purchasing function is often only able to provide some high-level guidance and framework for the service contract. It is very often up to the internal technology managers to make the final selection of the service provider, to complement the internal competence for the success execution of a project. However, since the technology managers lack all the knowledge that are needed to contract services, purchasing function should provide the necessary training , act as gate-keeper and/or review the final contract before signing to ensure that all the key aspects are covered in the contract.

With enterprise IT projects, there is often a lack of fully clear understanding of the business requirements in the initial phase, also, business requirements tend to change during the project. Thus, it is very often difficult to have a fixed-price turnkey contract. Instead, cost-reimbursable contracts are more often used. Such contracts mean that the

work of the service providers should be constantly carefully monitored, and there should be regular follow-up of the project progress to avoid extra costs caused by unnecessary delays.

It is worthwhile to consider which projects are more suitable for outsourcing, according to Tardgono et al. (2000, 6.) outsourcing tend to increase the level of "formality", thus if business requirements change frequently, outsourcing partner's ability to respond to at the same speed may be hindered. Thus, outsourcing makes most sense in an environment or set of services that is definable, stable and measurable.

Contrary to the beliefs of many, outsourcing IT projects does not mean that there is an unlimited talent pool that is available at any time upon request. Competent technical experts are often fully booked well ahead of time. Thus, to ensure the availability of competent external experts for the needed time period (preferably with some flexibility), strong project management and contract negotiating skills are needed. Also project managers are responsible of making sure that all the support infrastructure, internal personnel are in place to ensure that the external experts are able to quickly start working efficiently. Also, close cooperation from the very beginning of the project can help ensure that the final deliverables will meet the expected quality requirement.

Supplier performance should be also carefully recorded and followed up via some kind of scorecard system. Also internal participants to the partly outsourced projects should actively share the lessons learnt from past successes/failures to ensure that the best practices will be kept and mistakes are avoided in the future.

2.3 Project management methodologies

There are two main project management methodologies, the traditional project management (sometimes referred to as PMBOK project management) and the recent emerging agile project management, both are widely adopted.

2.3.1 Traditional PMBOK project management

Schwalbe (2010, 79) outlines the phases of a project managed through traditional project management methodology as follows:

- Project initialization
- Project planning
- Project execution
- Project controlling
- Project closing

Throughout the project lifecycle, there are various other activities going on, such as various communication activities within the project team and from the project team to the outside.

In such a project, there are typically few external experts involved in the earlier phase, however the number of external experts gradually increase and reaches its peak during the project execution phase and later decreases once the project draws to the end. Figure1 shows an example of the mixture of internal/external work force needed in the different phases of a project.

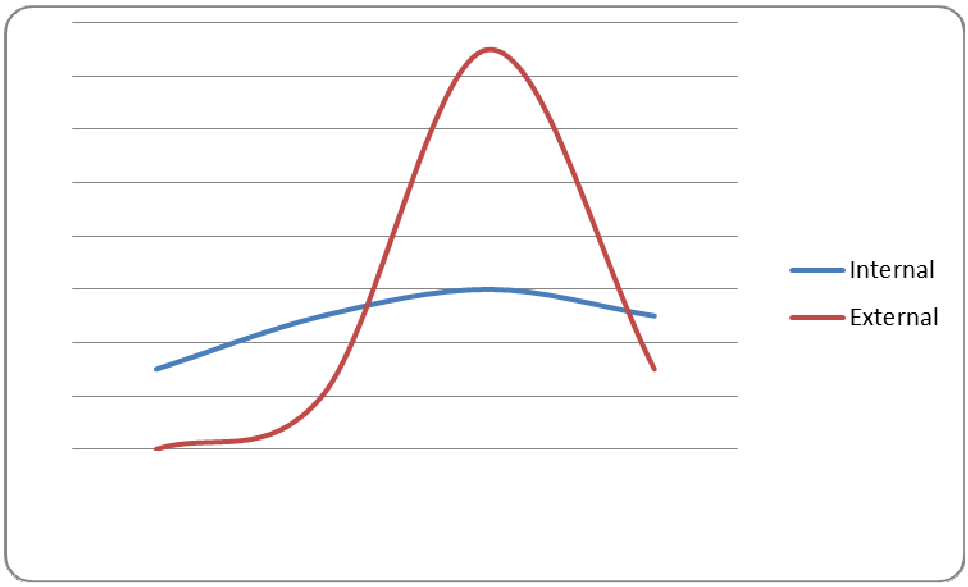

Figure 1. A sample of number of people participating in a project throughout project lifecycle

IT projects managed using the traditional approach aims to delivery a full release or a few major releases by the end of the project life cycle, and there is typically a long period between the project initialization phase and closing phase. Also the interval between each major releases tend to be several months.

Such projects are often regarded as more structured, meaning that all the project requirements should be defined during the project planning phase, thus, it is in theory possible to contract out the whole project during the execution phase and negotiate a fixed price.

2.3.2 Agile project management

Due to the high uncertainty of enterprise IT project which involves a lot of creative thinking and experimental design, it is often regarded as difficult to be able to take into account all the possibilities in the project planning phase, thus leading to significant deviation between the actual project outcome and the plan. Agile project management aims to tackle the issue by adding more flexibility into the execution phase and make more frequent releases which can be tried by the end-users.

Slinger (2011) has mapped the PMBOK with Agile project management frameworks in the figure below.

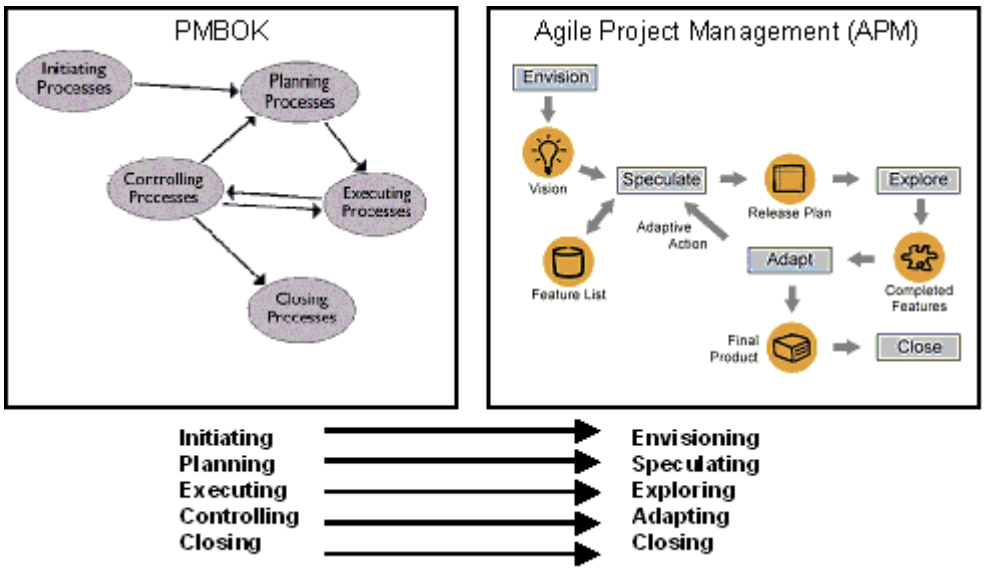

Figure 2. (Slinger 2011) PMBOK PM practices mapped to Agile PM framework

Though there are many similarities between the two practices and most of the activities can be mapped from PMBOK to Agile methodology as shown in Figure 2. One key difference is that in the agile method, there are more fast cycles from speculate to explore to adopt phase, before the final product is ready and project is officially closed. This helps the project development team to stay on the right track, make fast corrections according to customer feedbacks and the customers to start benefitting from the project before the final product is ready. More customer interaction and participation also helps ensure the quality of the final product is on the desired level. Also, while the project is on-going, the customers can possible already use the incomplete solution and benefit from it.

During the project development phase, one of the most notable differences between PMBOK and agile projects is the ceremonies in agile projects. For example, agile projects should have a daily 15 minute daily scrum meeting for each member to tell his/her own progress, plan and obstacles (Sutherland, J. & Schwaber, K. 2007, 13).

3 Empirical research

The study was conducted to a number of experienced IT professionals who have long experience working in global companies, and with experience in partly outsourced IT projects.

The research process took place in September 2011 - February 2012. The research process consisted of deciding on the final research problem, designing the research by exploring similar studies, building up the theoretical framework, planning the interviews, conducting the interviews, analysing the results, and finally trying to provide an answer to the research question and give suggestions for further research.

3.1 Research process

The study was conducted through qualitative approach. The reason for selecting qualitative approach was due to the nature of the study and the complexity of the information needed for the study. Ghauri and Grønhaug (2005, 31) states that qualitative research is usually used when the problem is not understood clearly. In this study related to enterprise IT projects, it is important to understand the nature and complexity of each project (at least on the higher level) to be able to estimate the skills needed in the project. Also, the definition of many evaluation criterion can be very subjective, from the author's personal experience in the world of enterprise IT, a project's success can be evaluated in at least the following ways:

- Deliverable – whether the project fulfills all the functional requirements and all the necessary documentations are in place
- Schedule
- Cost – cost that arises from the execution of the project. Also, since an enterprise IT system can have a long life cycle, maintenance cost of the IT system should be included in the cost calculation when possible
- Maintenance – after the project finishes and IT system taken into use, whether the system is performing at least on the level defined in Service Level Agreement

- Compliance – whether the technologies adopted are compliant with the industrial standards
- Scalability/Flexibility – whether the system can easily adapt to the future business requirement

Thus qualitative research would allow the researchers the flexibility to understand each individual project more deeply, which can not be achieved by quantitative studies.

3.2 Data collection

3.2.1 Data collection approach

Before data collection started, the author had the possibility to go through many project meeting minutes / lessons learned documents in Nokia to check what are the most common problems experienced in the IT projects. Based on these secondary data, the author prepared the draft interview questions.

Primary data is collected through semi-structured face-to-face and telephone interviews. The author interviewed 6 experts from organizations that have various IT project work outsourced. These experts have themselves actively participated in some of these projects, also, to get an holistic view of the problem, the research interviewed one person who had broad experience working as a subcontractor in various IT projects around the world. All the experts interviewed have some experience working in Nokia or NSN (Nokia Siemens Networks, a joint venture by Nokia and Siemens), but most of them also have extensive working experience in other Finnish enterprises that have customers and operations globally. This allowed the author to study the research problem in a more general way, rather than limit the study to only the IT projects conducted in Nokia / NSN.

3.3 Reliability and validity

The author chose to approach the research problem using qualitative research because of the complexity of the problem. To achieve reliable results, the author interviewed

many senior IT experts who had been involved in a wide variety of enterprise IT systems, their roles covered a wide spectrum including IT Service Manager, IT Configuration Manager, IT (Lead) Developer, IT Production Manager, Project Manager, Test Manager and Concept Owner. Some of the interviewees have been in multiple roles, either within one project or during different phase of their career. The interviewees have been involved in the development of many large-scale IT systems in large Finnish companies, including Nokia, Nokia Siemens Systems and a few companies in other industries. And the projects are partly outsourced to global consulting companies such as Accenture, IBM, Bearing Point, Logica and TCS (Tata Consulting Services). The author believes that the interviewees have well represented all the critical roles in both the development and maintenance phase of an enterprise IT system, and the projects/companies are very well represented as well.

The interviewee's concern of revealing information related to the unsuccessful projects in the past can lead to distortion of the reliability of the research. Also, some of the projects are still company confidential (the project information can be shared only with people working in the same company). This concern is addressed by assuring the full anonymity, and not revealing the details of the projects involved.

As the author's network is mostly with people who have worked in Nokia / NSN, the company culture and project management methodology can also affect the outcome of the study. To prevent this, the author places some focus on the projects outside Nokia / NSN, to get a balanced picture.

4 Research results

4.1 Project failures

All interviewees were reluctant to use the word "failure" to describe the projects they had worked on. Despite that cost, schedule, functionality are very important considerations to build a business case to start an enterprise IT project, the interviewees were only willing to call a project a failure when it was never deployed to production. Even in such cases, most interviewees were disappointed that the higher management was not willing to support the project by granting more money/time to finalize the project work.

For project delays and budget over-run, interviewees often blamed changing requirement, changing scope, lack of resources (people) to do the work and organization restructuring during the execution of the project.

4.2 Competence evaluation

Most interviewees believed that they had the right skills needed for him/her to perform the assigned tasks in the project work. When the interviewees admitted own lack of skills, the most common reason is new/unfamiliar technology and late involvement in the project work. However, the interviewees are more often critical of the skill level of the people (both internal and external) in the other roles, this is an indication that there is either some grey area in the roles and responsibility in the project due to ineffective project management or some competence gap that is unnoticed by the people themselves.

4.3 Internal versus external

All the interviewees would prefer to use internal IT experts for the enterprise IT projects due to various reasons such as trust, familiarity with the business processes, familiarity with the existing IT environment and better support for the system in the future.

One interviewee mentioned that in one of the projects that he had been involved in, the project manager (with no education and hand-on experience in IT) preferred using external IT experts only, because the project manager felt that working with external parties is easier to take the project in the direction he wanted and with less "internal bureaucracy". This was partly true during the project development phase, however, with very little internal IT involvement, the project ended up using very expensive non-standard hardware/software that was also very expensive to maintain and support. The system was later nearly totally re-designed after a new project manager was appointed.

When a project is partly outsourced to external IT service providers, interviewees all felt that there is a very strong need to have a balanced team of internal and external experts to participate in the project. This is to ensure that the external's performance can be closely followed-up, as well as to ensure there is a smooth knowledge transfer from the external to internal experts when the project concludes, and ensure that there is enough internal knowledge to support the system in production phase, and re-move/reduce the dependency on the externals.

4.4 Expectation towards external experts

Only one interviewee (a lead developer) stated that he sometimes took in subcontractors to give them the easier repetitive tasks that he did not want to / have time to do by himself. In this case, he had very clear understanding of the tasks assigned to the subcontractors and was able to monitor the progress and take corrective actions whenever needed.

In about half of the cases, external IT experts were hired because there is insufficient amount of internal IT specialists to do the development work. Thus, some external experts are brought in to work side-by-side with the internal employees, and the skills of the external and internal specialists are interchangeable, they also have the technical skills to review each other's work.

In other cases, external specialists are expected to possess some skills that are not available in-house. They are very often working on some niche technology that has been newly adopted by the company, thus the company is often fully dependent on the experience and skill of the external IT experts to produce a solution that will be compliant with the best-practices in the industry. All the interviewees who had been in such project expressed their strong concern in this case. Many felt that it was not possible to estimate the amount of actual work needed, thus it was very difficult to monitor the progress of the development work, especially when the external experts are working remotely from some other country. These projects were also more likely to exceed their budgets, and the use cost for such IT systems was often very high.

4.5 Project management methodology in use

About eighty per cent of the projects that the interviewees discussed were managed using the traditional PMBOK method, however, it is also clear that Agile method is getting more and more popular, about half of the recent projects (the projects that are less than one year old) were managed using Agile method.

Agile method is clearly preferred by Concept Owner in a project, because it is easier for them to influence on daily activities of the development team. Also Project Managers (Scrum masters) see agile method as very beneficial because it is easier for them to monitor the progress and get to know and tackle with the obstacles earlier. However, some technical specialists complain that the daily meeting required by agile method makes it difficult for them to concentrate on the real work, though they acknowledge that they can also sometimes get useful information from the daily meetings.

Overall, the outcome of the Agile project are usually better than the traditional PMBOK projects. This can be attributed to the factors like close monitoring of the project progress and each team member's activities, closer cooperation between the technical experts and the concept owners (who is a representative of the customers), as well as knowledge transfer and sharing is happening on a daily basis during the daily scrum meetings, rather than only at the end of the project.

4.6 Summary of the main findings

Outsourcing decisions are very often made on the top-management level in the enterprises, and sometimes the selection of external service providers is also restricted by the strategic decisions made on the top. The project steering group or the project manager has the autonomy to choose the right experts from the shorted-listed external service providers though. This is very often seen as very inconvenient and inefficient by the interviewees.

The strategic decision on what is done in-house and what is outsourced has a great and long-lasting on the competence areas of the internal experts. Also the career advancement opportunities of different roles are seen by the interviewees as having strong impact on the competence development of the internal specialists. This further leads to the change of corporate culture and the ability for the company to attract the needed technical specialists.

The evaluation of technical competence of both the internal and external experts is difficult and subjective. All the interviewees felt that strong internal competence is needed for enterprise IT project, to be able to evaluate and select the right external experts to carry out the project work, to effectively and to follow up the progress and evaluate the performance of the external externals. Also, internal experts are needed in the knowledge areas that very much company-specific. Early involvement of internal experts are seen by many interviewees as crucial for the success of any enterprise IT project and remove the dependence on the external resources.

5 Discussion

5.1 Introduction

This study aims to give some practical recommendation to enterprises that are planning or executing a partly outsourced IT project, in term of what kind of internal technical skills are needed to ensure the optimal results.

5.2 Recommendations and development proposals

For an organization to successfully execute a large enterprise IT project, it is important to remember that the external experts typically do not have the in-depth knowledge of the IT landscape of the company, thus, one can not assume that the external experts can come and fix all the problems and built up a solution that would fit perfectly into the existing enterprise IT architecture.

For project management skill, if an enterprise is using industry-standard project management methodology to execute the project, the project can be effectively managed by an external project manager/scrum master. It is also worth considering using a project manager from a different company than the technical specialists (developers). Having the project manager and technical specialists from different company can help ensure that the project manager's interest is in maximizing the output of the specialists rather than maximizing their cost, though this can also lead to conflicts and misunderstandings. Project managers, whether internal or external, should have the full support and confidence of the project stakeholders, to be able to effectively prioritize and allocate the work to be done.

For requirement management skill, the author recommends to have an internal specialist to take the lead. This is because only an internal can have the up-to-date knowledge of the business processes and priorities which can also change radically during the project execution and make quick adjustments to original plan.

Though one of the main drivers for outsourcing was the lack of internal resources, it is worth remembering that even if there is insufficient internal resource to carry out the development work, there must be enough competent resource in place to monitor the performance of the external specialists. This means that it is important to have at least one internal specialist that is at least on roughly the same skill level as the externals. This is to ensure that the work load for the technical implementation work will be properly evaluated and monitored. Also, the internal specialist will have the skills and experiences needed to review and evaluate the quality of the technical solution, to ensure that the solution fits into the enterprise IT landscape and meets the required quality standard.

When working with some niche technology, it may not be possible for an enterprise to have an internal expert in that particular technical area, in this case, the author recommends to start using that technology in a smaller project, and have some internal experts working side by side with the externals. This will help ramp up the internal competence at minimum risk. Also, the smaller project can be used as a test-bed to check the competence of the external experts.

Testing of the technical solution should always be performed by internal specialists, or at least by a third-party service vendor. The skill level required of the testers varies depending on how much of the project is outsourced and the level of involvement of the testing team during the development phase of the project. If the whole project is outsourced in black-box mode (meaning that the whole technical solution is built by the service provider off-site based on written technical specification), highly skilled testers are needed to ensure that the final delivered solution meets all the requirements.

For an enterprise to successfully execute outsourced enterprise IT projects, the organization must have the needed infrastructure to support such activities. The track record and performance of the external specialists and service vendors should be systematically evaluated and used as a reference for the future projects. Thus the sourcing department needs its Sourcing Specialists to have the skill to collect and consolidate the feedback from various project team members, and use them as the basis for performance evaluation. Thus, Sourcing Specialists need to have good practical knowledge regarding

the human resource management theory, since the performance evaluation of the external vendors is rather similar to the appraisal process for the internal employees, which is one key component of the human resource management framework.

There should be enough training, support and career development opportunities for the internal experts who aspire to excel in technical areas. The IT leaders should be fully aware of the challenges encountered in the outsourced project, and take these into account when making strategic decisions on maintaining a proper balance between in-house competence development and outsourcing.

5.3 Suggestions for further research

This study has covered only internal technical competence requirement for an outsourced enterprise IT project during the project execution phase. It is worth noting that technical competence is not the only factor that determines the outcome of the project, thus, it would be worthwhile to research other factors, such as the organization structure (in both the buying and selling parties), communication process / barrier between the internal and external experts etc. These are all interesting and beneficial research topics.

In addition, when the internal IT resource is very limited and only able to monitor the work of the externals, this is seen as enough for ensuring the success of the project itself. But it would be interesting to research how to keep the internal competence on a good level when people are not doing the "hand-on" work, and its longer term impact on the IT organization.

Organizational change has been a constant theme in some of the companies included in the study, it would be interesting to research its impact on the projects.

During the research process, the author was only able to interviewee people that are working "on the floor". It was later found out that strategic outsourcing decisions that are made the top management can have a very long-lasting impact on the level of internal technical competence. The author was not able to approach a senior IT leader

(someone on Chief Information Officer level) to learn about how such decisions are made and how these are followed up and evaluated. This can be seen as a limitation of the research.

5.4 Author's own learning process

Finding the correct theoretical framework of reference is probably the most challenging part of the thesis work. The issue of competence management can be related to many topics such as sourcing, human resource management, organization behaviour, business process development and project management etc. The author eventually chose to narrow it down to only project management and service procurement to avoid expanding the topic because they were seen by the author as the most essential components.

Conducting the interviews were relatively easy for the author, because the author can take advantage of the professional network the author already has and ask for help from the author's current and former colleagues and tap into their professional network. The interview processes were very enjoyable, with some of the people that the author has not seen for many years and to hear them share their experience in their new roles. There are a lot of things that the author had learned from the interviews and practical tips on how to manage thing effectively, so it has been beneficial not only for this research work, but also to the author's own career development in the long run. The author also received positive feedbacks from the interviewees, many commented that the interview has been a good learning process for themselves also.

Keeping the motivation for the long research process has been a challenge for the author. Also the author finds that keeping a right balance between the study and work and family life is challenging as well. Things started to get easier when the author made the conscious (personal strategic) decision on what to focus on and set the priorities accordingly.

5.5 Conclusion

This study aims to provide some high-level general guidance on the optimal mixture of internal and external competence in an enterprise IT project. All the case companies in this study were based in Finland. But the projects involved were very global, some of them were led by the Finnish company's subsidiaries in other countries. So the author believes that the results of the study can be applied to other large global enterprises as well.

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Appendices

Appendix 1 Interview questions

1. Can you briefly introduce yourself, especially your education and experience in the IT projects?

2. Can you briefly describe how the IT unit was set up in your organization? Are all the IT activities centralized in IT unit?

3. Have you worked with some partly or completely outsourced IT project?

4. What has been the most challenging partly or fully outsourced project that you have worked on?

5. How was the project managed? What kind of project management methodology was employed?

6. What was the highest decision-making body of the project (a steering group)? Who are the members of the project steering group?

7. Why was the project work outsourced? Who is the service provider, and what kind of work was outsourced? How did you choose this service provider? Who was the one negotiating the contract with the service provider?

8. What was your own role in that project? And what kind of IT experience did you have before that project? Can you briefly describe the objective of the project?

9. What are the other project team members, both internal and external ones? Can you briefly describe their background and what kind of role they had in this project?

10. How were the externals performing their tasks? Were they on-site or off-site (onshore or offshore)?

11. What was the outcome of the project? Who evaluated the project and based on what criterion was the project evaluated?

12. What do you see as the most challenging part of the project work? What kind of attempts have been made to address the challenges during the project? What was the escalation path in your organization and in the organization of the service supplier?

13. Have you benchmarked against similar solutions created in other company? Or against some other company using the same technology?

14. How is the solution working in the production phase? What kind of support is needed for it? How much downtime has it experienced during the first year in production, and how is it performing now?

15. Has there been any Return of Investment calculation done during the project planning phase? Has it been re-calculated after go-live and compared against the original calculation?

16. Have there been major changes to the original solution after it has gone live in production? How was the change developed and implemented? If it is not done by the original service provider, why?

17. Have you conducted user satisfaction survey? How was the survey conducted? What kind of score have you got? Was there a possibility for user to send in free-form feedback in the survey? What kind of positive and negative feedback have you got?

18. Is there any system in place to track the performance of the supplier? How is the performance tracked (on what level)? How is the data collected used in the future?