

IT sourcing strategy

*Recommendations towards creating IT sourcing strategy
at Erasmus Medical Center*

Master thesis IT Management
by Ing. Ronald Zwart

“The door of opportunity is wide open if you are prepared”

Anonymous

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Preface

This Master thesis has been written to complete the executive Master of IT Management programme at Delft TopTech, the school of executive education which resides under the faculty of Technology, Policy analysis and Management at Delft University of Technology. The case for this Master thesis is IT sourcing strategy creation at Erasmus MC (Medical Center). More precisely, to provide recommendations towards the creation of IT sourcing strategy at Erasmus MC.

The logo of TU Delft carries the flame of Prometheus. In Greek mythology, Prometheus brought the flame from the mount Olympus and gave it to man. Prometheus taught man to master fire, work iron and create a technological civilization. Since ancient times Prometheus is known as a teacher to man and the flame of Prometheus, passed on to man, is known as the flame of knowledge.

Erasmus MC too is committed to enhancing the flame of knowledge. Its university leads the way to new territories of medical knowledge while the hospital applies newly obtained knowledge in every day patient care. The name Prometheus literally means 'forethought'. This research is about strategy which by its nature also requires a great deal of forethought.

In a human context a hospital environment is a place of hope and despair, of joy and grief, of suffering and relief. A place where lives begin and where lives come to an end. The doctors, nurses, scientists and students deserve the best possible support to enable them to perform their daily duties. Therefore, ICT in a hospital environment is, in my opinion, amongst the most noble applications of ICT. From a technical point of view the hospital environment is as impressing as it is complex. Practically all conceivable sorts of IT services and activities are present. Managing this complex environment requires many skills and much knowledge. This is particularly true when it comes to IT sourcing.

It has been a privilege to have been given a glimpse of the complex world of IT at Erasmus MC and to have been given the opportunity to contribute to the creation of its IT sourcing strategy. I want to dedicate a few words of gratitude to the people that supported me in conducting this research.

Firstly, I would like to thank Erasmus MC's CIO Nico Bruens for providing the opportunity to conduct this research and sparing time for interviews. I also want to thank Nico Drost, Frank van Asch, Erik Vermeulen and Joyce Simmons for sparing their time for interviews and providing background information on Erasmus MC.

Special thanks go out to Jan van den Berg, my supervisor at TU Delft who provided me with much insight into the research methodology and structure for this thesis as well as constructive criticism with regard to its contents. Thank you for your enthusiastic support and valuable input.

In addition, I want to thank IT sourcing experts Eric Beulen, Albert Plugge and Albert Sprokholt, for assisting in the validation of the research. Furthermore, thanks go to Sara Cullen and Leslie Willcocks for clarifying the application of the IT Outsourcing Life Cycle model.

Special thanks go out to my manager Jaap van Kooten for his support and understanding for the many days spent away from the office while at work on this research. Thanks go out to my colleague Marlene Gigase for introducing me at Erasmus MC. Furthermore, I want to thank my employer, CSC, for giving me the opportunity to follow the Master of IT Management programme and my colleagues for showing interest in my studies.

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Management Summary

Organizations must have measures in place that enable them to make well-informed IT (Information Technology) sourcing decisions. Without well informed decision making in place, the challenges of IT sourcing decision making can be overwhelming and can easily lead to sourcing mistakes. Making mistakes in IT sourcing can be costly business with potentially massive financial and organizational impact. This is particularly true in outsourcing initiatives where IT services are transferred to third party suppliers. Careful preparation is key to IT sourcing success while failing to prepare is a recipe for disappointment and sometimes outright disaster. Thorough preparation and a structured and holistic approach enables well-informed IT sourcing decision making. This type of approach is the domain of IT sourcing strategy.

This research has been carried out for the Erasmus MC (Medical Center) in Rotterdam and focuses on *providing recommendations towards the creation of IT sourcing strategy*. The creation of IT sourcing strategy is part of a larger initiative to create an overall IT strategy at Erasmus MC.

The field of IT sourcing covers all possible sourcing arrangements from in-house to full blown outsourcing. We draw on semi-structured, face-to-face interviews conducted with five key employees directly involved in IT outsourcing initiatives at Erasmus MC as well as desk research into articles and literature on IT (out)sourcing. We concluded a number of findings from our interviews. Among others, the findings show that the rationale behind IT sourcing decisions at Erasmus MC is not clear and the IT sourcing decisions are not holistic in scope. Furthermore, the findings show that Erasmus MC does not effectively utilize skills from organizational domains outside the IT function that are required to make well-informed IT sourcing decisions such as management, finance or legal skills. Most importantly, the findings show that the approach to IT sourcing at Erasmus MC is an ad-hoc and unstructured process. As a result Erasmus MC is uncertain if it is gaining any of the perceived benefits from IT sourcing such as cost reductions or flexibility.

Based on our findings we formulated a number of recommendations towards the creation of IT sourcing strategy at Erasmus MC. Our recommendations are aimed at areas of organizational change as well as practical steps that will enable the creation of IT sourcing strategy. Firstly, we argue that an holistic, structured and well-informed approach to IT sourcing is the responsibility of senior management and requires the commitment of the board of directors. Therefore, we recommend that Erasmus MC's senior management must personally lead IT sourcing strategy creation and puts IT sourcing strategy on the agenda of the board. Secondly, utilizing skills from all organizational domains will assist in making well-informed IT sourcing decisions at Erasmus MC. Failing to utilize skills outside the IT function poses a risk for outsourcing initiatives since the risks of outsourcing are typically in the non-technical area. Therefore, we recommend that Erasmus MC forms a team of knowledgeable employees to facilitate informed decision making, prepare outsourcing deals and take them to market. Finally the success or failure of sourcing initiatives will be more predictable when sourcing decisions are made in an holistic, structured and well-informed manner. Therefore, we recommend to take an holistic and structured approach by implementing an IT sourcing strategy model.

We tested and validated our research with senior management at Erasmus MC and three IT sourcing experts. Our choice of models was not criticized and subsequently we concluded that there is no evidence that this choice of models is incorrect. We also validated our interpretation of the selected sourcing strategy model with its two authors. Furthermore, we validated our recommendations with senior management and the sourcing experts. The outcome of this validation was inline with our recommendations. Therefore, we concluded that there is no evidence that our recommendations are incorrect.

Finally, we concluded that Erasmus MC can make successful steps towards creating IT sourcing strategy by following our recommendations, provided there is enough awareness and commitment from top management. As a follow up, the actual creation of IT sourcing strategy at Erasmus MC based on our recommendations is planned to start September 2009.

Table of contents

PREFACE

MANAGEMENT SUMMARY

1	INTRODUCTION	1
1.1	IT sourcing strategy	1
1.2	Research objective	2
1.3	Main stakeholders	3
1.4	Scope	3
1.5	Methodology	4
2	ERASMUS MC	6
2.1	Mission and vision	6
2.2	Erasmus MC's ICT department	7
2.3	Future developments in Healthcare and consequences for ICT at Erasmus MC ..	7
2.4	Concluding	8
3	IT SOURCING	9
3.1	IT in-house sourcing	9
3.2	IT outsourcing	9
3.3	Current developments in IT outsourcing	10
3.4	IT sourcing arrangements	11
3.5	Concluding	13
4	IT SOURCING AT ERASMUS MC	14
4.1	Data gathering	14
4.2	Summary of findings	15
4.3	Case example of current IT sourcing practice	17
4.4	Concluding	18
5	IT SOURCING STRATEGY	19
5.1	The relevance of IT sourcing strategy	20
5.2	The relevance of the IT sourcing process	20
5.3	Concluding	21
6	MODELS FOR IT SOURCING STRATEGY CREATION	22
6.1	The EFQM model	22
6.2	Selecting an IT sourcing strategy model	23
6.3	The Outsourcing Life Cycle model	27
6.4	Combining the EFQM model and the Outsourcing Life Cycle model	30
6.5	Concluding	31
7	RECOMMENDATIONS	32
7.1	Suitability of the Outsourcing Life Cycle model	32
7.2	Recommendations towards creating IT sourcing strategy	34
7.2.1	Building Block 1: Investigate	34
7.2.2	Building Block 2: Target Services	35
7.2.3	Building Block 3: Strategize	35
7.3	Recommendations towards organizational change	36
7.3.1	Leadership	36
7.3.2	People	37
7.3.3	Processes, Policy and Strategy	38
7.4	Concluding	38
8	VALIDATION	39

8.1	Methods used for validation	39
8.2	Validation results	40
8.3	Follow up	42
8.4	Concluding	43
9	CONCLUSIONS AND FURTHER RESEARCH	44
9.1	Conclusions	44
9.2	Summarizing the main conclusions	47
9.3	Further research	47
10	REFERENCES AND FURTHER READING	48
11	LIST OF ABBREVIATIONS	50
12	APPENDICES	51
12.1	A. Organizational structure Erasmus MC	51
12.2	B. Organizational structure ICT Department	52
12.3	C. Interview schema	53
12.4	D. Discarding outsourcing myths	54
12.5	E. Creating realistic expectations of outsourcing	54
12.6	F. Collecting market intelligence	55
12.7	G. Profiling a service	55
12.8	H. The MCA model	55
12.9	I. Benefits and Barriers	56
12.10	J. Roll-out strategy	57
12.11	K. Strategic rules	58

1 Introduction

In this chapter we introduce the context, research objective, scope and contents of this thesis. First, we outline the context of this thesis. Next, we formulate the problem description and the exact research objective. Then we attend to the research itself by defining the scope, methodology and contents of the various chapters. For reasons of readability, whenever in this research the terms *sourcing* or *outsourcing* are mentioned, we are discussing *IT outsourcing* or *IT outsourcing*. Occasionally, the prefix 'IT' will be used for emphasis.

1.1 IT sourcing strategy

In this thesis we focus on IT sourcing strategy. There are many different types of services such as logistics, catering, production, engineering and design for which an organization must make sourcing decisions. There is also the sourcing of IT (Information Technology). The sourcing of IT services and technology is arguably the most complex domain in the overall field of sourcing. Information Technology Outsourcing (ITO) in particular is fundamentally different from other types of outsourcing because Information Systems are an integrated part of many business processes in an organization. As such, they influence the execution of these processes directly. Furthermore, the Information Systems function is difficult to separate and its requirements are not easily specified (de Looft, 1996). IT outsourcing is a pressing topic for many organizations and subsequently IT outsourcing is on the agenda of practically every CIO. Research shows that executives consider cost reduction, focus on the core competencies of the Enterprise and access to specialist skills the main reasons for outsourcing (Kakabadse and Kakabadse, 2005; McLellan, Marcolin and Beamish, 1998). Other common outsourcing drivers are; improving quality and simplifying the IT organization (Cullen and Willcocks, 2003). The overall scope of outsourcing is continuing to grow, as organizations focus on their core competencies and shed tasks perceived as non-core (Lindner, J. 2004). In IT sourcing theory, it is considered conventional wisdom that core-activities should stay in-house while non-core activities can be outsourced (Prahalad and Hamel, 1990). Effective cost management and efficient management of outsourcing contracts enables companies to focus on their core competencies and outsource more activities (Kakabadse and Kakabadse, 2005). However, the increasing focus on core competencies has the added complexity of having to manage multiple IT sourcing strategies. As a result managing sourcing relationships is becoming a core competence in itself (Alexander and Young, 1996). Nonetheless, first the organization must make fundamental decisions on what IT services can be outsourced and what services should remain in-house. The decision to outsource IT can have great impact on the organization, in positive as well as in negative ways. Therefore, keeping IT services in-house must always remain a serious option for organizations that are contemplating outsourcing or are already involved in outsourcing. In general organizations tend to follow one of three main paths into outsourcing being "Incremental outsourcing", "Hard learning" or a clear "Strategic approach". Research shows that a strategic approach towards IT sourcing pays long term dividends. (Willcocks, Fitzgerald and Feeny, 1995). This is because a strategic approach enables the organization to make well-informed sourcing decisions thereby preventing costly sourcing mistakes. Making well-informed sourcing decisions is a daunting task for many organizations. In order to get the best possible sourcing arrangement the rationale behind the sourcing decision has to be clear. Sourcing decisions have to be made based on insight and facts rather than on assumptions and beliefs. Outsourcing in itself is no silver bullet, it must deliver clear financial economic, focus and/or quality benefits to the organization. If these benefits are not clear, keeping IT services and activities in-house must always remain a valid option. Sourcing the right services or activities for the right reasons to the right internal or external suppliers requires the holistic, structured and well-informed approach that is the domain of IT sourcing strategy.

1.2 Research objective

This research is commissioned by the CIO of Erasmus MC (Medical Center). The immediate cause for this commission is the initiative at Erasmus MC to create an IT sourcing strategy. This is done as part of a greater initiative to create an overall IT strategy including Governance, Architecture and Sourcing.

Like many organizations Erasmus MC is involved in outsourcing. Erasmus MC has already outsourced parts of server maintenance, data storage, telecom and systems development while other services and activities still remain in-house. Therefore, making IT sourcing decisions is in itself not new to Erasmus MC. However, until present outsourcing at Erasmus MC has been an organic growth path as well as an ad-hoc activity. Information Technology is outsourced as the occasion presents itself. As a result, there is no clear rationale to underpin IT sourcing decisions and no structured approach to making sourcing decisions. As more IT outsourcing opportunities occur, the need for a structured approach to IT sourcing becomes apparent and the sense of urgency increases. Without a structured approach to IT sourcing, making well-informed sourcing decisions becomes exceedingly difficult and Erasmus MC is uncertain if it is gaining any of the perceived benefits of outsourcing Information Technology.

Given the problem description and the commission for this research, what is needed is an holistic, strategic, structured and independent approach to IT sourcing enabling Erasmus MC to make well-informed sourcing decisions. Informed IT sourcing decision making is the domain of IT sourcing strategy. Presently, there exists no IT sourcing strategy within Erasmus MC and senior ICT management recognizes the need for IT sourcing strategy as this will enable management to make informed sourcing decisions. It is believed that IT sourcing strategy may enable Erasmus MC to realize more benefits of outsourcing. Concluding, the compelling event for this research is that currently IT sourcing at Erasmus MC is an unstructured and ad-hoc process. As a result, Erasmus MC is uncertain if it is gaining any of the perceived benefits of outsourcing. To counter this problem, Erasmus MC wants to independently create and maintain IT sourcing strategy. However, Erasmus MC is new to the concepts of IT sourcing strategy. Therefore, recommendations are needed towards the creation of IT sourcing strategy at Erasmus MC. Following the previous problem statement, the research objective is formulated as follows:

To provide recommendations towards the creation of IT sourcing strategy for Erasmus MC.

Given this research objective, the following questions arise:

- 1) *What is the environment of Erasmus MC from a healthcare and IT perspective?*
- 2) *What is IT sourcing?*
 - a. *What are the current developments in IT sourcing?*
 - b. *What are the main IT sourcing arrangements?*
- 3) *How does IT sourcing currently affect Erasmus MC?*
- 4) *What is IT sourcing strategy?*
 - a. *What is the relevance of IT sourcing strategy?*
 - b. *What is the relevance of the IT sourcing process?*
- 5) *What model(s) can we use as a guide to create IT sourcing strategy?*
- 6) *What are possible recommendations towards creating IT sourcing strategy at Erasmus MC?*
- 7) *What can we expect of the recommendations towards creating IT sourcing strategy at Erasmus MC?*

1.3 Main stakeholders

We identified the main stakeholders for this research. Because this research is concerned with providing *recommendations towards the creation of IT sourcing strategy* at Erasmus MC we do not conduct an extensive stakeholder analysis. In case of a follow-up involving the actual creation and execution of IT sourcing strategy more domains within the organization are involved and a more elaborate stakeholder analysis is advisable. The main stakeholders for this research are:

Member of the Board

Charlotte Insinger is member of the board of directors at Erasmus MC and has ICT in her portfolio.

CIO

Nico Bruens is CIO (Directeur Informatievoorziening) for Erasmus MC and the problem owner for developing IT strategy including IT outsourcing strategy. Mr. Bruens is the commissioner for this research.

Business Architect a.i.

Erik Vermeulen is the interim Business Architect assigned to lead the development of the overall IT strategy for Erasmus MC.

1.4 Scope

The research concerns IT sourcing strategy and will be carried out for the Erasmus MC ICT department. The research for this thesis into the field of IT sourcing strategy is part of a greater effort by Erasmus MC to create an overall IT strategy which addresses the IT domains of Governance, Enterprise Architecture and IT sourcing.

The commission for this research is aimed at *providing recommendations towards the creation of IT sourcing strategy*. Due to the commission for this research, the scope of this thesis is limited to providing recommendations towards IT sourcing strategy creation. It is not the objective of this research to investigate the current performance of the internal or external IT function or provide recommendations towards the improvement of these IT functions. This scope limitation is considered a given for this research.

With regard to the technical scope; this research is aimed providing recommendations towards the creation of IT sourcing strategy for technology centric services currently provided by the ICT department. These are systems and networks, maintenance of information systems, software engineering, medical technology and dossier processing. Business centric services such as the information center, consultancy, care and management information are considered out of scope for this research. With regard to the organizational scope; because the medical departments are autonomous in making IT decisions and investments (see Appendix 12.1) the organizational scope is limited to IT sourcing strategy creation for the IT services provided by the ICT department. The organizational units that use IT services from the ICT department are: Patient Care and Health Sciences, Research and Education, Human Resources, Finance, Facility Services and Housing.

1.5 Methodology

The objective of this research is to provide recommendations towards the creation of IT sourcing strategy at Erasmus MC. In order to reach this objective various questions are answered and methods are used. Since we wanted to provide recommendations towards the creation of IT sourcing strategy we first had to obtain insight into how IT sourcing currently affects Erasmus MC. This includes insight into the current problems surrounding IT sourcing and particularly IT outsourcing. To obtain this insight we have conducted semi-structured interviews with Erasmus MC stakeholders. We used the same interview protocol for each interview (see Appendix C. Interview schema) however, we allowed ourselves the liberty to ask additional clarifying questions. Notes were taken during the interviews to register the answers by the interviewees.

Furthermore, we had to create insight into the relation of these problems to IT sourcing strategy. This insight into current IT sourcing problems allowed us to underpin the need for IT sourcing strategy as well as the consequences of a lack of sourcing strategy.

In order to provide recommendations towards IT sourcing strategy creation we had to create insight into the current state and trends of IT sourcing as well as insight into the approaches to the development of IT sourcing strategy in the market.

IT Sourcing strategy is not a new research area and much information is available in books, articles, models, frameworks and more. To obtain the necessary information we conducted desk-research into existing literature, models and articles on IT sourcing and IT sourcing strategy.

We selected two models to underpin the concepts and process of IT sourcing strategy creation. We combined the selected models to provide high-level recommendations towards organizational change as well as a practical, concrete approach to the creation of IT sourcing strategy. The obtained information served as input for our recommendations towards IT sourcing strategy creation. We tested and validated the research and recommendations through expert knowledge validation. The research including the findings and recommendations was presented to senior management at Erasmus and three sourcing experts. Feedback was asked on the findings, validity of the selected models, application of the models and recommendations. Based on the desk-research, interviews, findings, recommendations and validation the final conclusions were drawn and recommendations towards further research were provided.

To answer the research questions we have taken a number of sequential steps. The steps can also be used as a reading guide to this thesis:

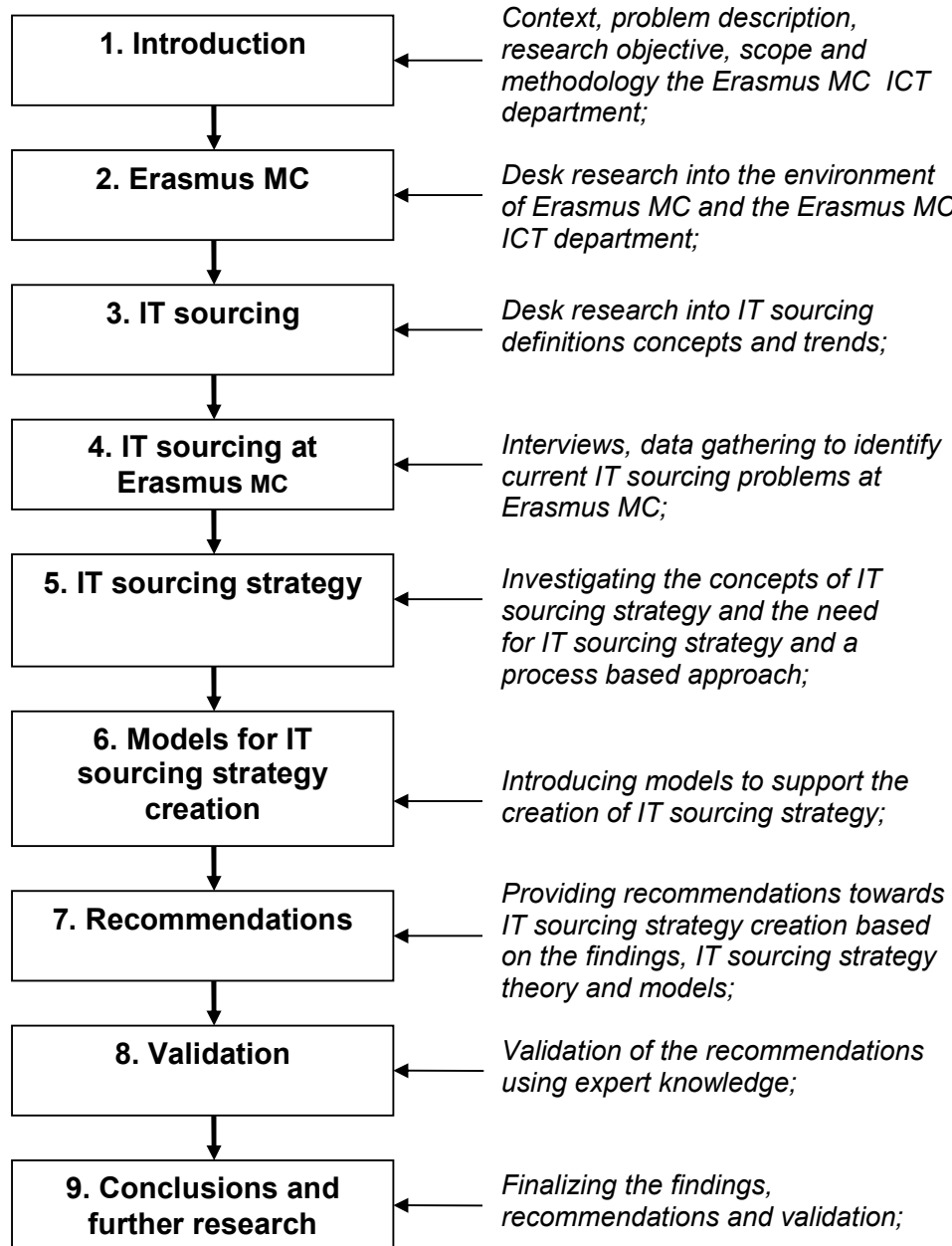


Figure 1: Research approach

2 Erasmus MC

In this chapter we discuss the world of Erasmus MC and the Erasmus MC ICT department to answer research question 1: *What is the environment of Erasmus MC from a healthcare and IT perspective?* By environment we mean the combination of internal and external conditions that affect and influence the organization.

The Erasmus MC was established January 1st 2003 when the faculty of Medical and Health Sciences of the Erasmus University Rotterdam merged with the Academic Hospital Rotterdam. The faculty of Medical and Health Sciences was founded in 1950. The Academic Hospital Rotterdam was founded in 1967 and was originally named Dijkzigt hospital. The Dijkzigt hospital later merged with Sophia Child hospital and the Daniel den Hoed clinic. The result of these mergers is the largest of eight Academic Medical Centers in The Netherlands.

The Erasmus MC is an innovative Medical Center where high-value medical knowledge is developed through scientific medical research, transferred to professionals through education and applied in practice through the daily care for patients. The Erasmus MC is involved in Patient Care, Health Sciences, Research and Education (see Appendix A. Organizational structure Erasmus MC). Erasmus MC employs about 10.000 people. On weekdays, an average of 6000 employees, 4000 patients and their visitors as well as 2500 students visit the Medical Center.

In financial terms the Erasmus MC has a yearly balance of € 890 M of which about two thirds comes from Patient Care (€ 685 M). Patient Care is provided by the Erasmus MC hospital and constitutes by far the largest source of revenue. Another € 120 M comes from the Governmental department of Education, Culture and Science to be used for Health Sciences, Research and Education. The remainder of € 85 M comes from various sources of income such as revenues from medical patents among others.

2.1 Mission and vision

It is the ambition of Erasmus MC to deliver an internationally recognized top performance for each of its three main tasks:

- Knowledge creation (research)
Conducting scientific research at international top level;
- Knowledge transfer (education)
Positioning Erasmus MC as a widely recognized and respected center of education for medicine, patient care and medical sciences;
- Knowledge application (patient care)
Delivering patient care of exceptionally high quality;

The board has, in cooperation with employees, students and patients, developed a strategic vision for the timeframe 2009-2013. This vision is defined in the Koers '013 program. The core of this vision is that by 2013 Erasmus MC will be an internationally recognized center of excellence in the field of Healthcare, with dedicated patient care, world class knowledge transfer and high-value knowledge creation (Erasmus MC, 2008). Working together, crossing borders and being an integral part of society are considered to be essential to the success of this vision. The vision has been summarized in the following mission statement:

The Erasmus MC is, in the field of disease and health, an internationally recognized center for high quality compassionate care, high value knowledge development and knowledge transfer.

2.2 Erasmus MC's ICT department

Healthcare organizations traditionally don't consider IT a critical part of healthcare operations. Instead, IT has usually been viewed as an administrative support function. In healthcare, the investment level in ICT as percentage of the yearly turnover was typically some 1-2%. This is in stark contrast to other industries such as the finance sector where typically 8-10% of the yearly turnover is spent on ICT (Erasmus MC, 2006). As a result the implementation of IT in healthcare lags behind other industries. However, in modern hospitals the delivery of patient care relies on a large number of Information Systems working in perfect conjunction. This includes the integration of administrative, medical and business process support systems. In recent years healthcare's overall dependency upon IT has become more apparent. Across the board healthcare organizations are slowly coming to realize that Information Technology has become an essential component to healthcare's core business. At Erasmus MC the investment level for ICT was traditionally, at 2,5% of the yearly turnover (some € 22M), a percentage which is slightly higher than that of other healthcare organizations. However, the dependency on ICT has also become apparent to Erasmus MC and as a result, Erasmus MC is reserving an additional 6% (some € 30 M) of the overall investment budget for IT investments, such as the replacement of out of date information systems.

The Erasmus MC has a large and varied IT landscape consisting of the HIS (Hospital Information System), application servers, desktops (6500 PC's), data storage, networks, telecom, medical applications and more. The IT landscape at Erasmus MC includes specialized healthcare platforms such as PACS (Picture Archiving and Communication System), PDMS (Patient Data Management System) as well as Thorax (chest and lung) and Cardio (heart) applications for diagnostic support. The ICT department (see Appendix B. Organizational structure ICT Department) is responsible for maintenance and development of the aforementioned platforms. The ICT department has around 250 internal employees. An average of 150 additional external professionals are hired depending on workload at hand. Within the Erasmus MC, the Patient Care department, Health Sciences department and Research and Education department obtain services from the ICT department. These services include Systems and Networking, Maintenance of Information systems, Consultancy & Software, Engineering, Medical Technology, Care administration and Dossier processing. The services are provided by the ICT department through separate internal and external specialized units. While the major Enterprise systems (such as the HIS) are maintained centrally by the ICT department, a number of IT activities are distributed across the organization. Medical departments have their own IT budget enabling them to purchase, develop and maintain their own software, hardware etc. A significant amount of decision making power lies with the heads of the various departments. Furthermore, the individual specialist medical units frequently develop or purchase their own software and maintain their own hardware and infrastructure and employ their own IT employees.

2.3 Future developments in Healthcare and consequences for ICT at Erasmus MC

The world of healthcare will change drastically in the next decades. Increased living conditions through better housing, hygiene, industrialization and education as well as more sophisticated healthcare cause the average life expectancy in Europe to rise. The aging population expects to enjoy old age in good health with a high quality of living. In the next decades this development will put increasing pressure on healthcare services and budgets all across the board forcing management to search for ways to lower the total costs while at the same time continuing to deliver excellent service. This change has already started to take place as budget cuts on Healthcare services are imposed by the government. The ICT department is no exception to the rule and is also confronted with budget cuts. As a result the ICT department has to search for ways to control and lower the operational costs while continuing to deliver excellent service. One of the measures taken is to start outsourcing IT services and activities. This is inline with the belief that outsourcing delivers cost benefits.

In the experience of the individual patient their illness is often unique. However, to the doctor it often is not. In fact, some 80% of all medical treatment is considered to be completely standard. To facilitate these standard treatments so-called *multidisciplinary care paths* will be developed. This involves a patient requiring a common treatment taking a predefined route through the hospital along various medical disciplines. The benefit for both hospital and patient lies in quick diagnosis through combination appointments. Essential to care paths is the availability of complete patient data and the ability to plan back-to-back appointments across various medical departments. This development will lead to a high level of integration of the Information Systems function requiring a high level of interaction, availability and quality from the IT services. However, currently the IT landscape is fragmented. There are many different suppliers of healthcare applications and there is a wide variety in the installed base of applications. Enabling the applications in this IT landscape to interface with each other is challenging from an organizational as well as a technical perspective. Outsourcing IT will only add to this challenge. The ICT department has to look for ways to structure and coordinate this development in combination with outsourcing IT.

Patients with serious afflictions such as cardiovascular diseases previously had little future. Due to advanced treatment these patients now have a highly increased life expectancy. However, this also means more patients have to live with chronic illnesses which requires a more holistic approach to patient treatment. In an holistic approach all relevant diagnostic aspects are taken into account. This approach requires insight into and high availability of patient data as well as the capability to interrelate patient data. Treatment and therapy will be more tailored to the hereditary constitution of the individual patient. This development demands high availability of Information Systems and specialized medical equipment such as molecular imaging as well as the capacity to exchange information across medical systems for analysis. In line with the previous development the ICT department has to look for ways to structure and coordinate this development in combination with outsourcing IT.

2.4 Concluding

The Erasmus MC is the largest of eight Academic Medical Centers in the Netherlands and involved in Patient Care, Health Sciences as well as Research and Education. Erasmus MC aims to deliver world class capabilities in the field of patient care, knowledge development and knowledge transfer.

The world of Healthcare will change drastically in the decades to come. Rising life expectancy and changing demand will put increasing pressure on services and budgets. At the same time hospitals are becoming increasingly dependant on ICT which requires and excellent ICT function if Erasmus MC is to fulfill its mission and vision. This poses additional challenges to the ICT function in healthcare as the ICT department is pressured to deliver excellent service at lower costs.

Subsequently, the Erasmus MC ICT department has to look for ways to control and lower the operational costs while continuing to deliver high quality service. It requires a world class ICT operation, delivered by the ICT department through internal or external sources, to support the future developments at Erasmus MC.

3 IT sourcing

In the previous chapter we discussed the environment of Erasmus MC. Before investigating how this environment is currently affected by IT sourcing we require more information on the concepts of IT sourcing. In this chapter we discuss the concepts of IT sourcing, in-house sourcing, outsourcing and current trends in outsourcing, provide relevant definitions and elaborate on relevant sourcing concepts to answer research question 2: *What is IT sourcing?* as well as sub questions *What are the current developments in IT outsourcing?* and *What are the main IT sourcing arrangements?*

When we consider IT sourcing, this includes the internal sourcing (in-house) option as well as the external sourcing (outsourcing) option. In much IT sourcing literature, however, the in-house option is all too often overlooked and the discussion quickly turns towards outsourcing. We selected a definition we think accurately describes IT sourcing:

IT sourcing means choosing an internal or external source to provide IS products or services (de Looff, 1996).

The first and fundamental IT sourcing decision to be made is whether or not to outsource. A possible outcome of that decision could be that a service is outsourced. It is when we turn our attention to outsourcing that a myriad of possible sourcing arrangements appear.

3.1 IT in-house sourcing

In-house IT sourcing (also called insourcing from a client perspective) involves the internal delivery of IT services and activities by internal personnel. Typically, with the in-house function, each business unit has its own IT and personnel. This option provides tight control over service delivery however, it is also limited in terms of economies of scale and using market expertise.

An insourcing option that is capable of delivering more standardized services at lower costs is the internal shared services center. This insourcing option effectively creates an accountable unit within the organization that delivers IT services and activities to the business units. Another insourcing option that builds upon the shared services center is the branded-services company. This involves the commercial offering of the shared services center's IT services and activities to the market. In practice this option often proves difficult because shared services centers do not possess the required capabilities to deliver IT on a commercial basis. A commercial shared services center has to compete with other suppliers and must make extra costs for sales and marketing among others (Cohen and Young, 2006).

3.2 IT outsourcing

Information Technology outsourcing (ITO) is known under many names such as contracting-out, co-sourcing, multi-sourcing, offshoring, near-shoring, value added outsourcing and many others. Also there is insourcing and intasking which is outsourcing and outtasking seen from the supplier perspective (Delen, 2005). The terminology surrounding outsourcing is far from clear. Many different terms are used and often ambiguously. Various authors have attempted to clarify the terminology. For example, Lacity and Hirschheim (1993) make a distinction between contracting personnel, project management and total outsourcing. Still, there is much ambiguity in outsourcing literature. Over the years, the IT industry has greatly added to the mystique surrounding outsourcing and has, by introducing complex terminology, suggested greater depth, significance and potential benefits than often actually materialize (Cullen and Willcocks, 2005). Therefore,

from a client perspective it is advisable to remain skeptical and maintain a somewhat aloof attitude towards the resounding terms and promising perspectives promoted by the IT industry. The scope of IT outsourcing varies greatly. It can range from hiring an external consultant to contracting out the development of a new Information System to transferring entire IT departments including assets and personnel (de Looft, 1996). There are many definitions of outsourcing to be found in literature. Many of those definitions are overlapping to a large extent. Despite the variety of arrangements, terms and definitions, IT outsourcing is basically the handing over of IT activities and assets to a third party (Willcocks, Fitzgerald and Feeny, 1995). We selected the following definition which we think accurately describes outsourcing:

Outsourcing is the decision taken by an organization to contract out or sell the organizations assets, people, processes and/or activities to a third party supplier, which in exchange provides and manages assets and services for monetary returns over an agreed period of time (Kern and Willcocks, 1999).

The above definition breaks outsourcing down into its fundamental components and their relations. Note that Kern and Willcocks do not limit their definition to IT, instead the definitions are equally applicable to other domains. We argue that, at a higher level of abstraction, outsourcing is a management strategy for the delivery of services. According to Cullen and Willcocks (2003) the real question a company has to ask concerning outsourcing is not as much whether or not to outsource but rather how to exploit the internal or external IT services in order to achieve business leverage.

3.3 Current developments in IT outsourcing

Research shows the top three drivers for outsourcing are still cost reduction, flexibility and quality. Cost reduction can be achieved through economies of scale and cost effective access to specialized IT services and skills. Interestingly, despite many years of outsourcing practice, IT as business enabler is still not a top reason. This is arguably because IT is still primarily thought of a costly support function instead of a potential business enabler (Cullen and Willcocks, 2005).

Outsourcing industry data indicates the outsourcing market is still growing. Desktop-network-, hosting-, server management, technical- maintenance- and helpdesk services are becoming commodities as the world is fast becoming smaller due to faster and cheaper communication. Global sourcing is on the increase. In Europe outsourcing is accelerating (Kakabadse and Kakabadse, 2005). Research from Willcocks et al. (2002) showed that 28% of the average annual IT budget was spent on outsourcing. By 2005 it was 33% of the average IT budget. For 2011 some 31,6% more spending on outsourcing budgets is predicted compared to 2007 (Edgell, Meister and Stamp, 2008). Possibly this percentage will be even higher as companies struggle to survive due to the current global economic downturn and turn to cost cutting measures. Still, the majority of companies are outsourcing selectively, well under the 40% of their business functions, outsourcing only those functions that offer clear business advantages and managing the remaining IT functions in-house (Jurison, 1998).

Currently, most clients are involved in trusted supplier and single contract outsourcing arrangements. The majority of outsourcing relationships will continue to be preferred supplier relationships. However, it is expected that single contract will be less favored in the future. Instead buyers will increasingly move towards less traditional outsourcing arrangements (Kakabadse and Kakabadse, 2005). This is because the common belief is that individual suppliers do not possess world class capabilities in all business and technology areas. Therefore activities are often outsourced to multiple suppliers. As a result the company has to manage an increasing number of outsourcing strategies. Subsequently, successfully managing the outsourced relations is becoming a core competence in itself. Today, outsourcing is regarded a standard IT management tool. Research among US and European companies positions outsourcing as an important strategic lever. Despite the fact

that cost reduction is still the main driver for outsourcing, it is projected that in the long term, from the perspective of client organizations, the emphasis will shift from cost reduction to focusing on core competencies and providing added value. From tight control over processes to focusing on output and managing risks. From decision to governance and from buying solutions to buying relationships (Kakabadse and Kakabadse, 2005). However, research among IT executives also shows that the global recession the world is entering now is expected to have its effects on the outsourcing market. An economic slowdown will see a move back towards cost-driven outsourcing (Edgell, Meister and Stamp, 2008). Therefore, in the short term, cost control is likely to remain more important than service or value driven deals despite the fact that over the long term, service driven or value driven deals tend to deliver more stable and successful relationships. In his article "Outsourcing, a game for losers" Strassmann (1995) argued that companies mostly venture into outsourcing to free up capital. This statement was made with the economic malaise of the 80's in mind. With the current global economic situation in mind this statement may be up-to-date once more. In fact during the last economic slowdown after the burst of the internet bubble, outsourcing was one of the few ICT market segments that showed growth. Concluding, due to the difficulties for organizations of keeping up with the rapid advancements in IT technology, outsourcing of IT based services and activities will continue to receive major focus (Kakabadse and Kakabadse, 2005). However, The extend to which the company will be successful in pursuing outsourcing is very dependant on the strategic focus given to the outsourcing effort and whether IT is considered an enabler for creating business advantage (Cullen and Willcocks, 2005).

3.4 IT sourcing arrangements

IT sourcing arrangements can take on many different forms each providing a varying degree of direct control and demanding different styles of governance from the buyer. Next we give a short overview of the major forms of IT sourcing arrangements based on literature by Delen, 2005 and Cohen and Young, 2006. This overview clearly shows the myriad of available sourcing arrangements available to the organization and as such is a clear indicator that structured and well-informed decision making is a necessity in order to select the right sourcing arrangement for the organization.

Transitional outsourcing is the handing over of legacy systems to a third party to enable the organization to focus on realizing its new IT landscape. In sourcing literature, this form of outsourcing is considered relatively low risk.

Value added outsourcing combines client and supplier aspects to deliver services to the market commercially. This form of outsourcing can be used by an organization in order to buy itself a piece of market share. However, in practice value added outsourcing can be very expensive due to high costs of commercializing a product or service.

Co-sourcing is an IT sourcing arrangement in which the supplier takes over an activity, optimizes it and is rewarded based on the improvement in the clients business results. In practice the results for this type of arrangement for the client are mixed because supplier performance may be below par.

Multi-sourcing involves the outsourcing to a number of suppliers. This is a much preferred set-up since it allows the organization to selectively chose suppliers based on a 'best-of-breed' approach as well as spread risks. In some multi-sourcing scenarios the main supplier will manage various subcontracting suppliers. The drawback here is that suppliers often can not be trusted to manage each other.

ASP (Application Service Provisioning) sometimes also called **Netsourcing** is about renting applications and services over networks. This type of outsourcing has been made possible by the explosion of broadband capacity around the year 2000. Following the collapse of the internet bubble the development of ASP arrangement has come to a halt. Recently this type of outsourcing arrangement has found new attention under the name **SAAS (Software as a Service)**

Business Process Outsourcing (BPO) involves the contracting out of operations and responsibilities for a specific business process. BPO can be divided into back office outsourcing of internal business activities (for example human resources, finance or accounting) and front office outsourcing of customer related activities (for example a call center or helpdesk)

Backsourcing is bringing (parts of) IT back in-house after initial outsourcing. A common reason for backsourcing is that the organization may find the IT function to be critical to the success of the organization and wants to have full control over it. Another reason may be that the supplier performs below expectation. The latter happens often in systems development outsourcing, especially in offshoring and near-shoring arrangements where in many cases the results remained below expectation. A common reason for outsourcing of systems development to fail is that its success relies heavily on developers having intimate business knowledge and working in close interaction with the business.

In-house involves the internal delivery of IT services and activities by internal personnel. As explained earlier the in-house delivery can also involve internal shared services centers or branded services companies.

Shared Services involves an internal or external accountable entity (the shared service center) in- or outside the organization that provides services to the business units. The aim of this arrangement is to reduce costs, increase quality and transparency. The shared service center set-up is often used internally to professionalize the internal ICT department and make ICT costs more transparent. This setup can also be used externally by outsourcing to a third party supplier. In this setup, multiple customers outsource a non-competitive activity together to the same supplier to achieve cost reduction through economies of scale. For example, in the Netherlands all banks have outsourced their payment transactions to Interpay B.V. which is a joint venture between the banks.

Offshoring involves the transfer of service operations to countries outside the organizations geographic region. The primary motive for this type of arrangement is commonly cost reduction by taking advantage of lower cost of labor in other countries. With 80% market share, India is the largest offshoring supplier. Other rising offshoring powers are new locations in the BRIC (Brazil, Russia India, China) countries. Indian service providers are often promoted as cheaper, quicker and better than western service providers. However, in practice the results often leave much to be desired. Quality often suffers from high personnel turnover, difficult communication and cultural differences among others. Also management costs can be higher with this type of arrangement.

Near-shoring is the regional variant of offshoring. In a near-shoring scenario services are outsourced to a neighboring country or a country in the same geographic region. In the early days of offshoring to India based suppliers cost benefit margins of 40-50% were not uncommon due to low cost of labor and taxes. Recently, due to the decline of the Dollar/Euro vs the Rupiah and overall rising cost of labor, taxes and real estate in India the cost benefit margin has declined to 20-30%. This decline, combined with the problems of outsourcing to India mentioned earlier, makes near-shoring a more attractive alternative for European organizations. Advantages of near shoring are less physical distance, less cultural differences and better communication among others. In Europe typical countries for providing near-shoring services are typically eastern European countries such as the Czech republic and Hungary.

Joint Venture involves the joining together of client(s) and supplier(s) by creating a new business entity. This new entity may be used for a specific project or a continuing business relation. All parties contribute equity and agree to share risks, profits and losses. This arrangement can be used by an organization to commercialize services in which the organization has superior skills in combination with the added skills of an external party or parties.

3.5 Concluding

In the 90's single-sourcing arrangements were commonplace. In these arrangements the IT services were provided by a single supplier. Outsourcing organizations came to realize that suppliers can not provide world class services in every IT discipline. Furthermore, single-sourcing poses the risk of the organization becoming over-dependent on one supplier. Today, multi-sourcing is the commonly preferred form of outsourcing. This form of outsourcing enables the outsourcing organization to select best of breed suppliers for specific IT domains. However, since in a multi-sourcing arrangement multiple suppliers are working together, this makes the management of such arrangements more complex. Multi-sourcing requires a high level of professionalism strategically, tactically and operationally.

Outsourcing at Erasmus MC is a multi-sourced environment. This is more because of organic growth than by design. Nevertheless, the current outsourcing environment at Erasmus MC is inline with current developments in the market. However, in order to remain in control of the growing multi-sourced environment at Erasmus MC it is important to change the current IT sourcing approach from organic growth to a more holistic, structured and pre-defined plan if Erasmus MC is to realize the perceived benefits of IT outsourcing.

4 IT sourcing at Erasmus MC

In the previous chapter we discussed the concepts of IT sourcing. In this chapter we discuss the current problems surrounding IT sourcing at Erasmus MC to answer research question 3: *How does IT sourcing currently affect Erasmus MC?*

The fact that currently there is no IT sourcing strategy at Erasmus MC is considered a given.

If we are to provide valid, useful recommendations towards the creation of IT sourcing strategy we require insight into the current approach to IT sourcing at Erasmus MC. This provides insight into how IT sourcing currently affects Erasmus MC, the way in which sourcing is conducted at Erasmus MC as well as the gaps with respect to IT sourcing strategy. Therefore we required information on how IT sourcing decisions are made at Erasmus MC, how the rationale that underpins (out)sourcing decisions is determined, how services are selected and more. The necessary information was obtained through conducting five semi-structured interviews with key employees directly involved in IT sourcing at Erasmus MC. Based on this information we determined where the approach to IT sourcing at Erasmus MC differs from existing theory on IT sourcing strategy. By analyzing the gaps we then provide recommendations towards the creation of IT sourcing strategy at Erasmus MC.

4.1 Data gathering

Conducting semi-structured interviews as a means of gathering data is a generally accepted form of exploratory research. We did not choose the structured interviews approach because we did not want to limit the research to a strict set of predefined questions. Instead, semi-structured interviews provide the liberty to ask additional, clarifying questions. Furthermore, as the research base consists of a relatively small number of interviews there is no need for standardized interviews in order to compare large amounts of data. We interviewed five key employees at the strategic and tactical level in the organization. This will provide the necessary information on IT sourcing experiences and problems at these levels of the organization. The interviewee group represents a variety of skills, knowledge and responsibilities in the organization allowing us to cross-examine the beliefs, practices, approaches and decision making surrounding IT sourcing. The result will be a general image of the state of IT sourcing at Erasmus MC.

In the period September - October 2008 five semi-structured interviews were held with the following key Erasmus MC employees:

Strategic level (concerned with long term objectives):

- Nico Bruens, CIO, (interviewed on 08-10-2009);
- Erik Vermeulen, interim Business architect, (22-10-2009);

Tactical level (concerned with mid- to short term objectives):

- Nico Drost, Manager systems development, (interviewed on 26-09-2009);
- Frank van Asch, Business architect, (03-10-2009);
- Joyce Simons, Program manager, (07-10-2009);

The same questions have been asked in every interview in order to be able to compare the interviews. However, we have allowed ourselves the liberty of asking additional clarifying questions. Prior to the interview we explained the immediate cause for the research. Each interview lasted approximately 1,5 hours and notes were taken during the interview. After completing the interviews the notes were processed and the resulting interview reports analyzed. See appendix C. Interview schema for further information on questions asked in the interviews.

4.2 Summary of findings

In this paragraph we present the findings from the interviews. During the interviews a number of problems were explicitly put forward by the CIO and interim Business Architect. Other problems were recognized from observations and analyzing the interview data. Due to the nature of the problems surrounding IT sourcing at Erasmus MC the emphasis of the findings is on IT outsourcing. We provide illustrative quotes from the interviews to underpin the findings. Furthermore, we provide an illustrative case example of the current IT sourcing practice. From the interviews we concluded that the following IT sourcing problems exist at Erasmus MC:

1. Expectations of outsourcing

The main reasons for outsourcing at Erasmus MC are the conventional reasons of cost reduction, flexibility and quality through access to superior skills. Of these, cost reduction is the most important reason. The other reasons for outsourcing, flexibility and quality, are considered relevant but less important.

Among middle management at Erasmus MC there is the attitude that outsourcing is appropriate for most IT services and activities. There is little contemplation on whether outsourcing does provide realistic financial-economic benefits to the organization. There is also little concern whether IT services are core to the business or not and what the consequences are of outsourcing core services. In fact, the interviews showed that middle management is quite prepared to outsource systems that are vital to the business (in this case the Hospital Information System) without thoroughly considering the consequences of such a decision. Furthermore, the general belief surrounding outsourcing is that outsourcing will by default achieve lower IT costs and better quality. Senior management is more realistic about the realities of outsourcing. Among senior management there is increasing doubt whether current outsourcing arrangements are beneficial to Erasmus MC. However, there is little insight in the performance of the internal and external IT function. As a result, there currently is no insight if the perceived benefits of outsourcing are actually realized at Erasmus MC.

The CIO: *"We can not tell if suppliers to which we outsource do a better job than we do".*

The interim Business Architect: *"The drivers and arguments for the outsourcing decisions are not clear. Erasmus MC acts as if outsourcing is appropriate in any scenario".*

2. Level of decision making

The initiative to outsource IT is informally taken at middle management level. Furthermore, the decisions to outsource IT services or activities are to a large extent 'pre-cooked' by middle management. Subsequently, while the formal decision power lies with the board and CIO, middle management has a lot of actual decision power by being in control of the outsourcing initiatives. However, middle management lacks the strategic oversight which must be expected of senior management. This includes lack over oversight of the benefits and dangers of IT outsourcing, interdependencies among outsourcing initiatives, the order of outsourcing initiatives, strategic importance of services outsourced and what services are core to the business. As a result, no holistic, structured and well-informed approach to outsourcing is taken.

The CIO: *"We don't know the rationale behind many of our IT sourcing decisions (within Erasmus MC)".*

3. Business-IT alignment

Business-IT alignment is not part of the IT sourcing approach at Erasmus MC. Outsourcing is primarily initiated from a technological perspective by the ICT department. In the process of outsourcing IT, the business is not actively involved. The ICT department views IT outsourcing mainly as a transaction having to do with transferring technology to a

third party supplier. Demands such as service levels, availability and continuity are primarily viewed from a technical perspective. The potential impact on business is underestimated. As a result there is no insight whether the outsourcing initiatives are aligned with the business.

Again, the CIO: *“Are our outsourcing decisions inline with what Erasmus MC wants as an organization?”*.

4. Skills and competencies

IT outsourcing is initiated by the ICT department and managed by employees with a technical background and technical capabilities. Other capabilities such as business, finance and commercial skills are not actively involved in sourcing initiatives. As a result the perspective on the outsourcing deals is a one-sided technical view.

The Business Architect: *“The organization behaves as an adhocracy but lacks the competencies required for this behaviour”*.

The term adhocracy refers to the fact that the ICT department appears very confident of its outsourcing skills despite the lack insight into the realities of outsourcing and of a structured approach. Indeed, an adhocracy requires a very high level of knowledge and professionalism from employees.

5. Approach to IT sourcing

There is an ad-hoc approach to IT sourcing at Erasmus MC. Outsourcing initiatives are taken on a per opportunity basis. This is done without thorough research of interdependencies between services, in-depth research of the performance of the in-house function or looking at the future of IT sourcing at Erasmus MC. This, over time, has resulted in a multi-sourced environment by default, not by design. There is no holistic view on the direction Erasmus MC is heading with IT sourcing and outsourcing in particular. As a result, Erasmus MC drifts into outsourcing without a clear rationale to underpin sourcing decisions and has little insight if sourcing arrangements fit with the business or how the initiatives can be managed in a structured manner. Senior management recognizes the dangers of this unstructured approach. Middle management does not pay serious attention to the dangers of this approach and is instead more concerned with every day issues. As a result, due to the ad-hoc, unstructured, non-holistic approach, there currently is no guarantee that Erasmus MC is making sourcing decisions that are beneficial to Erasmus MC. Clearly, a more holistic and structured approach is needed.

The interim Business Architect: *“There is no pre-defined plan or process for outsourcing, everything is done completely ad-hoc”*.

6. Informed decision making

There is no pre-defined set of rules, guidelines or strategic decisions to support IT sourcing decision making at Erasmus MC. Outsourcing decisions are taken intuitively and IT services are outsourced for a large part based on the assumption that external suppliers will deliver a better performance than the in-house IT function. With little insight into the current in-house IT function from a performance and financial perspective there is no way to guarantee if the ICT department is making IT sourcing decisions that are beneficial to Erasmus MC as a whole. As a result, there is no clear rationale to underpin the IT sourcing decisions and no insight if sourcing decisions are taken for the right reasons. By rationale we mean the fundamental underlying reason or reasons serving to account for the internal or external sourcing of a service or activity.

The CIO: *“It appears as if we are very convinced that outsourcing is a good idea but we have no evidence to underpin that the outsourcing decisions we make are solid”*.

7. **Selecting IT services**

There is no structured approach or method for selecting the internal or external sourcing arrangement for IT services and activities at Erasmus MC. Currently, every IT service or activity appears to be a potential outsourcing candidate without researching if the service is outsourced for the right reasons. The current outsourcing mode is multi-sourcing, this is the result of piecemeal sourcing instead of a predefined plan. There are no clear pre-defined criteria to underpin the decision why a service can be outsourced or why it can not be outsourced. Also, there is no clear view of alternatives to outsourcing such as in-house process or quality improvements. As a result, it is not clear if services are outsourced for reasons beneficial to Erasmus MC.

Again, the interim business architect: *“Regardless whether Erasmus MC’s outsourcing initiatives are successful; there is no clear rationale behind the decisions taken”*.

8. **IT supplier knowledge**

At Erasmus MC, there is a lack of knowledge of the IT supplier market. Suppliers are commonly selected as the outsourcing opportunity presents itself without in-depth research into their strengths and weaknesses. IT services are outsourced based on the assumption that external suppliers have superior processes and skills instead of hard facts and knowledge about the performance of suppliers. Also, no thorough comparison between suppliers is conducted before bringing an outsourcing deal to the market. As a result, there is no proof or guarantee that Erasmus MC selected the right suppliers for the right reasons.

The Manager systems development: *“We select a supplier and if we think their proposal is ok, we go for it”*.

4.3 **Case example of current IT sourcing practice**

We argue the following case of outsourcing the new ERP (Enterprise Resource Planning) system is illustrative of the current IT sourcing practices and problems at Erasmus MC. The HIS (Hospital Information System) has reached its end-of-life stage. In fact, the supplier has announced a phase-out and will cease to support the HIS in the nearby future. Currently, Erasmus MC is hiring the supplier’s personnel to keep the system up and running. The HIS is effectively a large collection of inter-communicating applications. This involves applications for finance, administration, patient admission as well as patient data, inventory, apothecary, storage of medical images, medication admission, kitchen and food services and much more. Because of the large number of separate Information System functions, a program (overall budget € 30 M) has been initiated to replace the current HIS. One of the projects involved in replacing the HIS is the development of a new ERP system. The ERP system is aimed at replacing a number of applications for business processes such as finance, administration, patient admission and planning among others. The ERP system is essentially a mission critical administration system. If this system is down for more than a week the hospital effectively faces bankruptcy. Nevertheless, the development of the new ERP system is commissioned including the outsourcing of system maintenance as one package. Subsequently, whatever supplier wins the ERP deal also wins the maintenance. The rationale behind this decision according to middle management is that it seems convenient that maintenance is done by the same supplier. However, the possibility that there may be other suppliers that would be better qualified for maintaining the new ERP system has not sufficiently been investigated. Furthermore, what will be the consequences of outsourcing a mission critical system like the ERP system has not been thoroughly investigated. Also, since every outsourcing initiative is started on a per project basis, there is no holistic approach to outsourcing in the HIS replacement program. From a strategic point of view, outsourcing mission critical applications is no option according to senior management at Erasmus MC. However, that is effectively what is being done by outsourcing the ERP system. The whole process of selecting the services, selecting a supplier, designing the contract and more is executed by middle management

and operational staff with insufficient supervision from senior management. As a result, middle management is making plans to outsource the maintenance of the ERP system and integrating this in the RFP (Request For Proposal) to put to the market while senior management assumed that the maintenance of the HIS will not be outsourced. We argue that this case shows the lack of holistic, strategic and structured approach to IT sourcing.

4.4 Concluding

Senior management recognizes there are problems surrounding outsourcing at Erasmus MC. Currently, Erasmus MC has already outsourced a number of IT services and activities including telecom, server maintenance, network maintenance and data storage.

Outsourcing at Erasmus MC is gaining momentum as more services become outsourcing candidates. However, currently this is an organic growth process and as such Erasmus MC is at risk of drifting further into outsourcing arrangements without a clear rationale and well-informed strategic approach to underpin sourcing decisions. Outsourcing is conducted on an ad-hoc basis. Overall there is no holistic, structured and repeatable approach to IT sourcing at Erasmus MC. There is no deliberate plan of action, set of plans, decisions and directives to guide the organization in making informed outsourcing decisions. As a result Erasmus MC is unable to answer the fundamental question: "Did we outsource the right services for the right reasons to the right suppliers?". We argue that to be able to answer this fundamental question affirmatively requires a drastic change in the approach to IT sourcing at Erasmus MC. A new holistic, strategic, structured and repeatable approach to IT sourcing which will enable Erasmus MC to make well-informed outsourcing decisions is needed.

This approach to IT sourcing is the domain of IT sourcing strategy which we will discuss in the next chapter.

5 IT sourcing strategy

In this chapter we discuss the concepts of IT sourcing strategy, its relevance and the relevance of the sourcing process to answer research question 4: *What is IT sourcing strategy?* as well as sub questions: *What is the relevance of IT sourcing strategy?* and *What is the relevance of the IT sourcing process?*

Strategy is often used in a business context as a plan for controlling and utilizing resources and is a primary concern of senior executives and business owners. Much has been written on strategy from a business competition perspective. Porter (1996) describes strategy as “a broad formula for how business is going to compete”. Henderson (1989) describes strategy as “a deliberate search for a plan of action that will develop a business’s competitive advantage and compound it”. Strategy is an iterative process that requires the ability to understand complexity and begins with determining the current situation. Ultimately, strategy is all encompassing, relying on the commitment and dedication of the whole organization (Henderson, 1989). Most of all, strategy is about doing the right things.

An IT sourcing strategy is a specific form of strategy. We selected a definition we think accurately describes IT sourcing strategy:

IT sourcing strategy is a set of scenarios, plans, directives and decisions that define and integrate the internal and external resources and services (Cohen and Young, 2006).

In literature and articles on the subject, *IT sourcing strategy* is often confused and used interchangeably with *IT outsourcing design*. Suppliers and consultancy firms often use the terms sourcing strategy or outsourcing strategy to indicate the various outsourcing arrangements and the process of selecting the appropriate arrangement (Sprokholt, 2007). As a result, IT sourcing strategy creation is often oversimplified to describe a basic outsourcing transaction. However, it is important to realize that from a client as well as a supplier perspective, IT sourcing strategy encompasses much more and selecting the right outsourcing arrangement is only part of the process. IT sourcing strategy is about having the IT organization reach its goals faster and more efficiently. IT sourcing strategy also includes the keeping in-house option and is more holistic in scope than the term IT outsourcing strategy.

Therefore, we prefer to talk about IT sourcing strategy instead of IT outsourcing strategy. IT sourcing success is dependant upon many factors such as retaining the proper core capabilities, targeting the right services, selecting the right suppliers and managing the sourcing initiatives through their life cycle among others. The outcome is determined by how the sourcing process is managed before as well as after signing the contract. The basis for this approach is the set of scenarios, plans, directives and decisions known as IT sourcing strategy.

It is a widely supported view that IT sourcing strategy creation is an internal affair affecting all layers of an organization (Cullen and Willcocks, 2005; Delen, 2005). IT sourcing decisions can potentially have a deep organizational and financial impact and therefore IT sourcing strategy must be the responsibility of the organizations top management. From a clients perspective, developing IT sourcing strategy is about extensive planning and preparing so the organization can make well-informed decisions regarding IT sourcing (Cullen and Willcocks, 2005). As such, IT sourcing strategy creates an holistic and structured approach towards the internal and external sourcing of IT services and activities. Ideally, the IT sourcing strategy is completely in-line with the business and IT strategy. An IT sourcing strategy provides a high level of control over IT sourcing decisions and their relation to the overall business and IT strategy. This level of control is not possible in an ad-hoc approach to sourcing decisions.

5.1 The relevance of IT sourcing strategy

Research shows that the majority (over 70%) of organizations does not have a formal IT sourcing policy in place while only a minority approaches IT sourcing in a strategic manner (Willcocks, Fitzgerald and Feeny, 1995; Cullen and Willcocks, 2003). However, for successful internal or external IT sourcing, the organization first has to know itself deeply. This preparation costs time, money and management focus. Outsourcing IT usually has a bigger potential impact on the organization when compared to internal IT sourcing. Nevertheless, many IT outsourcing deals are constructed in a hurry and little effort is spent on thorough preparation. This lack of preparation and planning causes many outsourcing deals to fail after the contract is signed.

In general, organizations tend to follow one of three main paths into outsourcing. These three main paths are: *Incremental outsourcing*, *Hard learning* or a clear *Strategic approach* (Willcocks, Fitzgerald and Feeny, 1995). *Incremental outsourcing* starts small to achieve clear cost savings and gradually increases in size and impact. The *hard learning* approach is to drift or be pressured into quite large scale outsourcing with little experience of how it should be managed and make many mistakes over several years and contracts. These two approaches lack a transparent, underpinned argumentation for the decision to venture into outsourcing. The *strategic approach* is concerned with how the IT sourcing arrangements fit with business vision and mission and how it can be managed. Without a clear IT sourcing strategy to underpin IT sourcing decisions an organization will most likely follow the incremental or hard learning approach. An IT sourcing strategy on the other hand enables structured and well-informed decision making as well as a better fit with the business allowing the organization to source IT either internally or externally based on a clear rationale. This is why a strategic approach towards making IT sourcing decisions can pay more long term dividend than the other two approaches.

The fundamental underlying question of external sourcing is how to exploit the external IT services market successfully in order to achieve business leverage. IT sourcing strategy provides a structured approach for an organization to answer this question.

Another aspect to consider with regard to IT sourcing strategy is the low capacity for organizational learning from failed outsourcing deals. Organizations show little capacity for learning from failed outsourcing deals for various reasons; the company may have changed, the reasons for outsourcing may have changed or knowledgeable people may have left the company. As a result, organizations often find they have to learn anew every outsourcing deal. This shows there is a need for a well structured, repeatable approach that is not only implicitly embedded in the minds of employees but is also explicitly embedded in the organization. This structured approach to IT sourcing is an essential part of IT sourcing strategy.

Ultimately the value proposition that IT sourcing strategy brings is that it allows the organization to make holistic, structured and well-informed decisions concerning internal and external sourcing.

5.2 The relevance of the IT sourcing process

The success of IT sourcing depends heavily on how the sourcing process is managed internally as well as externally, before as well as after the contract is signed (Cullen and Willcocks, 2005). However, a considerable portion of IT sourcing literature is aimed at identifying the key success *factors* to IT sourcing. The overall *process* which links these factors together in a logical, sequential order has been given much less attention in literature. Creating IT sourcing strategy and managing the sourcing process is not a “one off” exercise, instead it is an ongoing process. An organization must first have a thorough understanding of what it is outsourcing, why and how as well as which IT services must remain in-house. Then, as the organization evolves, new services and activities may be developed that may become potential outsourcing candidates. Furthermore, as suppliers mature more IT services within the organization may become potential candidates for outsourcing. This process of developing IT sourcing strategy, targeting services, negotiating and managing the contract requires constant evaluation and refresh. This process is

referred to as the IT sourcing life cycle. A life cycle approach can eliminate many easily avoidable mistakes. Instead of attempting to manage a large number of separate key success factors, a structured process provides insight into the interdependency of factors as well as an order in which to execute the various steps.

This is why the IT sourcing process matters. It does, however, require greater effort, planning and management focus. The pay-off for this greater effort comes in the form of holistic and well-informed sourcing decisions that are aligned with IT strategy and business demand.

5.3 Concluding

Organizations create strategy to prepare for the future and compete. IT sourcing strategy is a specific type of strategy with the same purpose: to prepare for the future. This is done by developing a set of scenarios, plans, directives and decisions that define and integrate the internal and external resources and services.

IT sourcing strategy is primarily an internal affair and the direct responsibility of top management. However, it requires willingness and ability on the part of top management as well as insight into the importance of IT sourcing strategy to create and maintain an IT sourcing strategy. Without IT sourcing strategy in place the organization will have less control over IT sourcing decisions and may remain unaware if the right services are sourced to the right internal or external suppliers for the right reasons. IT sourcing strategy requires a regular refresh therefore a life cycle process based approach pays dividend.

Ultimately, IT sourcing strategy allows the organization to make holistic, structured and well-informed decisions concerning internal and external IT sourcing.

6 Models for IT sourcing strategy creation

In the previous chapters we discussed the need for IT sourcing strategy as well as the relevance of sourcing strategy. In this chapter we introduce the EFQM model and the Outsourcing Life Cycle model to underpin our recommendations towards the creation of IT sourcing strategy and answer research question 5: *What model(s) can we use as a guide to create IT sourcing strategy?*

The creation and subsequent execution of IT sourcing strategy requires changes at multiple organizational levels. Firstly, the organization must be enabled to facilitate the creation of IT sourcing strategy. Secondly, concrete, practical steps towards the creation of IT sourcing strategy must be provided. Therefore, we selected the EFQM model to assist in providing high-level recommendations towards organizational change that enable the creation of IT sourcing strategy. Furthermore, we selected the Outsourcing Life Cycle model to provide concrete, practical recommendations towards the creation of IT sourcing strategy. In our research, we combine these two models in order to provide an holistic set of recommendations towards the creation of IT sourcing strategy. As far as we can determine (based on our validation), the use of the EFQM model to assist in the creation of IT sourcing strategy is a new application of this model. Furthermore, combining the EFQM model and the Outsourcing Life Cycle model is new to the field of IT sourcing strategy.

6.1 The EFQM model

In line with the vision that IT sourcing strategy must address all organizational areas we searched for a means to safeguard the quality aspect and ensure no possible organizational areas of change are missed. There are various methods to safeguard the quality aspect. Commonly governance or project management models are used for this purpose. Instead of using a governance or project management model we selected the EFQM model (European Foundation for Quality Management) to target high-level areas of organizational change. We selected the EFQM model (Figure 2) because it provides a transparent and straight forward approach to IT target areas of organizational change. Furthermore, it is one of the most widely used quality models in Europe, particularly by government and semi-government organizations such as Erasmus MC.

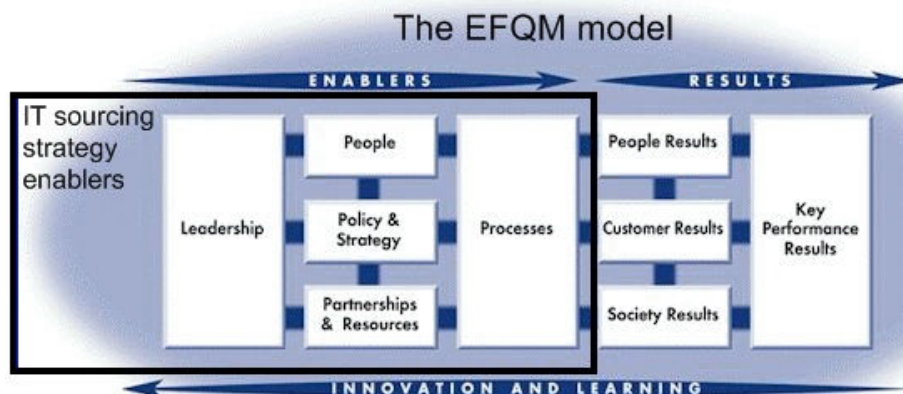


Figure 2: EFQM model (source: European Foundation for Quality Management)

We argue that the EFQM effectively and transparently covers the essential organizational components for our purpose of IT sourcing strategy creation and organizational change. The EFQM model is based on the idea that excellent results are achieved by leadership driven through policy and strategy and delivered by people, partnerships, resources and processes. The model is non-prescriptive meaning that there are no strict guidelines and approach for organizations to use the model. The model can be used independently for identifying the strengths and weaknesses in an organization. This can be done by activities such as assessing the maturity of an organization, benchmarking, strategy reviews or, in case of this research, strategy creation.

The EFQM model identifies a number of organizational areas such as Leadership, People, Strategy and Processes. Dividing the organization into these areas makes the organization transparent. The model differentiates quality into five *enabler* areas and four *result* areas. The enabler areas cover what the organization *does* while the result areas cover what the organization *achieves*.

Some key concepts underpin the EFQM model:

- *Result orientation*. Achieving results for the organizations stakeholders;
- *Customer focus*. Creating customer value;
- *Leadership and consistency of purpose*. Visionary leadership combined with consistency of purpose;
- *Management by processes and facts*. Managing the organization using a set of interdependent systems, processes and facts;
- *People development and involvement*. Maximize employee contribution by personal development and active involvement;
- *Continuous learning, Innovation and Improvement*. Enable organizational learning by feedback of results to the enablers;

We used the *enablers* from the EFQM model (indicated in Figure 2 with the 'IT sourcing strategy enablers' rectangle) to target high-level areas of organizational change such as Leadership, People and Strategy. Due to the nature of the commission the *result* part of the model is out of scope for this research. This enabled us to focus on areas of organizational change while having a clear delimitation of each organizational area resulting in directed recommendations. By differentiating our findings from the research towards the organizational areas from the EFQM model we identified organizational areas at Erasmus MC where change is needed to enable the creation of IT sourcing strategy.

6.2 Selecting an IT sourcing strategy model

In order to provide valid recommendations towards IT sourcing strategy creation we needed detailed information on the process of creating sourcing strategy. Therefore, we searched for a model that provides an holistic, strategic and structured as well as practical approach towards IT sourcing strategy creation. We selected the Outsourcing Life Cycle model by Cullen and Willcocks (2005). Despite the fact that this model is named the *Outsourcing* Life Cycle model instead of the *Sourcing* Life Cycle model, the evaluation of the internal IT function and making well-informed decisions on internal or external sourcing of IT services is an essential part of the model. Our research indicates that this model can provide an holistic, strategic, structured and practical approach to creating IT sourcing strategy at Erasmus MC. In this paragraph we elaborate on the steps taken towards the ultimate selection of the Outsourcing Life Cycle model.

When it comes to IT sourcing strategy creation there is a wide variety of strategy models to choose from. There are arguably as many commercially backed models as there are consultancy firms and suppliers. Then there is also a number of scientifically based models. The in-depth evaluation of all available IT sourcing strategy models is far too extensive for the scope of this research. However, we have investigated a number of IT sourcing strategy models in order to select a strategy model that provides an holistic, strategic, structured and practical approach towards IT sourcing strategy creation at Erasmus MC.

During our research into IT sourcing strategy models it became apparent that despite the fact that there are many models available, only a limited set of models can be used by Erasmus MC independently (which is a requirement inline with the commission of this research). In order to underpin the final selection of the strategy model we established the following set of pre-determined selection criteria which the final model had to meet in order to guarantee that the model enables Erasmus MC to create IT sourcing strategy:

- The model must be *public knowledge*. By this we mean that the model is free for a client organization to follow allowing the organization to create its own IT sourcing strategy independently;
- The model must be *holistic and strategic in scope*. By this we mean that it must encompass the entire IT sourcing strategy creation process from inception to the completed sourcing strategy;
- The model must provide a *structured, process based approach*. By this we mean that the model must contain well-defined, sequential steps to manage the IT sourcing initiatives through their life cycle. This included steps towards the creation, execution and constant refresh of sourcing strategy;
- The model must be *well documented*. By this we mean that there is sufficient, in-depth documentation publically available for the client organization to follow the model independently;
- The model must provide *practical steps* towards IT sourcing strategy creation for a client organization to follow;

At the start of our research we were uninformed on possible models that can assist in the creation of IT sourcing strategy. By researching available IT sourcing strategy models in literature, articles, and those offered by commercial parties we gained insight into the large variety of strategy models. From this initial research, we observed that IT sourcing strategy models can be divided into three categories; those provided by consultancy firms and suppliers (commercial parties) and those provided by scientific researchers. From these categories we ultimately selected an IT sourcing strategy model. Next, we elaborate further on this selection process.

In order to compose a short list of possible IT sourcing strategy models to examine more closely, we first selected a number of major suppliers. We selected these suppliers based on the Outsourcing Performance 2008 survey, an analysis of the Dutch outsourcing market. For these suppliers we researched if there was public information available in articles and literature on their sourcing strategy models. If there was public information available we placed the supplier on a shortlist. Next, we selected a number of leading consultancy firms based on Outsource Magazine 2009, a yearly overview of consultancy firms on the Dutch market. For these consultancy firms we also researched if there was public information available in articles and literature on their sourcing strategy models. If there was public information available we placed the consultancy firm on a shortlist. Finally, we selected a number of scientific authors based on literature research. The research of scientific models was aimed at models that were often referred to in literature as well as recent (up-to-date) models. From this research we eventually composed a top three supplier, consultancy and scientific models from which to choose the final model.

We categorized the selected models by determining which type of organization published the model. If the model is published by a supplier organization i.e. an organization that actually delivers the IT services, people and technology we marked the model a supplier model. If the organization behind the model was a consultancy organization we marked it a consultant model. Suppliers generally also provide consultancy services. Therefore, if the organization behind the model was an organization that does both we also marked it a supplier model. If the model was published by a researcher associated to a university and not to a commercial party we marked it a scientific model. Figure 3 shows the result of the initial selection and evaluation.

Organization / Author	Model name / description	Type of Model			Public knowledge
		Vendor	Consultant	Scientific	
Atos Origin	Agile Outsourcing model	X	X		
Capgemini	Business Aware Application Outsourcing	X	X		
Cronk and Sharp	A Framework for IS outsourcing in private and public sectors contexts (1996)			X	X
Logica	Factory model	X	X		
Cullen and Willcocks	The Outsourcing Lifecycle Model (2005)			X	X
De Looff	A Model for IS outsourcing decision making (1996)			X	X
Equaterra	Sourcing Process Flow models for opportunity analysis and strategic sourcing		X		
Quint Wellington Redwood	Sourcing Governance Framework		X		
Twijnstra Gudde	9-Vlaks Model (9 squares model)		X		

Figure 3: IT sourcing strategy models

We researched the category of supplier models and found that these models commonly provide some sort of process approach to IT sourcing strategy. However, we also found that what is meant by *IT sourcing strategy* in these models is in often primarily aimed at selecting a specific *IT outsourcing arrangement*. As discussed in chapter 5, IT sourcing strategy entails more than just selecting the outsourcing arrangement. Another problem we found with supplier models is that they are often tailored to the specific services the supplier provides. The supplier models are often packages for a type of proposition than actual models for an organization to follow. Also, supplier models commonly leave the in-house option out of scope. This leaves the suggestion that supplier models are primarily a vehicle for selling services.

Furthermore, we researched the category of consultancy models and found that while these commonly appear more elaborate than supplier models the details on how to fill in the various steps are not publically available. This is explainable since these models represent a commercial service that is offered through them by the consultancy firm. A client organization will have to hire the consultancy firm in order to gain full insight into the model. The model is then used by the consultancy firm as a guide in the IT sourcing strategy creation process. While research shows that strategy creation must be an internal affair, much of the skills and knowledge on IT sourcing strategy in this setup comes from external sources (i.e. the consultants). As a result, the IT sourcing strategy may not be sufficiently internalized by the organization to effectively execute and refresh the strategy in the future. However, this does not mean an organization can not hire knowledgeable external consultants to assist in the creation of IT sourcing strategy.

Most importantly, during our research the criterion that the selected model must be a public knowledge model became even more apparent. If the Erasmus MC should be able to create IT sourcing strategy as was commissioned, public knowledge models prove much more useful to the organization than other models. Because supplier and consultant models do not enable the outsourcing organization to create an IT sourcing strategy independently, we do not consider them public knowledge models.

As a result, the public knowledge criterion was not realized and for that reason we concluded that, in the scope of this research commission, supplier and consultant models are not an option for creating IT sourcing strategy at Erasmus MC.

After eliminating supplier and consultancy models from the selection we concluded that the final model must be selected from the scientific models category. We evaluated the scientific models against the selection criteria. Figure 4 shows the result of this evaluation.

Author	Model	Criteria				
		Public knowledge	Holistic and strategic in scope	Structured, process based approach	Well documented	Practical steps and recommendations towards outsourcing strategy creation
Cronk, J. and Sharp, J.	A Framework for IS outsourcing in private and public sectors contexts (1996)	X			X	
Cullen, S. and Willcocks, L.	The Outsourcing Lifecycle Model (2005)	X	X	X	X	X
De Looff	A Model for IS outsourcing decision making (1996)	X			X	X

Figure 4: Scientific outsourcing strategy models and selection criteria

Next, we briefly discuss these scientific IT sourcing strategy models and move towards the final selection of a sourcing strategy model for Erasmus MC:

The *Framework for IS outsourcing strategy* by Cronk and Sharpe (1996) is aimed primarily at determining the sourcing mode. This involves determining if services can be contracted out or should remain in-house. It also briefly covers contracting, opportunity analysis and informed buying. However, it does not provide an holistic and strategic scope or a structured, process based approach to IT sourcing strategy creation. Overall we argue that this model does not provide enough in-depth steps towards holistic IT sourcing strategy creation.

The *Model for IS outsourcing decision making* by De Looff (1996) is an elaborate model which was well ahead of its time at the moment of publication. It provides many insights and practical steps towards making well-informed IT sourcing decisions and is still referenced often in literature. However, it was published in 1996 and since then the importance of an holistic approach to outsourcing has become much more apparent. As a result, the model does not provide much in-depth information on the holistic approach to IT sourcing strategy creation or a clear process based life cycle approach to IT sourcing.

The *Outsourcing Life Cycle model* by Cullen and Willcocks (2005) is a more recent IT sourcing strategy model. It is also the most recent model we investigated. As can be seen in the rating, the Outsourcing Life Cycle Model scores on all criteria. Firstly, the model is public knowledge and well documented. Therefore, it offers the opportunity to be used

independently by Erasmus MC to create IT sourcing strategy. Secondly, the model provides an holistic, highly structured process approach for Erasmus MC to follow towards the development of IT sourcing strategy. Paragraph 5.2 already described that this process approach to IT sourcing pays dividend. The model covers the entire IT sourcing life cycle. Despite the fact that this model is named the *Outsourcing Life Cycle* model determining the right sourcing mode, either internal or external, is an essential step in the model. Thirdly, the model provides detailed steps towards the creation and execution of IT sourcing strategy allowing Erasmus MC to manage the entire IT sourcing life cycle based on one model. Furthermore, the model is based on lessons learned from many real-life outsourcing cases. This provides Erasmus MC with many proven and practical steps towards creating IT sourcing strategy.

Concluding, based on the scoring of the selected IT sourcing strategy models against predetermined criteria we have selected the Outsourcing Life Cycle model by Cullen and Willcocks to provide guidelines towards creating IT sourcing strategy at Erasmus MC. The scoring indicates that the Outsourcing Life Cycle model can enable Erasmus MC to create IT sourcing strategy to select the right services to outsource for the right reasons. Next, we will elaborate on the Outsourcing Life Cycle model itself.

6.3 The Outsourcing Life Cycle model

The Outsourcing Life Cycle model (Figure 5) provides a process approach to IT sourcing strategy creation and the management of outsourcing initiatives.

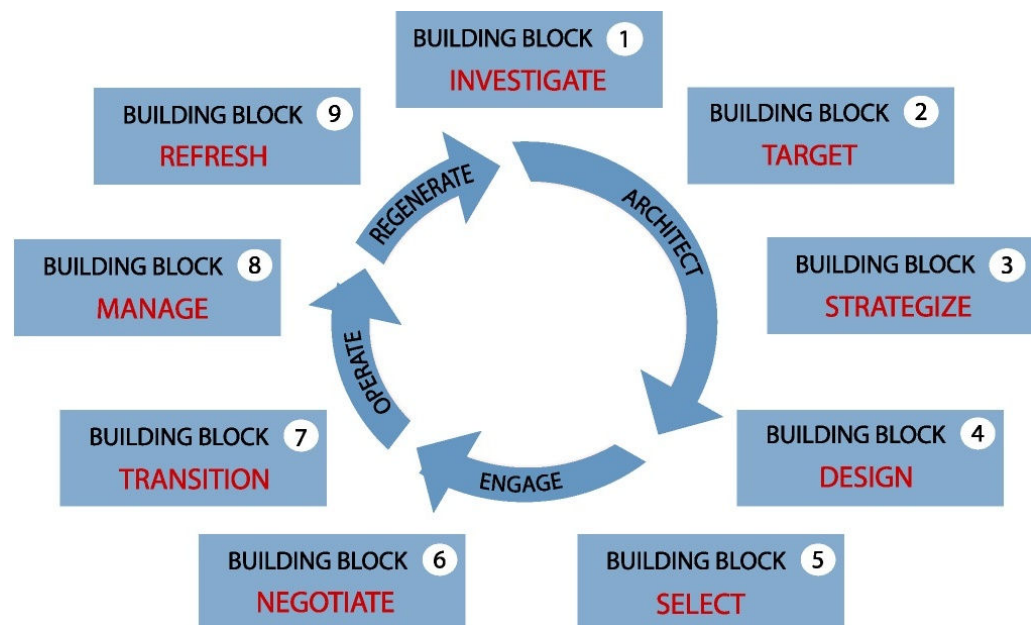


Figure 5: The Outsourcing Life Cycle

The Outsourcing Life Cycle consists of four phases: Architect, Engage, Operate and Regenerate. For each phase one or more building blocks are defined, there are nine building blocks in total. Each building block represents a step in the IT sourcing life cycle. The building blocks in the life cycle model are dependent on one another. Subsequently, each building block prepares for the following building block and each building block success is dependant on successful execution of the previous building block (except perhaps for the first initial building block). The model provides the optimal sequence of execution of the various steps. For each building block a number of key outputs are defined that must be in place in order to complete the building block.

The first phase is the *Architect* phase which is aimed at laying the foundation for IT sourcing and ensuring the organization knows itself well enough before taking an outsourcing request to market. The Architect phase has four building blocks: *Investigate*, *Target*, *Strategize* and *Design*. IT sourcing strategy creation is covered by the first three building blocks; Investigate, Target Services and Strategize. We will use these three building blocks for our recommendations towards the creation of IT sourcing strategy. In the next paragraph we will delve further into these building blocks. At the end of the Architect phase the organization is ready to take the outsourcing request to market or the decision has been made to keep particular IT services and activities in-house.

The second phase is the *Engage* phase which involves the selection of one or more suppliers and the negotiation of the contract(s).

The third phase is the *Operate* phase which is aimed at the transition of services and activities to the supplier(s) and managing the contract. It is in this phase that the outsourcing organization can reap the benefits of the work done in the previous phases.

The last phase is the *Regenerate* phase. This is where the assessment of the IT sourcing strategy takes place and steps are taken to identify possible new outsourcing initiatives. After this phase, the IT sourcing life cycle begins anew starting with the Investigate building block in the Architect phase. The advantage of this approach is that the organization's IT sourcing strategy remains up-to-date due to constant reevaluation.

IT sourcing strategy creation in the Outsourcing Life Cycle model

Because the entire IT sourcing life cycle (including negotiation, transition and management) far exceeds the scope of this research as well as the commission that underpins it, we focus only on the IT strategy creation part of the Outsourcing Life Cycle model. This is covered by the model's first three building blocks *Investigate*, *Target services* and *Strategize*. These building blocks are aimed at providing detailed and practical steps towards the creation of IT sourcing strategy. If the organization executes these steps the end result of the Strategize building block will be an IT sourcing strategy tailored to the organizations needs.

In terms of a set of scenarios, plans, directives and decisions the IT sourcing strategy will be a clear understanding of the myths surrounding outsourcing and a realistic view of the benefits and risks of outsourcing. Next, it will provide realistic expectations of what outsourcing can and can not do for the organization. Furthermore, insight into the supplier market and insight into the outsourcing performance of peer organizations will be created. Also, the IT sourcing strategy will provide the organization's strategic preferences for a sourcing mode, a set of services targeted for internal or external sourcing, an approach to the roll-out, a set of strategic rules, a program plan, an overview of skills needed during and after transition, a communication strategy as well as a feasibility and impact analysis. Figure 6 shows the various building blocks and their key outputs in more detail. Next, we will delve further into these building blocks.

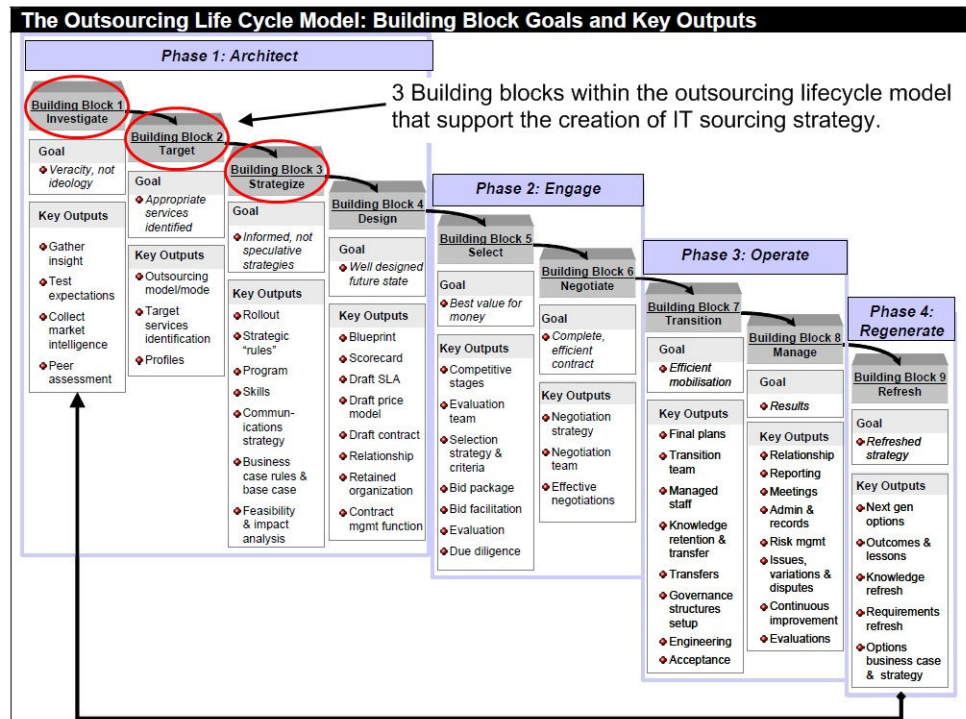


Figure 6: The Outsourcing Life Cycle Model: Building Block Goals and Key Outputs (Cullen et al. 2005)

IT sourcing strategy creation is part of the *Architect* phase in the Outsourcing Life Cycle model. The three steps that lead to IT sourcing strategy in the Outsourcing Life Cycle model are the building blocks *Investigate*, *Target* and *Strategize*. The output of building block 3: *Strategize* is the actual IT sourcing strategy; a set of informed and holistic strategies towards IT sourcing. Building block 4: *Design* takes the strategies from the *Strategize* building block and uses them to create a well designed future state. The *Design* building block as well as the building blocks in the *Engage*, *Operate* and *Regenerate* phases are not part of *strategy creation* but of *execution* and therefore out of scope of for this research.

Each building block has a goal and a number of key outputs that need to be filled in. An output is considered key if as a result of its presence a contribution is made to the successful outcome of the outsourcing process or if as a result of its absence a problem occurs in the outsourcing process. The goal of the *Investigate* building block is to replace "ideological" beliefs about outsourcing with more realistic ones. The outcome of this building block is a realistic, non ideological view of what outsourcing can do for the organization. Cullen and Willcocks refer to this building block as "discarding the myths". Many outsourcing initiatives fail to bring the expected benefits. The problem is usually lack of proper preparation which is often caused by an overly idealistic view of what outsourcing is and what it can do for an organization. Proper preparation requires foresight, this building block is about creating foresight. The *Target services* building block is aimed at indentifying services where outsourcing will be beneficial to the organization as well as which services or activities should remain in-house. The outcome of this building block is a set of identified services as well as a clear and defined scope and the organizations strategic preference with regard to the modes of IT sourcing. The goal of the *Strategize* building block is to describe the organizations strategic preferences with regard to outsourcing. The outcome of the *Strategize* building block is a set of scenarios, plans, directives and decisions that describe the organizations preferred IT sourcing strategies. This provides a well-informed and holistic approach to IT sourcing which will assist the organization in navigating the IT sourcing life cycle.

6.4 Combining the EFQM model and the Outsourcing Life Cycle model

We have selected the EFQM model and the Outsourcing Life Cycle model to provide guidelines for the creation of IT sourcing strategy at Erasmus MC. In our research we use these two models in conjunction. This combination of the EFQM model and the Outsourcing Life Cycle model is new to the field of IT sourcing strategy. In this paragraph we explain how the two models interrelate in the scope of this research.

The EFQM model is a quality model that targets high-level areas of organizational change while the Outsourcing Life Cycle model is a process model for managing IT sourcing initiatives through their life cycle. We use both models in conjunction to come to a holistic set of recommendations. Firstly, we use the EFQM model to provide recommendations towards high-level areas of organizational change required for creating IT sourcing strategy such as Leadership, People and Strategy. Secondly, we use the Outsourcing Life Cycle model to provide practical recommendations for steps towards creating IT sourcing strategy. Figure 7 shows how we combine the two models.

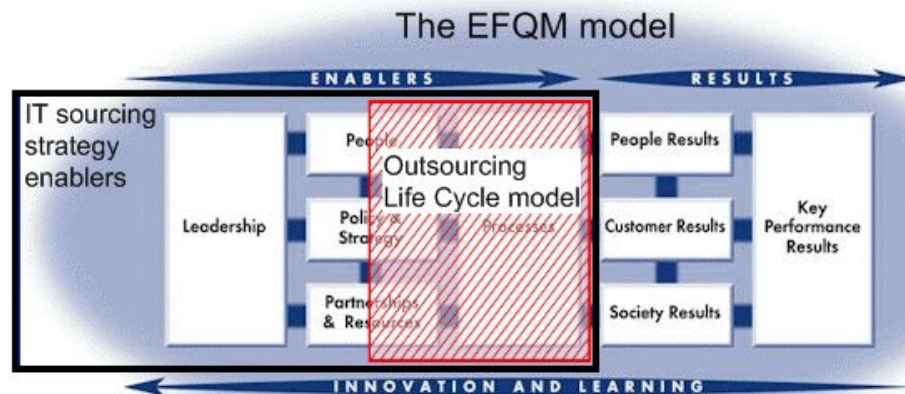


Figure 7: The EFQM model in relation to the Outsourcing Life Cycle Model

The area delineated by the outer rectangle marked 'IT sourcing strategy enablers' in Figure 7 indicates which parts of the EFQM model are used to provide high-level recommendations towards organizational change. The area delineated by the dashed 'Outsourcing Life Cycle model' rectangle indicates which EFQM areas are covered in more detail by the Outsourcing Life Cycle model. We have determined this overlap by mapping the theory underpinning the Outsourcing Life Cycle model (paragraph 6.3) to the EFQM model (paragraph 6.1). As can be seen in Figure 7 the Outsourcing life Cycle model partially covers the People area. This is because developing IT sourcing skills by employees is an important key output of IT sourcing strategy creation in the Outsourcing Life Cycle model. Also, the Outsourcing Life Cycle model partially covers the Policy and Strategy area because the Life Cycle model is used to create IT sourcing strategy. Furthermore, the Outsourcing Life Cycle model partially covers the Partnerships and Resources area. However, this organizational area is part of the *Operate* phase in the Outsourcing Life Cycle model where the relation with the supplier is actually managed. As explained in 6.3 the Partnerships and Resources organizational area is out of scope for IT sourcing strategy creation. The Outsourcing Life Cycle model does not cover the Leadership organizational area.

6.5 Concluding

In this chapter we selected the EFQM quality model and the Outsourcing Life Cycle model by Cullen and Willcocks (2005) for making recommendations towards the creation of IT sourcing strategy at Erasmus MC. We selected the EFQM model because it is a widely used quality model, particularly by government and semi-government organizations. We use the EFQM model to target high-level areas of organizational change. After delving into supplier, consultant and scientific IT sourcing strategy models and weighing the characteristics of a number of models against pre-determined criteria, we selected the Outsourcing Life Cycle model by Cullen and Willcocks to provide practical recommendations towards the creation of IT sourcing strategy. Its name suggests that the Outsourcing Life Cycle model is aimed solely at outsourcing. Nevertheless, selecting the proper sourcing mode (internal or external) is an essential part of the model. In the next chapter we use the EFQM model and the Investigate, Target and Strategize building blocks from the Outsourcing Life Cycle model to provide recommendations towards the creation of IT sourcing strategy at Erasmus MC.

7 Recommendations

In chapter 4 we identified a number of IT sourcing problems at Erasmus MC based on our interviews. Subsequently, in chapters 5 and 6 we introduced the concepts of IT sourcing strategy and models that support the creation of IT sourcing strategy. In this chapter we answer research question 6: *What are possible recommendations towards creating IT sourcing strategy at Erasmus MC?*

The introduction of an IT sourcing strategy framework by itself will not automatically result in a concrete IT sourcing strategy. For a strategy to be created successfully, organizational change is needed that will enable and facilitate the creation of IT sourcing strategy.

Therefore, we answer research question 6 at two levels; from a concrete, practical level as well as an abstract, organizational level. With this approach we provide recommendations towards the creation of IT sourcing strategy as well as recommendations towards organizational change to enable the creation of IT sourcing strategy.

We provide the recommendations in two steps. Firstly, we provide practical recommendations towards the creation of IT sourcing strategy by combining our findings and the Outsourcing Life Cycle model. Secondly, we provide high-level recommendations towards organizational change at Erasmus MC for enabling the creation of IT sourcing strategy based on our findings and the EFQM model.

7.1 Suitability of the Outsourcing Life Cycle model

In the previous chapter we selected the Outsourcing Life Cycle model to address current problems surrounding IT sourcing at Erasmus MC and provide concrete and practical recommendations towards the creation of IT sourcing strategy. We selected this model based on a predetermined set of criteria and are confident that the model will assist in the creation of IT sourcing strategy at Erasmus MC. However, before drawing our recommendations towards IT sourcing strategy creation, we must determine whether the model is suitable in the particular case of IT sourcing strategy creation at Erasmus MC. The key outputs from the Outsourcing Life Cycle model's first three building blocks serve as a basis for recommendations towards the creation of IT sourcing strategy. Therefore, we researched the suitability of the model by mapping the findings regarding IT sourcing at Erasmus MC to the key outputs. This creates a correlation between the IT sourcing problems experienced by Erasmus MC and the key outputs from the model. The resulting mapping is used to determine whether the model's key outputs provide solutions for the findings. Subsequently, based on this mapping we can determine whether the Outsourcing Life Cycle model can be used to provide recommendations and address current IT sourcing problems.

Next, we elaborate on the mapping of findings to key outputs. The findings from the interviews indicate that current IT sourcing problems involve the expectations of outsourcing, level of IT sourcing decision making, business IT alignment, skills and competencies, approach to IT sourcing, informed decision making, selecting services and supplier knowledge. As explained, the entire Outsourcing Life Cycle model exceeds the scope of this research. Therefore we focus only on the IT sourcing strategy creation part of the model. These are the Outsourcing Life Cycle model's first three building blocks; Investigate, Target services and Strategize.

Every finding has been evaluated against the key outputs from the first three building blocks of the model. We researched for each finding which key outputs provide a solution for that specific finding. We did this by evaluating the findings against the theory underpinning the key outputs in the Outsourcing Life Cycle model documentation. For example, the finding concerning *Skills and competencies* involves the problem that currently at Erasmus there is insufficient internal knowledge of IT sourcing. On the other hand, the *Skills* key output from the Life Cycle model states that the organization must build internal knowledge of IT

sourcing and utilize various areas of expertise. Furthermore, the theory underpinning the *Skills* key output identifies the relevant skills for IT sourcing that must be present (such as financial, management and legal skills). This provides a clear insight in the skills that must be utilized for IT sourcing strategy creation and therefore we concluded that the *Skills and competencies* problem may be solved by implementing the *Skills* key output from the Life Cycle model. Subsequently, a check was placed in a result matrix for that specific problem and key output. We repeated this evaluation approach for each finding placing checks where we found the theory underpinning a key output to provide solutions for that specific finding. The result of this research is depicted in the matrix following next.

Problem description		Building Block / Key output											
		1: Investigate				2: Target Services			3: Strategize				
		1.1: Gather insight	1.2: Test expectations	1.3: Collect market intelligence	1.4: Peer assessment	2.1: Outsourcing mode	2.2: Target services	2.3: Profiles	3.1: Roll-out	3.2: Strategic rules	3.3: Program	3.4: Skills	3.5: Communication strategy
1	Expectations of outsourcing	X	X	X	X						X	X	X
2	Level of decision making	X										X	
3	Business-IT alignment	X				X	X	X	X	X	X	X	X
4	Skills and competencies											X	
5	Approach to IT sourcing	X	X	X	X	X	X	X	X	X	X	X	X
6	Informed decision making	X	X	X	X	X	X	X	X	X	X	X	X
7	Selecting services	X	X	X	X	X	X	X		X	X	X	
8	Supplier knowledge			X	X							X	
Total		6	4	5	5	4	4	4	3	4	5	8	1

Figure 8: Suitability matrix: findings to key output mapping

In the left hand vertical column the findings are listed. In the top horizontal row, the relevant key outputs from the Life Cycle model are listed. If the theory underpinning the Outsourcing Life Cycle model showed that a key output provided a solution for a finding, a check was placed in the matrix for that combination of finding and key output.

The matrix shows that the findings do not necessarily need to map to *all* the key outputs. For example, the finding with regard to *Supplier Knowledge* can be solved by implementing key outputs *Collecting Market Intelligence*, *Peer Assessments* and building IT sourcing *Skills*. However, due to the nature of the finding, the other key outputs will not solve the finding. Therefore, we consider the Outsourcing Life Cycle model suitable if each finding is covered by at least one key output. The matrix also shows that the model provides at least one key output for each finding. Therefore, we argue the Outsourcing Life Cycle model is suitable to be used for IT sourcing strategy creation at Erasmus MC.

7.2 Recommendations towards creating IT sourcing strategy

The suitability matrix identifies key outputs that provide solutions to the findings regarding IT sourcing at Erasmus MC. To provide insight into the relative importance of the key outputs the number of checks per key output has been totalized. This shows that the key outputs from the building blocks *Investigate* and *Target Services* all require attention. In the *Strategize* building block, developing IT sourcing skills in the organization deserves extra attention as this affects all problems while developing a Communication strategy is least urgent. Overall, the mapping shows that the Outsourcing Life Cycle model can provide recommendations towards solutions to the current IT sourcing problems at Erasmus MC.

Therefore, we recommend the implementation of the identified key outputs from the *Investigate*, *Target Services* and *Strategize* building blocks as practical steps towards the creation of IT sourcing strategy at Erasmus MC. Next, based on the Outsourcing Life Cycle model and its key outputs we come to concrete recommendations towards the creation of IT sourcing strategy at Erasmus MC. We discuss these recommendations per building block in the order in which they appear in the Outsourcing Life Cycle model:

7.2.1 Building Block 1: Investigate

Firstly, we recommend senior management at Erasmus MC to *Gather insight* (key output 1.1) into what outsourcing can and can not do for an organization. There are many myths surrounding outsourcing which often paint an overly simplistic and bright picture. Following outsourcing myths can lead to mistakes with high impact on the business. In order to avoid mistakes, senior management at Erasmus MC must have a realistic view of outsourcing instead of a view based on “idealistic” beliefs. Therefore, it is important that senior management understands the myths surrounding outsourcing and discards them. Discarding myths surrounding outsourcing can be done by getting well-informed through literature, articles and peer organizations experiences on the subject, conducting workshops among Erasmus MC stakeholder or by hiring external expertise. The references and further reading list in chapter 10 provide a good start for this. For background on common outsourcing myths see Appendix D. Discarding outsourcing myths.

Furthermore, we recommend to *Test expectations of outsourcing* (key output 1.2) by matching the organizations expectations against the benefits and risks of outsourcing. Testing expectations is essential in checking whether the perceived benefits of outsourcing are realistic. This insight can be obtained through desk-research into outsourcing articles and literature. For some statistics regarding the realities of outsourcing see Appendix E. Creating realistic expectations.

Also, we recommend to *Collect market intelligence* (key output 1.3) on conditions and potential suppliers. This promotes informed buying at Erasmus MC and enables the organization to select the right suppliers for the right reasons. As informed buying depends on adequate knowledge of candidate suppliers the outsourcing organization has to inform itself thoroughly on suppliers. Market intelligence can also be collected through desk research into IT sourcing literature and articles. For further information on aspects of collecting market intelligence see Appendix F. Collecting market intelligence.

Finally, for this building block, we recommended senior management to conduct a comparative *Peer assessment* (key output 1.4) with other organizations on their outsourcing experience. This enables the organization to use lessons learned the hard way by others to their own advantage as well as avoid pitfalls.

7.2.2 Building Block 2: Target Services

Firstly, we recommend senior management at Erasmus MC to determine the preferred *Outsourcing mode* (key output (2.1) for each service. Determining the outsourcing mode involves establishing whether the service is a candidate for outsourcing or should be kept in-house. And, if outsourced, what the sourcing arrangement must be. Erasmus MC can apply the Market, Competence, Advantage (MCA) model to provide insight into the suitable mode of outsourcing per service and create to further clarification of its strategic preferences towards the mode of outsourcing. For further information on determining the outsourcing mode using the MCA model see Appendix H. The MCA model.

Furthermore, we recommend to *Target services* (key output 2.2) by identifying per service if outsourcing provides short-time and/or long-time benefits and if there are barriers that may be prohibitive to outsourcing the service. By defining benefits and barriers every service can be valued for its potential for outsourcing. The outcome of this exercise is a set of candidate services which are selected based on the organizations strategic preferences. For further information on determining benefits and barriers for selecting a service see Appendix I. Benefits and Barriers.

Finally, we recommend to create *Profiles* (key output 2.3) of the targeted services. The reason for this is that services can not be considered standard or well known. Bringing a service to market without a clear view of the compound costs involves the risk of significant cost increases in the transition phase, when the actual scope of work is discovered. At that point the supplier who has won the deal will be under little stress to put forward a competitive pricing (Cullen and Willcocks, 2005). Therefore, it is important to create a profile of the targeted services. This profile must describe accurately the state the service in terms of organization, people and costs. The services profiles are essential in discovering and assessing the financial-economic benefits of sourcing opportunities and establishing which sourcing initiatives yield the most benefits. Furthermore, service profiles provide important information for suppliers to create an accurate bid and for the organization to value the suppliers bid. For further information on creating a service profile see Appendix G. Profiling a service

7.2.3 Building Block 3: Strategize

Firstly, we recommend senior management to select a favored *Roll-out* strategy (key output 3.1). According to the Outsourcing Life Cycle model there are three distinct roll-out approaches that Erasmus MC can follow; Big bang, Piecemeal or Incremental. Selecting a roll-out strategy will prepare the organization for the roll-out instead of being confronted unprepared during the transition. For further information on selecting a roll-out strategy see Appendix J. Roll-out .

Secondly, we recommend to determine the organizations *Strategic rules* (key output 3.2) in advance. Strategic rules are the rules to be followed during the outsourcing initiative. These rules must be established by executives and senior management. If established by mid-level management the organization runs the risk of losing the required holistic approach. It is of strategic importance to determine these rules in advance as these rules provide the boundaries within which the outsourcing initiative will take place. For further information in strategic rules see Appendix K. Strategic rules.

Thirdly, we recommend that senior management approaches IT sourcing at Erasmus MC as a *Program* (key output 3.3) to ensure an holistic approach. It is often said that projects deliver outputs and programs create outcomes. An outsourcing project does just that; outsource a specific service or activity usually without taking interdependencies towards other projects into consideration. Programs are concerned with doing the right projects and governing the interrelation of projects. This allows for more effective management of priorities and interdependencies. As a result outsourcing is initiated based on a broad strategic view instead of separate outsourcing projects.

Furthermore, we recommend that senior management builds the *Skills* (key output 3.4) needed for creating IT sourcing strategy and taking a deal to market. There are a number of skills sets required: commercial, communication, financial, management, legal and

technical. Senior management must identify employees that poses these skills and assigns roles and responsibilities for the outsourcing process to the selected employees. Also, we recommend senior management to construct a financial *Business case* (key output 3.6) for outsourcing based on the services profiles. This provides insight into the total costs of the in-house services before outsourcing. During the later stages of the outsourcing process the base case provides financial data against which to value the bids from suppliers. Finally, we recommend to conduct a *Feasibility and impact analysis* (key output 3.7) to provide insight into when outsourcing is considered as potential high impact and risk. It is advisable to execute a feasibility and impact analysis for instance if the scale of outsourcing is new to the organization, new technology will be employed or the services are highly integrated within the organization.

7.3 Recommendations towards organizational change

To enable the creation and ultimately the execution of IT sourcing strategy at Erasmus MC organizational change is needed. The areas of organizational change from the EFQM model are used to provide focus and structure to the high-level recommendations towards organizational change. The entire quality lifecycle exceeds the scope of this research, therefore we focus only on the enabler part of the EFQM model. The findings from the interviews indicate that changes are needed in the organizational areas of Leadership, Policy and Strategy, People and Processes (Figure 9). Next, we discuss the recommendations for organizational change.

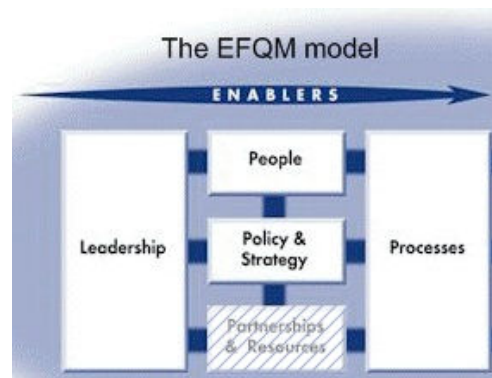


Figure 9: Areas of organizational change based on the EFQM model

7.3.1 Leadership

The findings with regard to expectations of outsourcing, level of IT sourcing decision making, selecting services and making informed IT sourcing decisions show that outsourcing at Erasmus MC is commonly initiated by middle management. Due to lack of oversight by middle management this leads to ad-hoc and unstructured IT sourcing decisions instead of the desired holistic approach. Furthermore, the fact that middle management initiates outsourcing and the fact that it also has much informal decision making power leads to “pre-cooked” decisions. As a result senior management is confronted with IT sourcing decisions that are difficult to change once the wheels of outsourcing are set in motion. The findings also indicate that, despite the fact that there are doubts about the current approach to IT sourcing, IT sourcing strategy is not on the agenda of senior management. Developing IT sourcing strategy is a complex task that should be the responsibility of senior management. A strategic approach requires the helicopter view that must be expected of senior management. Therefore, the organization must have

leadership in place that provides a realistic, well-informed and holistic approach to outsourcing to enable informed decision making. Therefore, we recommend senior management at Erasmus MC to personally lead the strategic approach to IT sourcing by taking control of IT sourcing decision making and making IT sourcing strategy development its personal responsibility. Senior management is advised to take informal decision power away from middle management. This can be achieved by creating a program for IT sourcing and assigning a program manager who will govern the holistic approach to sourcing under the direction of senior management. Creating a program for IT sourcing also ensures that sourcing is initiated based on a broad strategic view. This however requires willingness, ability as well as the preparedness to change on the part of senior management. The introduction of an IT sourcing strategy framework by itself will not result in the desired change. For IT sourcing strategy to be successful support of the organizations top management is required. If this is not present the introduction of a framework in IT sourcing strategy will not yield the desired results. Therefore we recommend to involve the board of directors in the creation of IT sourcing strategy. First, top management must be convinced of the importance of IT sourcing strategy. Subsequently, there is work to be done by senior ICT management to put IT sourcing strategy “on the radar” of the board. In order to involve top management, IT sourcing strategy must address issues that are on top management’s agenda. In case of Erasmus MC this may for example be the future developments in healthcare that force the organization to cut costs and the fact that IT outsourcing is a management tool that can help in this respect. Preparing a financial business case will help to underpin and explain the economic importance of IT sourcing strategy to top management in order to obtain the required commitment.

7.3.2 People

The findings with regard to expectations of outsourcing, level of IT sourcing decision making, business-IT alignment, approach to IT sourcing, selecting services and making informed IT sourcing decisions show that at Erasmus MC outsourcing is initiated primarily from a technological perspective. This is because sourcing initiatives are executed by the ICT department without utilizing the knowledge from the other domains. However, informed IT sourcing decision making requires in-depth knowledge and skills from a number of organizational domains such as business, management, commercial, legal, finance, technology and communication. Without utilizing the knowledge from the aforementioned domains it is exceedingly difficult to make well-informed IT sourcing decisions. Therefore, we recommend to develop and utilize the necessary IT sourcing skills by forming a core team of knowledgeable employees from all relevant organizational domains that can provide the necessary information for IT sourcing decisions, prepare outsourcing deals and take them to market. The core team will reside under the direct control of senior management to maximize control over the team (Figure 10).

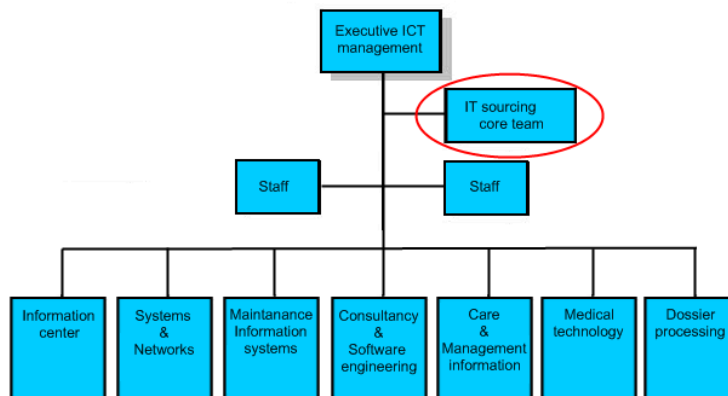


Figure 10: Position of the core team in Erasmus MC ICT organization

As explained earlier IT sourcing strategy creation and execution is not a “one of” exercise. The IT sourcing strategy requires regular evaluation and updates, new opportunities have to be evaluated and taken to the market. Therefore, the core team must be a permanent team (though probably not fulltime). The employees in this core team must have knowledge of the various domains of the organization such as finance, management, legal and technical knowledge. Each domain provides information that is essential in making well-informed IT sourcing decisions and allows the organization to select the right services for the right reasons with the right suppliers. Utilizing knowledge from all relevant domains in IT sourcing strategy development will lead to decisions that are no longer based on technology alone but on information from the entire organization ensuring better business-IT alignment.

7.3.3 Processes, Policy and Strategy

The overall finding is that the approach to IT sourcing at Erasmus MC is ad-hoc and unstructured. The findings further show that the sourcing initiatives are happening incrementally. This combination leads to a patchwork of sourcing arrangements, contracts, deals and suppliers which over time become increasingly difficult to manage. The ad-hoc approach may appear to yield fast results however, with regard to outsourcing there are seldom quick wins that also provide long term benefits. Indeed, poor IT sourcing decisions can have a dramatic effect on the organization. We argue that the success or failure of sourcing initiatives will be more predictable when sourcing opportunities are properly analysed and subsequent sourcing decisions are made in an holistic, well-informed and repeatable manner. Preparing thoroughly to make well-informed IT sourcing decisions is the domain IT sourcing strategy.

Therefore, we recommend to take an holistic and structured approach to IT sourcing by creating an IT sourcing strategy. Cullen and Willcocks (2005) refer to IT sourcing strategy as getting the right information to select the right services or activities for the right reasons with the right suppliers and getting the right deal with the right management in place in order to maximize business leverage from the outsourcing arrangement. Without a thorough preparation the organization runs a high risk of having a disappointing outsourcing experience with little or no pay-off in the post contract stage. This takes time and money to get right but it is an essential pre-requisite for outsourcing success.

7.4 Concluding

In this chapter we answered research question 6: *What are possible recommendations towards creating IT sourcing strategy at Erasmus MC?* To cover the relevant aspects of IT sourcing strategy creation we provided recommendations at two levels; from a concrete, practical level as well as an abstract organizational level.

First, we recommend to implement the Investigate, Target Services and Strategize building blocks from the Outsourcing Life Cycle model to provide practical steps towards the creation of IT sourcing strategy at Erasmus MC. These building blocks provide the necessary basis for the creation of an holistic, structured and well-informed IT sourcing strategy. Furthermore, we recommend a number of organizational changes in order to prevent Erasmus MC from slipping further into outsourcing without a clear strategic perspective. Senior management is strongly advised to personally lead the strategic approach to IT sourcing. We advise senior management to put IT sourcing strategy on the agenda of the board and involve the board actively into IT sourcing strategy creation. We also recommend to start building IT sourcing skills in the organization by composing a team of knowledgeable employees from various organizational domains. Naturally, we recommend to take an holistic, well-informed approach to IT sourcing. Without this approach, outsourcing initiatives will remain ad-hoc and unstructured and Erasmus MC will remain uncertain if it is gaining any of the perceived benefits from outsourcing. We argue that these measures will enable Erasmus MC to create an IT sourcing strategy and make well-informed, holistic sourcing decisions resulting in sourcing the right services to the right suppliers for the right reasons.

8 Validation

In the previous chapters we presented our findings and recommendations towards creating IT sourcing strategy at Erasmus MC. From an academic as well as a practical point of view the findings and recommendations have to be validated. In this chapter we validate the outcome of our research and answer research question 7: *What we expect of the recommendations towards creating IT sourcing strategy at Erasmus MC?*

8.1 Methods used for validation

The aim of this research is IT sourcing strategy creation. More specifically, the objective of this research is to provide recommendations towards the creation of IT sourcing strategy at Erasmus MC. The most conclusive validation would be the actual creation and execution of an IT sourcing strategy based on the recommendations. This kind of validation will actually be conducted since the recommendations from this research are part of the IT sourcing strategy aspect of the overall initiative to create IT strategy at Erasmus MC. However, such a validation would take several months to complete. Due to time constraints, this type of extensive validation is not possible within the scope of this research. Nevertheless, we required insight in the validity of our findings and what can be expected of our recommendations towards the creation of IT sourcing strategy at Erasmus MC in practice. Therefore, we based our validation on discussion of the research with senior management and the educated opinions of IT sourcing industry experts.

Firstly, we validated the research with senior management (the CIO) at Erasmus in a 1 hour face to face session. In this session the findings, choice of models and feasibility of the recommendations was discussed. We also validated the research with the interim business architect.

Secondly, we validated the research with three Dutch IT sourcing experts. These people represent expert opinions in the field of IT sourcing with a broad base of experience in practice as well as in science:

- Erik Beulen is professor of Global sourcing at the university of Tilburg, senior manager of the outsourcing consultancy practice at Accenture, lecturer at the Master of IT Management, and (co-)author of a large number of books on outsourcing.
- Albert Plugge is a senior consultant at the consultancy firm Equaterra, part-time promotion researcher at TU Delft and module manager at Delft TopTech responsible for the Strategic sourcing module in the Master of IT management programme.
- Albert Sprokholt is director at the consultancy firm Equaterra with over 20 years of experience in Sourcing. Mr. Sprokholt's expertise is the field of sourcing strategy, design and selection among others.

The Dutch IT sourcing experts were selected based on the strategic sourcing module of the Master of IT management course where all three gave lectures on IT sourcing.

Furthermore, we validated our interpretation of the Outsourcing Life Cycle model with its two authors:

- Sara Cullen is a globally acknowledged sourcing expert, founder of the Cullen group (a consultancy firm specialized in outsourcing), former national partner at Deloitte Touche Tohmatsu and author of many publications on IT sourcing.
- Leslie Willcocks is a globally acknowledged sourcing expert, professor of Technology Work and Globalization at the London School of Economics and author of numerous articles and books on IT sourcing.

The availability of the experts was limited. Therefore, we conducted this part of the validation through email correspondence. This allowed the experts to review the research, to express their remarks on the results and provide feedback at times convenient to them. This approach proved successful and the response from the experts was prompt and elaborate. For the validation we focused on three areas: the choice of models, the proposed application of the Outsourcing Life Cycle model and the recommendations towards organizational change at Erasmus MC. Next, we further elaborate on the validation.

8.2 Validation results

Validation of the findings

Firstly, we validated the findings from this research with senior management at Erasmus MC. We presented the main findings as discussed in paragraph 4.2 and subsequently discussed the validity of these findings, in particular whether senior management recognized the current state of IT sourcing at Erasmus. We concluded that senior management recognized the findings and overall, the findings were not criticized. It is agreed that IT sourcing at Erasmus MC currently is an ad-hoc process without the pre-requisites in place to make well informed IT sourcing decisions. It is also agreed that Erasmus MC needs a new holistic and structured approach to IT sourcing to enable well informed IT sourcing decision making.

Validation of choice of models to support the creation of IT sourcing strategy

Secondly, we validated the choice of models with senior management and the IT sourcing experts. For this validation we presented the EFQM model and the Outsourcing Life cycle model to senior management and elaborated extensively on the IT sourcing strategy creation building blocks from the Outsourcing Life Cycle model. After this elaboration the suitability of the Outsourcing Life Cycle model for IT sourcing strategy creation at Erasmus was discussed. For each of the key outputs from the building blocks we discussed their purpose and relevance and what must be done to implement them. From this discussion we concluded that senior management considers the Outsourcing Life Cycle model a suitable approach to creating IT sourcing strategy at Erasmus.

Furthermore, we used the IT sourcing experts opinions to validate the choice of models (the EFQM and Outsourcing Life Cycle model). We asked the sourcing experts their opinion on whether the models are valid choices for assisting in the creation of IT sourcing strategy at Erasmus MC. None of the experts criticized the choice of models.

The experts viewed the use of the EFQM model to support the creation of IT sourcing strategy as a novel and refreshing approach. Commonly (complex) governance models or project management frameworks are used to provide structure and quality assurance. According to the experts a quality model like the EFQM model provides a clear and refreshing approach to guarantee the quality aspect as it breaks down the organization into its main components. The experts stress the point that the EFQM's organizational areas such as Leadership, People, Processes are of great importance with regard to IT sourcing

and sourcing strategy creation. Based on this validation we concluded that there is no evidence that the EFQM model is an incorrect choice. Furthermore, the experts were of the opinion that the Outsourcing Life Cycle model provides valuable steps towards creating IT sourcing strategy at Erasmus MC. In fact, the Outsourcing Life Cycle model is quite similar to what experienced sourcing consultants use in practice. However, our observation that these consultancy models are not public knowledge was confirmed by the experts which also confirms our conclusion that consultant models can not be used for independent creation of IT sourcing strategy. With respect Erasmus MC's intention to create IT sourcing strategy independently the experts give out the warning that an organization should not experiment. They argue that, unless there is abundant IT sourcing knowledge available in the organization, it is much better from to create IT sourcing strategy with the help of an experienced sourcing consultant. Nevertheless, this does not mean that Erasmus MC can not adopt an independent model for IT sourcing strategy creation. In fact, an independent model can help in fully internalizing the to be created IT sourcing strategy. Concluding, the experts agree that the Outsourcing Life Cycle model will help Erasmus MC with independently creating IT sourcing strategy. Based on this validation we concluded that there is no evidence that the Outsourcing Life Cycle model is an incorrect choice.

Validation of interpretation of the Outsourcing Life Cycle model

Thirdly, we validated our interpretation of the Outsourcing Life Cycle model with its two authors, Sara Cullen and Leslie Willcocks. This was done through email correspondence after the model selection process. We asked the authors opinion on the application of the Outsourcing Life Cycle model for the creation of IT sourcing strategy. Cullen pointed out that the original model was published in 2003. Further research had indicated some refinements were in order to promote greater understanding. Subsequently, the model had been updated and the *Negotiate* building block was added. Previously, negotiation was an activity within a building block. However, Cullen's research indicated that many CIOs look at this activity as the pinnacle of the lifecycle, which it should not be based on the fact that an overall IT sourcing strategy makes outsourcing more successful. To correspond this existing paradigm to the lifecycle diagram the *Negotiate* building block has been added to the model. Nevertheless, negotiation should be a minor exercise, compared to the overall process.

Another minor adaptation was the switching of building blocks *Target Services* and *Strategize*. In actual fact, they are often done in parallel, to no ill effect. Research showed it was more common in successful deals, but only slightly so, to see it in the order presented in the 2005 Outsourcing Life Cycle model.

Subsequently Cullen recommended us to use the latest version of the Outsourcing Life Cycle model (2005) which is more tailored for practical use. This recommendation was adopted and the 2005 Outsourcing Life Cycle model is used in this research. Cullen provided us with the necessary literature on the updated model.

Furthermore, we asked the authors opinions regarding the application of the Outsourcing Life Cycle model in case of Erasmus MC. Both Cullen and Willcocks agree that the model is usable for the main research objective; to create IT sourcing strategy. Willcocks states that the suggested model does work in practice, especially since it is designed with a pragmatic approach in mind.

Validation of recommendations towards organizational change at Erasmus MC

Finally, we validated the recommendations towards the creation of IT sourcing strategy at Erasmus MC with senior management and the IT sourcing industry experts. The findings in our research are linked directly to the recommendations through the areas of organizational change from the EFQM model. Therefore, we followed the EFQM model's organizational areas of change for this part of the validation. In this manner the validations relate directly to the findings and recommendations.

We presented our recommendations to senior management and discussed the validity of the recommendations, in particular whether senior management considers the recommendations suitable for creating IT sourcing strategy. Overall the recommendations were not criticized and we concluded that the recommendations are suitable for IT sourcing creation from the perspective of Erasmus MC.

We asked the experts opinion on the validity and usefulness of our recommendations for answering the main research objective which is *to provide recommendations towards the creation of IT sourcing strategy at Erasmus MC*. Ultimately, the question to be answered is whether the recommendations will work for Erasmus MC.

The emphasis of feedback from the experts was on the recommendations in the organizational area of *Leadership*. With regard to this organizational area the experts confirmed that IT sourcing strategy creation is primarily an internal affair and the responsibility of senior management. The experts stressed the point that for IT sourcing strategy to be successful, it is important to involve the organization's top management. This includes the board of directors. Top management must understand the importance a more holistic approach through IT sourcing strategy and display the willingness and ability to pursue this goal.

Furthermore, with regard to the recommendations in the organizational area of *People* the experts confirmed that developing IT sourcing skills and involving the various organizational domains is essential if the organization is to create and implement its own IT sourcing strategy. Some doubt was expressed with regard to Erasmus MC's intention to independently create an IT sourcing strategy. It was mentioned that the organization can use its own IT sourcing model (the Outsourcing Life Cycle model) *and* hire external IT sourcing expertise to assist in the creation of IT sourcing strategy. IT sourcing strategy creation is complex matter and external expertise can provide the necessary skills for this. Finally, with regard to the recommendations in the organizational area of *Processes, Policy and strategy* the experts stressed that an organization must only contemplate outsourcing if it attributes to the business goals. A strong link between the business goals and IT sourcing must exist. The process of outsourcing costs time, money and resources. The experts observed that the findings indicate that apparently, apart from the initiative to start creating IT strategy, there is little sense urgency from Erasmus MC's top management since they have not been actively involved yet. The experts confirmed that commitment from top management is essential. Every organization involved in outsourcing must be well aware of the organizational impact of outsourcing. Outsourcing means changing the organization and this must be managed

8.3 Follow up

Following the presentation of the research and the validation of the findings, models and recommendation, senior management decided to follow up on the research and create an IT sourcing strategy based on our recommendations. For this purpose we will start a program for IT sourcing strategy creation, assign a program manager, form a team of knowledgeable employees from relevant business domains and implement the key outputs from building block Investigate, Target Services and Strategize. The result will be a concrete IT sourcing strategy for Erasmus MC. The start of this program is planned for September 2009.

The author has been asked by senior management to participate in the actual creation of IT sourcing strategy at Erasmus. After the creation of the actual IT sourcing strategy the subsequent building blocks from the Outsourcing Lifecycle model will be investigated for implementation in order to cover the entire IT sourcing lifecycle.

8.4 Concluding

Due to time limitations for this research we have not been able to validate our recommendations in practice. The actual creation of IT sourcing strategy would be the best possible validation of our research. However, this process would arguably take many months and this was not feasible within the time limitations of this research. Therefore, we validated the outcome of our research with five IT sourcing experts to answer research question 7: *What can be expected of the recommendations towards creating IT sourcing strategy at Erasmus MC?* Although not tested in practice our recommendations have survived the critical reviews of senior management and three IT sourcing experts.

Firstly, we validated our choice of models and found that the choice of models was not criticized. Therefore, we concluded that there is no evidence that our choice of models is incorrect. Subsequently we concluded that the choice of models supports the main research objective. Indeed, the IT sourcing experts considered the use of the EFQM model to cover the quality aspect a refreshing approach. The Outsourcing Life Cycle Model appeared to meet all the requirements stated in paragraph 6.2.

Secondly, we validated our interpretation of the Outsourcing Life Cycle model with its two authors and received valuable feedback on the application of the model as well as the advice and to use an updated version of the model.

Thirdly, we validated our recommendations towards organizational change. In this validation various remarks were made with respect to the leadership aspect stressing the importance of awareness and ability as well as the preparedness to change and the required commitment from top management. However, these remarks were inline with our recommendations and essentially our recommendations were not criticized.

Therefore, we concluded that there is no evidence that our recommendations towards organization change at Erasmus MC are incorrect. Subsequently we concluded that our recommendations support the main research objective.

Overall, the validation indicates that Erasmus MC can make successful steps towards creating IT sourcing strategy by following our recommendations, provided there is enough awareness and commitment from top management. As a follow up, senior management decided to create IT sourcing strategy based on our recommendations starting September 2009. The author has been asked to participate in this process.

9 Conclusions and further research

In this chapter we draw the conclusions from our research and provide recommendations towards further research.

The immediate cause for this research was the initiative by Erasmus MC to create IT sourcing strategy. The compelling event that accompanies this cause is the current unstructured, ad-hoc approach to IT sourcing at Erasmus MC which makes well-informed IT sourcing decision making exceedingly difficult. As a result, Erasmus MC is uncertain if it is gaining any of the perceived benefits of outsourcing Information Technology. Furthermore, Erasmus MC is new to the concepts of IT sourcing strategy. Therefore, recommendations were needed towards the creation of IT sourcing strategy enabling Erasmus MC to take an holistic, structured and well-informed approach to IT sourcing.

9.1 Conclusions

Following this problem statement the research objective for this thesis was formulated as follows: *“To provide recommendations towards the creation of IT sourcing strategy for Erasmus MC.”* To complete this research objective a number of research questions were answered. Next, we will reflect on the results from this research based on the research questions in the order in which they were answered in this research.

1) What is the environment of Erasmus MC from an healthcare and IT perspective?

We answered this research question in chapter 2 and concluded that Erasmus MC considers itself an innovative medical center that aims to deliver a top performance in the field of research, education and patient care. The organization participates in an environment that will change drastically in the decades to come due to the rising cost of healthcare. At the same time hospitals are becoming increasingly dependant on ICT. For Erasmus MC to fulfill its mission and vision requires an excellent ICT function. We concluded that, as a result, the Erasmus MC ICT department has to look for ways to control and lower the operational costs while continuing to deliver excellent service.

2) What is IT sourcing?

- a) What are current developments in IT sourcing?
- b) What are the main IT sourcing arrangements?

We answered these research questions in chapter 3 and concluded that, based on the definition we selected, IT sourcing means: *“choosing an internal or external source to provide IS products or services”*. IT services can be delivered by the in-house IT function, This approach provides tight control over services delivery however also limits the capacity for utilizing economies of scale and market expertise. Alternatively, IT services can be delivered externally through outsourcing to third party suppliers.

Based on desk-research we concluded that overall outsourcing is still growing. Single supplier deals as decreasing while Multi-sourced deals are on the increase. The main drivers for outsourcing are cost reduction, flexibility and quality however the emphasis is expected to shift towards focusing on core capabilities, output, managing risks and relationships. IT sourcing success is very dependant on the strategic focus given to the sourcing effort. There are numerous IT sourcing arrangements for an organization to choose from. This makes selecting the right arrangement for the organization a daunting task. We summarized the main sourcing arrangements in paragraph 3.4.

3) How does IT sourcing currently affect Erasmus MC?

We answered this research question in chapter 4 and concluded that currently IT sourcing at Erasmus MC, particularly the outsourcing aspect, is an unstructured, ad-hoc process. There is no holistic, structured and repeatable approach to IT sourcing enabling well-informed sourcing decision making. There is no deliberate plan of action, decisions and directives to guide the organization in making well-informed IT sourcing decisions. Outsourcing at Erasmus MC is driven by the conventional motives of cost reduction, flexibility and quality however, due to a lack of well-informed IT sourcing decision making, Erasmus MC is currently uncertain if it is gaining any of these benefits. At the same time outsourcing is gaining momentum as more outsourcing opportunities present itself. We concluded that, as a result, Erasmus MC is at risk of drifting further into outsourcing arrangements without a clear rationale to underpin the sourcing decisions and no guarantee that it is gaining the perceived benefits of outsourcing.

4) What is IT sourcing strategy?

- a) What is the relevance of IT sourcing strategy?
- b) What is the relevance of the IT sourcing process?

We answered these research questions in chapter 5 and concluded that in general, strategy is a deliberate plan for action. IT sourcing strategy is a specific type of strategy which can be described as *"a set of scenarios, plans, directives and decisions that define and integrate the internal and external resources and services"*. IT sourcing strategy creation is an internal affair and should be the direct responsibility of senior and top management. For the organization, IT sourcing strategy provides a level of control that is not possible with an ad-hoc approach to IT sourcing decisions. Having an IT sourcing strategy is important for organizations because it enables well-informed and structured IT sourcing decision making which pays more long term dividend. Furthermore, we concluded that a life cycle approach to IT sourcing is equally important as this allows the organization to manage IT sourcing based on a structured process that links key success factors together in a logical, sequential order instead of attempting to manage a set of disparate success factors.

5) What model(s) can we use as a guide to create IT sourcing strategy?

We answered this research question in chapter 6. IT sourcing strategy literature shows that IT sourcing strategy must address all organizational areas. Therefore, we selected the EFQM (European Foundation for Quality Management) quality model to provide high-level recommendations towards organizational change to enable the creation of IT sourcing strategy at Erasmus MC. Furthermore, we selected the Outsourcing Life Cycle model by Cullen and Willcocks (2005) to provide concrete recommendations towards the creation of IT sourcing strategy. We tested the suitability of the Outsourcing Life Cycle model by mapping the findings to the key outputs from that model. Based on this mapping we concluded that the model can support the creation of IT sourcing strategy at Erasmus MC. Finally, we combined the EFQM model and the Outsourcing Life Cycle model to come to a holistic set of recommendations covering recommendations towards organizations areas of IT sourcing strategy creation.

The use of the EFQM model to safeguard the quality aspect of IT sourcing strategy creation is new to the field of IT sourcing strategy creation as is the combination of the EFQM model and the Outsourcing Life Cycle model. These contributions to the field of IT sourcing strategy are recognized and underpinned by the expert knowledge validation. Therefore we conclude that we have made a small, but nevertheless a scientific contribution, to the field of IT sourcing strategy creation.

6) What are possible recommendations towards creating IT sourcing strategy at Erasmus MC?

We answered this research question in chapter 7 and concluded that implementing an IT sourcing strategy model by itself will not automatically result in a working IT sourcing strategy. In order to adopt an holistic approach to IT sourcing, Erasmus MC needs the awareness, willingness, commitment and ability to change from senior and top management. Besides practical steps towards the creation of IT strategy organizational change is also required to enable the creation of IT sourcing strategy at Erasmus MC. In answering this research question we provided the following recommendations towards the creation of IT sourcing strategy at Erasmus MC:

Firstly, to *create* a concrete IT sourcing strategy in terms of a set of scenarios, plans, directives and decisions, we recommend that:

- The key outputs from the Outsourcing Life Cycle model's *Investigate*, *Target Services* and *Strategize* building blocks are implemented in order to take concrete, practical steps towards the creation of IT sourcing strategy.

Furthermore, to *enable* the creation of IT sourcing strategy, we recommend that:

- In the organizational area of *Leadership*, senior management personally leads the creation and execution of IT sourcing strategy at Erasmus MC. Furthermore, we recommend that senior management starts a program and assigns a program manager for IT sourcing initiatives. Finally, we recommend that senior management puts IT sourcing strategy on the agenda of the board of directors.
- In the organizational area of *People*, senior management creates a core team of knowledgeable employees from relevant organizational domains such as finance, legal and management to enable well-informed IT sourcing decision making.
- In the organizational area of *Processes, Policy and strategy*, senior management takes an holistic, structured, well-informed and repeatable approach to IT sourcing to prevent from slipping further into outsourcing without being certain of the perceived benefits.

7) What can we expect of the recommendations towards creating IT sourcing strategy at Erasmus MC?

We answered this research question in chapter 8. The most conclusive validation of our research would be the actual creation of IT sourcing strategy at Erasmus MC. However, this process would take many months. Therefore, due to time limitations, we validated the research through the expert knowledge of senior management and three IT sourcing industry experts. Based on this expert knowledge validation we concluded that our choice of models was not criticized. The choice of the EFQM model to safeguard the quality aspect was recognized as a novel approach. The experts confirmed the advantages of the EFQM model over (complex) governance and project management models. Furthermore, our recommendations towards the organizational areas of Leadership, People and Processes, Policy and Strategy and our recommendations based on the Outsourcing Life Cycle model were not criticized. The validation further stressed the point that for successful implementation of IT sourcing strategy the awareness and commitment from senior and top management is an essential pre-requisite. Overall, the expert knowledge validation indicated that there is no evidence that our choice of models or recommendations are incorrect. The validation suggests that Erasmus can make successful steps towards creating IT sourcing strategy by following our recommendations. As a follow up, the actual creation of IT sourcing strategy is planned to start in September 2009. The author has been asked to participate in this process.

9.2 Summarizing the main conclusions

Based on our research we concluded that IT sourcing at Erasmus MC is an unstructured, ad-hoc process. Currently, there is no deliberate plan of action, decisions and directives to guide the organization in making well-informed IT sourcing decisions. As a result, Erasmus MC is at risk of drifting further into outsourcing without a clear rationale to underpin IT sourcing decisions and no guarantee that it is gaining the perceived benefits of outsourcing. We concluded that an holistic, structured and well informed approach to IT sourcing is required to counter this development. This approach is the domain of IT sourcing. However, introducing an IT sourcing strategy by itself is not enough. The organization must be enabled to facilitate the creation of IT sourcing strategy. Therefore, we selected models that can assist in doing both. Firstly, we selected the EFQM model to target high level recommendations towards organizational change that enable the creation of IT sourcing strategy. Secondly, we selected the Outsourcing Life Cycle model to provide practical recommendations towards the creation of IT sourcing strategy. We combined the EFQM model and the Outsourcing Life Cycle model to provide Erasmus with an holistic set of recommendations towards the creation of IT sourcing strategy. The use of the EFQM model to safeguard the quality aspect and the combination of the EFQM model and the Outsourcing Life Cycle model was recognized by IT sourcing experts as new to the field of IT sourcing strategy creation. As such, we made a small contribution, but nevertheless a contribution to the field of IT sourcing strategy creation.

Based on the selected models and our findings we provided recommendations towards the creation of IT sourcing strategy at Erasmus MC. Summarizing, we recommend the following to senior management at Erasmus MC:

- Personally lead the creation and execution of IT sourcing strategy;
- Put IT sourcing strategy on the agenda of top management;
- Take an holistic, structured, well-informed and repeatable approach to IT sourcing;
- Create a team of knowledgeable employees for well-informed decision making;
- Adopt the *Investigate*, *Target Services* and *Strategize* building blocks;

We validated our research and recommendations with five IT sourcing experts. There is no evidence that our choice of models or recommendations are incorrect. The results from the validation indicate that Erasmus MC can make successful steps towards creating IT sourcing strategy by following our recommendations. The actual creation of IT sourcing strategy based on our recommendations is planned to start in September 2009. The author has been asked to participate in this process.

9.3 Further research

The first opportunity for further research would be the actual implementation of the recommendations towards the creation of IT sourcing strategy at Erasmus MC and the subsequent validation of that strategy in practice. The next opportunity for further research could be to investigate if and how the result areas of the EFQM model can be used to measure the results of IT sourcing strategy creation.

Another opportunity for further research would be to thoroughly investigate the current financial economic situation of IT sourcing at Erasmus MC. Translating the current IT sourcing situation at Erasmus MC into Financial Economic terms can be used to put sourcing strategy on the agenda of top management and create willingness on their part to commit to the creation of IT sourcing strategy.

Finally, an interesting option for further research would be to generalize the recommendations from this research towards the entire healthcare sector and investigate whether other medical centers and hospitals can benefit from the recommendations towards the creation IT sourcing strategy.

10 References and further reading

- Aalders, R. 2001 *The IT Outsourcing Guide*, John Wiley & Sons Ltd.
- Cohen, L. and Young, A. 2006 *Multisourcing*, Harvard Business School Press
- Cronk, J. and Sharp, J. 1998 'A framework for IS Outsourcing Strategy in Private and Public Sector Contexts', *Strategic sourcing of Information Systems perspectives and practices*, John Wiley & Sons Ltd., pp 164-185
- Cullen, S. and Willcocks, L. 2003 *Intelligent IT outsourcing, eight building blocks to success*, Elsevier Ltd.
- Cullen, S., Seddon, P. and Willcocks, L. 2005 "Managing Outsourcing: The Life Cycle Imperative", *MIS Quarterly Executive* vol.4 no.1 March 2005 pp 229-246
- De Looff, L. 1998 'Information Systems Outsourcing: Theories, Case Evidence and a Decision Framework', *Strategic sourcing of Information Systems perspectives and practices*, John Wiley & Sons Ltd., pp 249-281
- Delen, G. 2005 *Decision en Controfactoren voor IT sourcing*, Van Haren Publishing
- Domberger, S. 1998 *The Contracting Organization: A Strategic Guide to Outsourcing*. Oxford: Oxford University Press.
- Edgell, J, Meister, G and Stamp, N 2008, "Global Sourcing trends in 2008". *Strategic Outsourcing*, Morrison and Foerster, vol.1 no.2 2008 pp 173-180
- EFQM model, http://www.12manage.com/methods_efqm.html, 24-03-2009
- Erasmus MC Centrale ontwikkel- en ondersteuningsgroep ziekenhuisinformatiesysteem, 1986 *Het ZIS in vogelvlucht*, Erasmus MC
- Erasmus MC, 2008 *Project Spijker, Basis informatie over veranderingen in werkprocessen en IT systemen in het Erasmus MC*, Erasmus MC
- Erasmus MC, 2008 *Profiel Erasmus MC t.b.v. ontwikkeling gebiedsvisie*, Erasmus MC
- Erasmus MC, Geschiedenis Ziekenhuis
http://www.erasmusmc.nl/overerasmusmc/historie/geschiedenis_ziekenhuis/, 22-01-2009
- Greaver, M. 1999 *Strategic Outsourcing, A structured approach to Outsourcing Decisions and Initiatives*, Amacom
- Henderson, B. 1989 'The origin of Strategy', *Strategy*, Harvard Business School Publishing.
- Outsource Magazine, 2009 *Jaarboek 2009*, Outsource magazine.
- Jurison, J. 1998 'A Risk-Return Model for IT Outsourcing Decisions', *Strategic sourcing of Information Systems perspectives and practices*, John Wiley & Sons Ltd., pp 187-204
- Kakabadse, A. and Kakabadse, N. 2005 "Outsourcing: Current and Future Trends", *Thunderbird International Business Review*, Wiley Periodicals, Inc. vol. 47 no.2 March- April 2005 pp 183-204
- Linder, J. 2004 "Transformational Outsourcing" *Sloan Management Review* vol.45 no.2 pp 53-58

- Lacity, M. C. and Hirschheim, R. 1993 *Information Systems outsourcing: Myths, Metaphors and Realities*, John Wiley and Sons.
- McLellan, K., Marcolin, B. and Beamish, P. 1998 'Financial and Strategic Motivations behind IS Outsourcing', *Strategic sourcing of Information Systems perspectives and practices*, John Wiley & Sons Ltd., pp 208-248
- Mintzberg, B. 1987 'Crafting Strategy', *Strategy*, Harvard Business School Publishing.
- Morgan Chambers, 2008 *Outsourcing Performance, Analyse van de Nederlandse uitbestedingsmarkt*, Morgan Chambers.
- Porter, M. 1996 "What is Strategy?", *Harvard Business Review* November-December 1996 pp 61-78
- Quinn, J. and Hilmer, F. 1995 "Strategic" McKinsey Quarterly no.1 1995 pp 48-70
- Raad van Bestuur Erasmus MC 2004 *Koers '08 Gewoon beter!*, Erasmus MC
- Raad van Bestuur Erasmus MC 2008 *Koers '013 strategische visie van Erasmus MC voor 2013, Samen en Verbinden*, Erasmus MC
- Seshardi, S. 2005 *Sourcing Strategy, Principals, Policy and Designs*, Springer
- Sprokholt, A. 2007 "Sourcing strategy, Loading the dice in your favour", Morgan Chambers
- Willcocks, L. and Griffiths, C. 1997 'Management and Risk in Major Information Technology Projects', *Managing IT as a Strategic Resource*, McGraw Hill
- Willcocks, L. and Lacity, M. 1998 'The Sourcing and Outsourcing of IS: Shock of the new?', *Strategic sourcing of Information Systems perspectives and practices*, John Wiley & Sons Ltd.
- Willcocks, L. Fitzgerald, G. and Feeny, D. 1995 "Outsourcing IT: The Strategic Implications", *Long range planning*, Elsevier Science Ltd. vol.28 no.5 1995 pp 59-70
- Prahalad, C., and Hamel, G. 1990 "The core competence of the corporation", *Harvard Business Review*, vol.68 no.3 pp 79-91

11 List of abbreviations

Abbreviation	Description
BPO	Business Process Outsourcing
EFQM	European Foundation for Quality Management
ERP	Enterprise Resource Planning
HC	HealthCare
HIS	Hospital Information System
HRM	Human Resource Management
ICT	Information and Communication Technology
IS	Information Systems
IT	Information Technology
ITO	Information Technology Outsourcing
MC	Medical Center
MCA	Market, Competence, Advantage (model)
NOB	Nederlands Omroep Bedrijf
PACS	Picture Archiving and Communication System
PDMS	Patient Data Management System
RFP	Request For Proposal
SLA	Service Level Agreement
SSC	Shared Services Center

12 Appendices

12.1 A. Organizational structure Erasmus MC

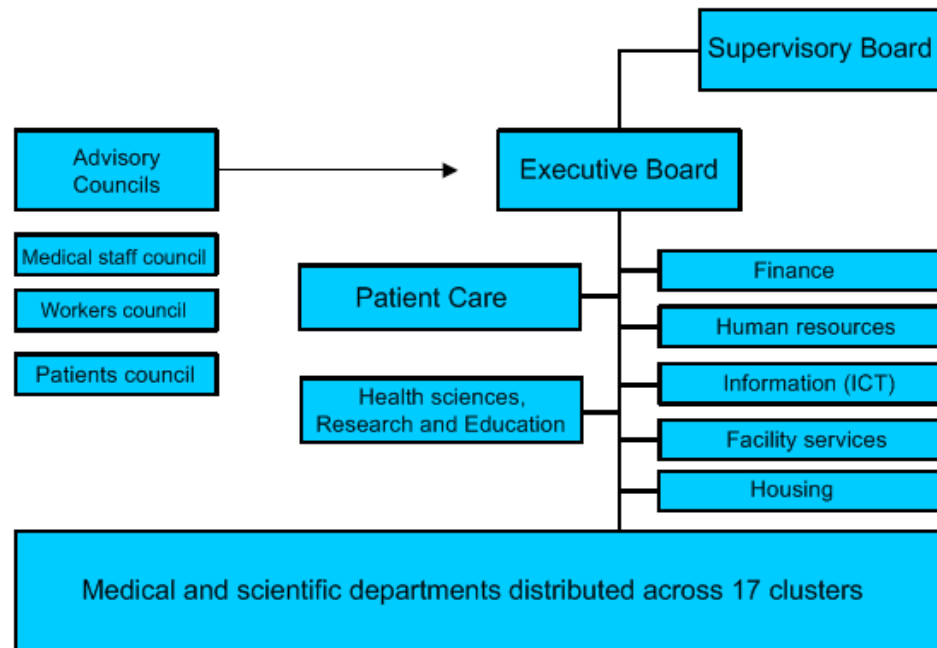


Figure 11: Organization chart Erasmus MC (source: Erasmus MC)

12.2 B. Organizational structure ICT Department

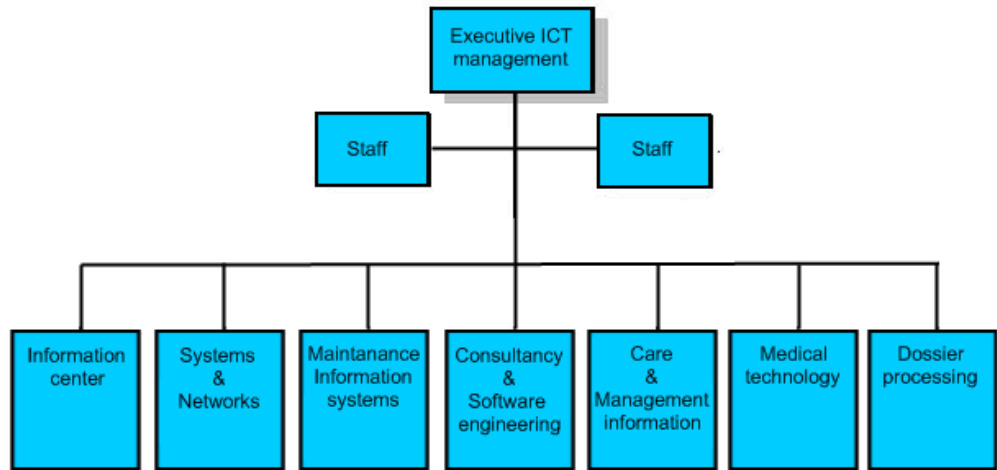


Figure 12: Organization chart ICT Department (source: Erasmus MC)

12.3 C. Interview schema

The following interview schema was used for the semi-structured interviews:

Interview schema

0. Introduction

1. How is ICT viewed at Erasmus MC?
 - a. As a support function? As critical to the day to day operation?
2. What is considered as the core business of Erasmus MC?

1. Current vision and policy on IT sourcing

1. What is Erasmus MC's vision on IT sourcing?
 - b. Is this vision formalized in any way?
2. What are the main reasons for outsourcing? (cost, flexibility, skills)
 - c. What are the expected benefits?
 - d. What are the expected risks?
 - e. Does outsourcing presently yield these expected benefits?

2. Current state

1. What services have been outsourced?
 - f. How is the performance of outsourced services monitored? From a business perspective? Financially? Technically?
2. What is the current state of outsourced services?
 - g. How are the relations with suppliers managed?
 - h. How is the performance of outsourced services monitored?
 - i. Is contract and relationship management present?
 - j. What problems are encountered with the currently outsourced services?

3. IT sourcing strategy and decision making

1. How can the IT sourcing strategy process be described?
 - k. Does the board consider IT sourcing strategy creation and execution its responsibility?
 - l. Is the IT sourcing strategy formalized in terms of procedures, roles, responsibilities?
 - m. Is the IT sourcing strategy regularly evaluated?
2. How are IT sourcing decisions made at Erasmus MC?
 - n. What is the IT sourcing decision making process?
 - o. How is the rationale to underpin the IT sourcing decision determined?
 - p. Does the board consider making IT sourcing decisions its responsibility?
 - q. How is outsourcing initiated?
 - r. At what management level are IT sourcing decisions made? (middle management/senior management/board level)
 - s. What problems does Erasmus MC encounter in IT sourcing decision making?

4. Concluding

1. What is your biggest concern with regard to current IT sourcing at Erasmus MC?

12.4 D. Discarding outsourcing myths

Persistent IT outsourcing myths must be discarded by the organization if the organization is to make IT sourcing decision based on veracity instead of ideology. Next, a few examples of some of the more persistent myths surrounding IT outsourcing:

Myth: Outsourcing IT is a simple transaction similar to outsourcing anything else.

Discarding the myth: This is one of the most persistent myths surrounding outsourcing and has to do with viewing outsourcing IT as a simple transaction. Outsourcing IT is far from simple, it is a complex process that requires a great deal of strategic planning and management attention if it is done successfully. IT is a highly complex, heterogeneous function comprised of a large number of activities. Getting IT outsourcing wrong can be a very costly business because it involves high switching costs. Usually the supplier is better at negotiating exit clauses the contract than the outsourcing organization, making the premature ending of a contract very expensive.

Myth: Suppliers will achieve lower IT costs and better quality.

Discarding the myth: Suppliers often claim they can deliver IT services at lower costs and higher quality because of superior management practices, highly skilled personnel and economies of scale. Granted, suppliers often have superior management processes in place. On the other hand, these can also be built up in-house by reorganizing and automating tasks. What is needed for this is management focus and the will to change. As for quality, the organization can improve its own processes and employ better skilled personnel. As for lower costs, in practice the supplier also has to make a healthy profit. There is little guarantee that all cost savings made by the supplier will be passed on to the client.

Myth: Outsourcing IT is about monitoring, management can be left to the suppliers.

Discarding the myth: For successful outsourcing the client has to be able to make IT sourcing decisions and formulate an IT sourcing strategy, understand the IT services market and have in place post contract management. This requires management focus in the pre-contract phase as well as in the post contract phase. According to Feeny and Willcocks (1998) the client has to have certain core capabilities in place such as IT governance and leadership, informed buying, relationship building, supplier development, architecture, contract management and contract monitoring in order to manage outsourcing initiatives through their lifecycle.

12.5 E. Creating realistic expectations of outsourcing

Creating realistic expectations of outsourcing requires insight in the realities of outsourcing. This insight can be obtained through desk research into articles and literature on IT sourcing. In order to provide some statistics into the realities of outsourcing we draw on an extensive survey by Lacity and Willcocks (2000). This research showed only 16% of outsourcing organizations experienced significant cost reductions, only 37% reported some cost reductions. Overall, of all perceived benefits of outsourcing, cost reduction comes out last. Some 20% of outsourcing organizations experienced that outsourcing helped to match supply and demand and focus on core competencies. 56% of outsourcing organizations rated supplier performance as good or better than the internal IT department. With a rating of 40%, the highest rating benefit was that outsourcing helped to compensate the lack of internal ability to execute a specific IT function by external skills and expertise from a supplier.

12.6 F. Collecting market intelligence

Collecting market intelligence provides insight into suppliers and the services they offer to the market. There are specific supplier characteristics the organization should investigate in order to collect market intelligence:

- Strategies; What are the suppliers short- and long-term goals?
- Market share in industry segments served; Does the supplier have a track record of competence in the organizations industry segment?
- Number of customers; Does the supplier serve multiple customers or is there over-reliance on a single customer?
- Financial viability; Is the suppliers business sustainable?
- Deals history; Does the supplier have a history of "buying" deals? How do they make a respectable profit?

12.7 G. Profiling a service

A service profile provides insight in the organizational and financial economic characteristics of a service. There are specific aspects to creating a profile for a service. The service profile commonly covers the following aspects:

- Cost profile; The current costs and estimated costs at future service levels;
- Staff profile; Organizational charts, job descriptions, number of staff, job enumerations among others;
- Commercial profile; Values and end-dates of contracts, licenses and leases. Termination options and costs;
- Technical profile; The current and future service requirements, performance criteria, service levels, volume, trend and load criteria, number of users, number of transactions among others;

12.8 H. The MCA model

The MCA (Market, Competence, Advantage) model can be use to select the IT sourcing mode per IT service or activity.

		Organisation's Relative Competence						
		Weak		Tenable		Superior		
Supplier Market Maturity	Emerging	Controlled Sourcing				Strategic Outsourcing	Retain	
	Growth							
	Mature	Conventional Outsourcing						
		Low (base)				High(key)		
		Service's Competitive Advantage						

Figure 13: MCA sourcing strategy model

There are three dimensions to the MCA model: Supplier market maturity, Relative competence and Competitive advantage. These three dimensions have to be investigated for each of the organizations IT services and activities in order to determine the proper sourcing mode for the service or activity:

Supplier market maturity

The question to be answered for this dimension involves that maturity of the supplier market for the specific IT service or activity. If for instance the supplier market is very mature the service or activity is a potential outsourcing candidate. If, on the other hand, if the supplier market is immature then controlled sourcing, strategic outsourcing or retaining the service or activity in-house are valid options.

Competitive advantage

The question to be answered for this dimension is whether or not the service provides a competitive advantage for the organization. If the service does provide a competitive advantage, it is advisable to maintain full control over the service. Once outsourced the organization is at risk of losing the competitive advantage because knowledge and skills will be more easily accessible to competition. This dimension is especially relevant for commercial organizations.

Relative competence

The question to be answered for this dimension is how the outsourcing organization performs in relation to suppliers for the service. If for instance the relative competence of the organization is superior and the market maturity for the service is emerging or growing then it is advisable that the service will not be an outsourcing candidate. If, on the other hand, the organization and the market are equally superior the service is a potential outsourcing candidate.

After investigating all these dimensions one of four possible sourcing modes is determined for the specific service or activity (controlled outsourcing, strategic outsourcing, conventional outsourcing or retain). This will lead to the service being positioned in one of the four possible outcomes:

- Controlled sourcing meaning the services can be outsourced but a high degree of control has to be maintained;
- Strategic outsourcing meaning the service can deliver advantage but the organization currently does not have the capabilities and needs to purchase these from a supplier;
- Retain meaning that the services will remain in-house;
- Conventional outsourcing meaning the market is mature (commoditized) and the services can be outsourced without a high degree of control;

Services that are not in the 'Retain' category are potential candidates for outsourcing. Whether they are viable candidates for outsourcing must be determined in the Outsourcing Life Cycle model key output: Target service identification.

12.9 I. Benefits and Barriers

Benefits and barriers are a set of generic questions that must be asked per service that translate into a 'go' or 'no-go' for taking further steps towards outsourcing the service. The benefits can be either short-term or long-term. Short-term benefits occur almost immediately. Long-term benefits may appear over time and may also require a substantial amount of management. Barriers are risks that make outsourcing no option. An organization has to determine for itself what it perceives as short-term, long-term benefits and barriers. Figure 14 shows an example of actual benefits and barriers as it was used in the case of an airline company.

Benefits and Barriers of Outsourcing		
Benefits Sought		Barriers
Short-term (within the first year)	Long-term	
<ol style="list-style-type: none"> 1. A proven, competitive market exists with positive results in the industry. 2. We can better align supply with demand, particularly where we have a backlog of work or cannot satisfy demand. 3. We can substantially upgrade our services without incurring capital investment. 4. We can gain a cash infusion from selling our assets or transferring our staff. 5. We can reduce costs in areas where our costs are currently above industry standards. 6. We can access staff and skills in short supply. 	<ol style="list-style-type: none"> 1. We can focus on strategic work in-house, not day-to-day operations. 2. We can improve our customer focus. 3. We can make positive cultural changes within the airline. 	<ol style="list-style-type: none"> 1. The service is core to our airline; we will not outsource it. 2. Customer perceptions of us will be excessively adverse if we outsource the service. 3. Regulatory restrictions or imperatives prevent outsourcing (i.e. chief pilot). 4. We might inadvertently create a monopolistic market for the outsourcer due to the specificity of the assets and/or the knowledge required. 5. We obtain a sustainable competitive advantage by performing this service.

Figure 14: Benefits and Barriers of outsourcing

By answering the benefits and barriers questions conclusions can be drawn on the services' potential for outsourcing:

The service *can* certainly be outsourced if there are:

- only short-term benefits;
- only short-term and long-term benefits;

The service *may* be outsourced if there are:

- only long-term benefits (probably the horizon to justify the effort is too far);
- short-term reasons and barriers (proceed with caution, address the barriers);
- short-term reasons and barriers (proceed with caution, address the barriers);

The service should *probably not* be outsourced if there are:

- long-term reasons and barriers (the horizon is too far and there are barriers);

The service should *not* be outsourced if there are:

- only barriers;

12.10 J. Roll-out strategy

There are basically three types of roll-out strategies: big-bang, piecemeal and incremental. The organization must decide on the approach to take towards the roll-out of outsourcing:

The **Big-bang** approach involves the outsourcing of a significant number of IT services and activities all at one time. There are few benefits to this approach and the impact and the risks are significant. Furthermore, this approach requires the organization to have a high level of expertise in IT outsourcing. The Big-bang approach is seldom taken in practice.

In the **Piecemeal** approach IT services and activities are outsourced one-by-one over time. Characteristic to this approach is a relative lack of strategic planning. Benefits to this approach are that it solves outsourcing needs as they occur in the organization and that there is little risk of disruption. However, due to the lack of strategy this approach may not deliver the expected benefits of IT outsourcing. Lack of coordination results in high coordination costs, slow organizational learning and less synergy.

The **Incremental** approach involves the step by step outsourcing of IT services and activities. The difference with the big-bang and piecemeal approach is that strategic planning underpins the outsourcing decisions. Services and activities are targeted in advance. This approach poses the least risk and allows the organization and its suppliers to learn and improve step by step. In this approach it is important to manage the overall IT sourcing as a program.

12.11 K. Strategic rules

There are some crucial subjects for which the organization must determine strategic preferences:

In-house bids.

The organization must decide if the internal IT organization is allowed to place in-house bids. If so, it must be decided if in-house bids take precedence over external bids. When the internal IT organization wins the deal it will provide the services on a commercial basis. Placing a bid costs money for a supplier. Allowing in-house bids may lead to suppliers being hesitant to bid if they are uncertain if their bid is treated equally.

Transferring staff.

The organization must decide on how to handle the transfer of staff. There are basically two approaches to this, each with their own benefits and drawbacks. First is the 'clean break' approach where all staff is made redundant. The supplier can then put forward a job offer to certain staff but there are no guarantees. The benefit of this approach is that it provides the supplier with the opportunity of a fresh start. A danger of this approach is that it could create disruptions in service delivery because key personnel may leave. The supplier may need their skills to continue service delivery.

The second approach is the 'negotiated transfer' where all or part of the staff is transferred to the supplier. The benefits of this approach are that, provided there is a good communication strategy, key personnel is more likely to remain at the job and no major disruptions of service delivery take place. This approach shows more commitment to employee welfare than the clean break approach. Furthermore, a responsible employer will provide career guidance such as an outplacement and training program for redundant staff.

Risk/reward program.

Risk involves financial consequences for the supplier such as fines in case SLA's can not be achieved. Rewards involve financial bonuses for the supplier for instance in case all SLA's are achieved. These are mechanisms to guide the suppliers behaviour.

A Risk/Reward mechanism will provide extra stimulation for the supplier to deliver good quality. The rewards should be significant enough for the supplier to put in the extra effort. The financial consequences should be significant enough for the supplier to prevent them from happening but should it occur, the financial consequences must not incapacitate the supplier.

Risk management.

This involves the assessment, mitigation and monitoring of risks. Essentially, risk management is about managing uncertainty and threats to the organization (Willcocks and Griffiths, 1997). Outsourcing poses new risks to the organization. Cohen and Young (2006) make a distinction into several major categories of outsourcing risks; transition risks, service management risks, financial risks, innovation risks, business change risk and outsourcing complexity risk. Lacity and Hirschheim (1993), among others, distinguish a number of distinct risks such as the irreversibility of the outsourcing decision, disruption of service, loss of control (over IT decisions, supplier or data), suppliers inability to deliver, loss of critical skills, supplier lock-in, early contract termination, and hidden costs.

Short vs long term contracts.

The organization must decide on the initial term of the outsourcing contract. In early outsourcing arrangements long contract terms of five to ten years were not uncommon. Currently, initial contracts are usually three years or less (Cullen, 2001). If the relationship with the supplier is satisfactory and the contract is renewed the additional term is usually one to two years. Factors that influence the renewal of a contract are supplier performance, market competition, pricing and willingness to change suppliers among others.

Identify required competencies.

The organization must determine the required skills for the IT sourcing program. Typical areas of expertise that must be covered are Commercial, Communication, Finance, (program) Management, Legal and Technical. These skills are necessary for IT sourcing strategy development, targeting services, selecting suppliers, evaluating bids, negotiating, transitioning and contract management among others.

Furthermore, the organization must target or hire knowledgeable personnel that will deliver these skills and guide the outsourcing program through its lifecycle. For each stage of the outsourcing initiative the organization must have the appropriate skills in place.

Asset ownership.

The organization has to decide on which party will own the assets after the transfer. Commonly assets are transferred to the supplier as this allows the outsourcing organization to free up capital. However, the organization may decide to remain owner of certain strategic assets for strategic reasons. One reason may be to prevent supplier lock-in. If for instance the organization has an exotic one-of Information System servicing core business processes, the transfer of ownership would put the supplier in a monopolistic position. Subsequently, with nowhere else to go, this would leave the organization at the mercy of the supplier when the contract has to be renewed.