



Improving a Supplier Portal

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**Improving a Supplier Portal
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The purpose of this thesis is to improve a supplier portal for the company's global IT supplier management department of F. Hoffmann-La Roche, one of the leading global healthcare companies. A well-functioning supplier portal is a central requirement for Roche's IT department to meet the managerial expectations to conveniently access supplier information. However, the user needs of the supplier managers have been insufficiently mapped internally, which is the key challenge to be addressed in this thesis.

Therefore, there has been a need for investigations, analysis and a proposal for improved requirements of a supplier portal. The improved portal aims to meet the expectations to access supplier information in a transparent way within one central location between internal stakeholders across Roche's IT- and business departments. The actual implementation of the tool itself was conducted by the IT department which was out of the scope of this thesis, albeit interlinked.

The pre-defined high-level value proposition used in this study as a base line for knowledge creation consists of three key elements i.e., 1) Navigator that guides internal stakeholders to find their preferred business partners, 2) Network facilitating the local suppliers to get global visibility and 3) Feedback that facilitates the current actors to choose of the paths on previous experience with certain suppliers. The actual detailed knowledge of the defined value proposition originates from the global sites and supplier managers.

To discover the relevant data comprehensively in-depth qualitative interviews were used as a research method. Google Hangout interview was chosen as the main technique to gather information from the global sites across Roche. Several user requirements were identified. The feedback survey paves the way forward indicating some further development needs.

Keywords: Supplier Portal, System Design, Requirement Analysis

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1 Introduction

This thesis concept was proposed to F. Hoffmann-La Roche, one of the leading healthcare companies in the world. The company develops, produces and distributes medicines and medical equipment for patients in need, particularly diagnostic instruments and tests.

At Roche's Information and communication (ICT) department, the employees enable business innovation and drive technology innovation. The Group Informatics delivers the IT that allows Roche to develop and launch medicines and diagnostic solutions that make a difference to patients' lives. Roche's global supplier managers strive to become a trusted business partner in working collaboratively, as a team, with internal IT partners, strategic IT suppliers and procurers to deliver increasingly efficient supplier management services.

At Roche, the vast majority of IT suppliers lack visibility on their expertise and offering. Furthermore, there are several local tools and external suppliers that Roche's employees are not aware of. Therefore, Roche aimed to improve an innovative platform to store and maintain supplier information so that they would provide structured and comprehensive information for Roche's global IT supplier managers.

The current IT-supplier information is largely decentralized and unorganized. Employees in Group Functions engaging with a new IT supplier have the responsibility to manage supplier information and this can often be time-consuming and challenging. A need to make this process efficient was identified, by ensuring that the supplier information would be significantly more visible and transparent across different IT departments. Therefore, a project was established for creating a tool to address these gaps. This led to a vision of a single web portal where information of existing approved suppliers engaging in a business relationship with Roche would be available. Ultimately, this tool would help making the suppliers better visible to Roche IT users. Consequently, the tool would add value to the efficiency of business as it would reduce time and resources in finding right suppliers to work with. It would also create value for Roche's procurement process, as it would leverage their database of approved suppliers.

A large number of complex requirements had been identified before and during this research. The Roche IT Supplier Portal should guide the stakeholders to find their procurement partners, simplify the process of finding right suppliers in terms of detailed supplier information and provide a user-friendly and easy-to-navigate platform. The Portal should also provide valuable information about each supplier and their capabilities and expert areas through an advance and categorized search bar. One transparent solution across regions with more exchanges between stakeholders is needed. Additional information, documents, high-level presentations and other templates should be all available in one location on each supplier viewing card. Furthermore, the portal

should provide a rating system for Roche's stakeholders as feedback and rate their preferred suppliers on their performance and quality of work. Additional input such as open feedback would enable stakeholders at Roche to choose their paths.

The purpose of this thesis is to improve a supplier portal for the company's global IT supplier management department. The improvement of an existing supplier portal is a central requirement for Roche's IT department to meet the managerial expectations to conveniently access supplier information. The user needs of the supplier managers have been insufficiently mapped internally. Therefore, there has been a need for investigations, analysis and a proposal for an improved supplier portal. The improved portal aims to fill the need to access supplier information in a transparent way within one central location between internal stakeholders across Roche's IT- and business departments.

This thesis describes how the global IT managers' requirements at Roche are carefully collected and analyzed to map the current state of play and the future needs. This enables a considerable improvement of the supplier portal. From the collected and analyzed information, the improvement of the supplier portal is expected to result to a considerable improvement of the supplier portal. The proposals for improved implementation will be based on the needs for an improved user experience and categorization. It can be expected, that the underlying work on this thesis will provide qualified added value for the supplier portal in terms of improved supplier management processes.

Furthermore, the thesis describes the necessary aspects of the system design, research methods for data collection and analysis of qualitative data. Due to the complexity of the organization, the responsibilities and roles of the interviewees were discovered and documented by the author. To put the work in appropriate context, the organizational processes and the best practices of supplier portals are shortly discussed. A feedback survey confirms the validity and value of the improved portal and paves the way towards further upgrades.

2 Requirement Analysis

According to Springer (2015, 59), evaluating user perspective in terms of information systems on communication technology (ICT), is important. Usability is the ease of use and the learnability of a man-made object. This could address a software application, website, book, tool, machine, process or anything related to a human interaction.

When a software application is created, the development team has to be informed about the application's requirements and the problem domain. The process acquires the elicitation and specification of these requirements, as it's necessary to identify the functionality that the system has to fulfil in order to satisfy the user and customer needs. (Springer, 2015, 63).

There are two classes of requirements: functional and non-functional requirements. The functional requirements determine what a software program does. These are made up of statements of services the system should provide, how it should react to particular input and how the system should reach in particular situations. The non-functional requirements describe the attributes of a software program. This includes constraints on the development process, standards, security requirements and performance. (Springer, 2015, 64).

Furthermore, there are two types of requirements when designing a software application. First, user requirements are statements in natural language, including diagrams of the services the system provides and its operational constraints written for customers, from their perspective. The second type of requirement entails system requirements. These are structured documents, with detailed descriptions of the system's functions, services and operational constraints, Figure 1. (Springer, 2015, 64).

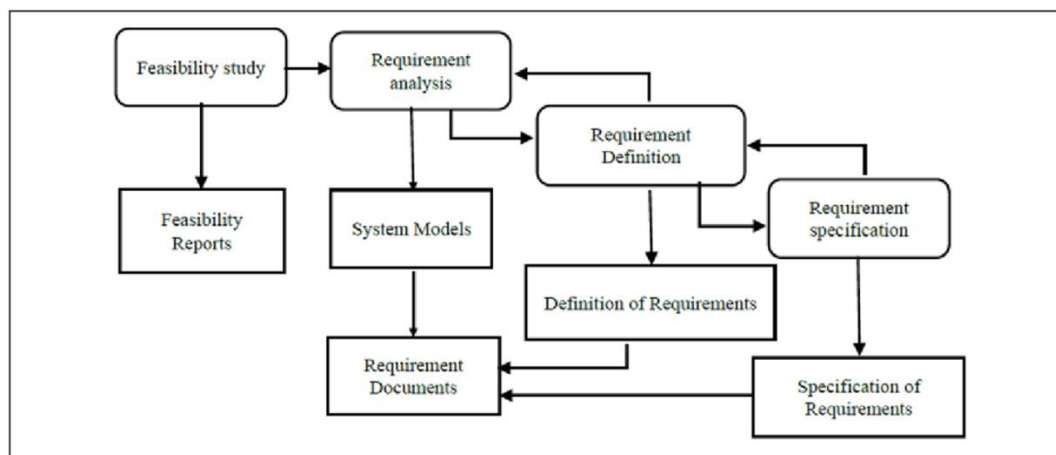


Figure 1: A framework for requirement engineering process. (Springer, 2015, 65).

Feasibility studies determine whether a proposal for a system is viable. If the system contributes to organizational objectives, or if the proposal is possible to engineer using current technology and if that system can be integrated with other systems that are in use, then a feasibility study confirms this. The implementation of the study is based on information assessment and the impact of the system on all stakeholders, including the users, developers, management, contractors and funding sources. (Springer, 2015, 67).

Requirement elicitation and analysis facilitates technical evaluation and analysis of the requirements. There are several methods of undertaking requirement elicitation and the most relevant would be interviews, questionnaire and observation.

First, an interview facilitates formal or informal procedures, which pose questions to stakeholders about real-life scenarios on how the system can be used. Furthermore, a description of foreseeable challenges is presented, including information about concurrent activities and a description of the final stage

Second, a questionnaire is an effective tool and produces a written document reflecting the key evaluation questions. Furthermore, it provides customized answer from open and/or closed questions and allows sufficient time to answer.

Third, an observation allows social scientists to observe on important social and organizational factors. These observational (ethnographic) analysis have shown that work is usually richer and more complex than suggested by simple system models. Prototype development, results in unanswered questions which, focus on the ethnographic analysis. (Springer, 2015, 68).

Requirement specification encompasses what a system should do and how the design does it. System architecture is designed to structure requirements. Most systems need to interoperate and the operating interfaces must be specified as part of an interface specification. Requirement specification document is produced after successful identification of the requirements. The document describes the final product, rather than the process of its development. It's a statement of the expectations from system developers and it entails a complete description of the external behaviour of a software. The document includes a definition of user requirements and a specification of the system requirements. (Springer, 2015, 69).

Finally, requirements validation is done in order to avoid expensive errors. To ensure and check completeness, stakeholder requirements must be included within the allocated and pre-defined budget and technology. Requirements must be understandable, correct, complete, concise, formulated in consistent language, unambiguous and testable, traceable, feasible and ranked in order of importance and stability. (Springer, 2015, 69).

2.1 System Design for User Needs

In this study, the functional requirements are being investigated including the definition what the software should be able to do. These are made up of statements of services the system should provide, how it should react to par-

ticular input and how the system should react in particular situations. In addition, user requirement analysis will be carried out in this project. The user requirements include stakeholder's natural language and operational constraints written for them, from their own perspective. Figure 2 describes the high-level value proposition for Roche's internal actors as a basis for developing the full set of requirement specifications.

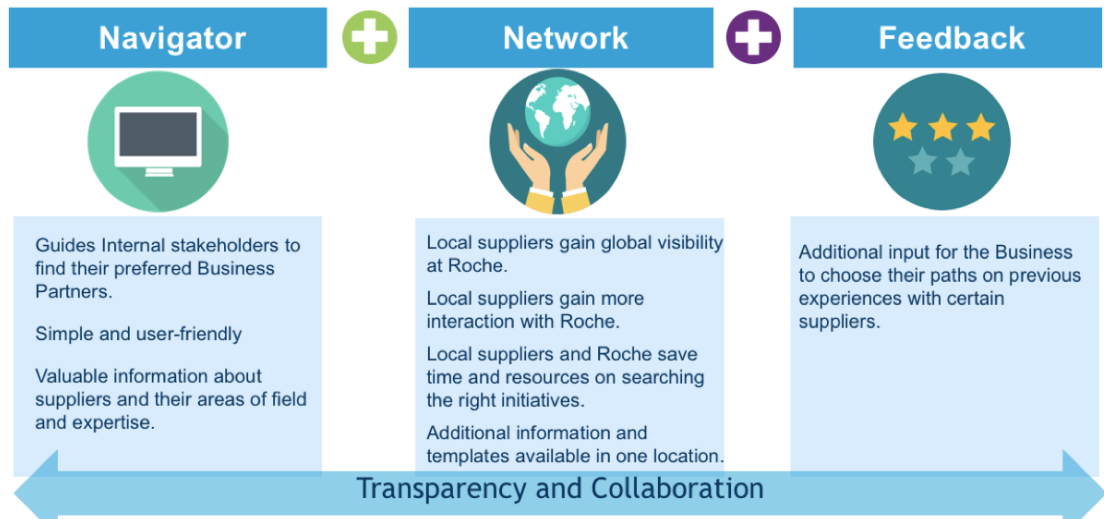


Figure 2: Unique value proposition for Roche's internal stakeholders prior to developing the supplier software.

The basic requirements are the guidance of the internal stakeholders to find their business partner, assisting the local suppliers to gain global visibility, gain more interaction with Roche and receive feedback on the basis of previous experiences with the suppliers.

3 Methodologies and Development Methods

3.1 Research Design and Methods

The goal of the research design is to create a framework supporting the development of themes or consolidated understanding of challenges to gather requirement specification of the supplier portal. This includes assessment criteria and related questions. Based on the collected information, the portal requirements will be analyzed and assessed. The goal is to develop an efficient and accurate way to identify the portal requirements in accordance with the business needs and goals. It is also important to understand the client industry, which helps to gain valuable insight that will benefit the design process and to identify areas where research evidence could make the most difference.

Organizations use a wide variety of questionnaires to measure characteristics of certain phenomena. This section presents the general research and development sources for the foundation of the research. The methodology of the research can be considered the main body of the research format. The following types of research design work as a structure for the project. Research design can be divided into two groups: exploratory and conclusive, Figure 3 (Dudovskiy, 2012).

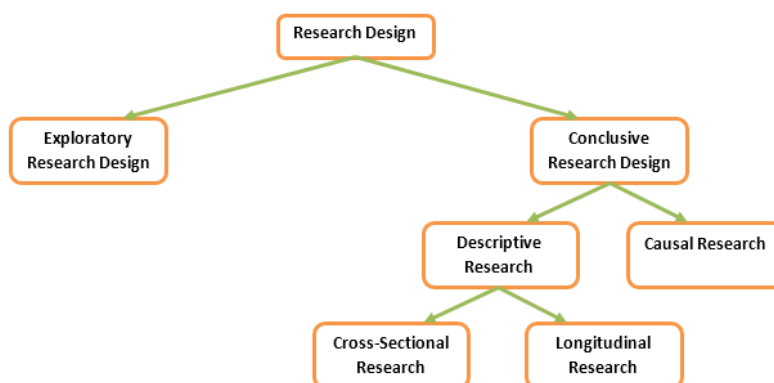


Figure 3: Types of Research Design. (Dudovskiy, 2012).

Exploratory research is defined as gaining a new or deeper understanding about a particular concern. This method uses more flexible and unstructured questions. In contrast with exploratory research design, conclusive research uses more formal and structured questions to test the correlation between variables or to test the truth from the basis of hypothesis. Conclusive research can be divided into two sub-categories: descriptive and causal research. Descriptive research can be characterized as the attempt to determine, describe or identify variables. Descriptive research can be divided into cross-sectional and longitudinal research segments that will be investigated from the results of primary research. Causal research concentrates on the identification cause-and-effect relationships. Causal research can be conducted to assess impacts of specific changes such as norms or processes. In addition, this design can be used to observe respondents. (Saunders, Lewis & Thomhill, 2012)

In this study, the pathway for the research design is indicated in Figure 8. The types of research conducted in this study is the exploratory research method, which uses flexible and unstructured questions to the target interview group, with a premise that the expert group is already concerned and aware of the current issues related to the supplier portal.

The goals of the research design are directly related to the goals of the research question. The goal of the research design is to create a framework supporting the development of themes or consolidated understanding of

challenges to identify requirements for a supplier portal. Based on the collected information, requirements of the portal will be identified. The goal is to develop an efficient and accurate way to identify portal characteristics for Roche and develop a solid understanding of the end-user perception, taking into account the business needs and goals.

Primary research of the project consists of qualitative research. This research method is carried out to gain insight of the phenomenon, including exploring the depths, richness and complexity of the phenomena. Open-ended questions and emerging data are collected with the primary intent of developing themes from the data. The aim of qualitative research is to use strategies of inquiry such as narratives, phenomenologies, ethnographies, grounded theory studies or case studies. (Creswell, 2003, pp. 18 & 21)

The goal is to provide open-ended questions to achieve an extensive amount of data for later analysis. Individual interviews are designed to generate participant perspectives about ideas, opinions and experiences. The goal is to streamline the methodologies, evaluate the interviews and to analyse and determine priorities for implementation and further research.

The goal of the research design is to ultimately be able to evaluate the results from the in-depth individual interviewing, cognitive interviewing, focus groups and formal quantitative testing as well as ensuring that existing evidence is used optimally. The principles of the interview are personal and oral questioning, where the interviewer guides the conversation.

In this thesis, the questions were related to Fig. 2 meaning that free hands were given to the interviewee to provide initiatives as long as they related the predefined classification of the key elements of the value proposition. Therefore, the Research design was rather exploratory.

3.2 Selection of the methods for Primary Research

Primary research serves to accumulate new data from targeted groups or individuals, implemented to answer specific issues and questions. It can involve an interview, experiment/test or observation. The research for accomplishing the goal firstly needs to be focused on employees' voice at Roche in order to gather their ideas. In-depth interviews can be qualitative research methods that involve "conducting intensive individual interview with a small number of respondents in order to seek their perspective on certain idea, program and situation." (Boyce & Neale, 2006: 3). Therefore, the interview was selected as the most systematic and appropriate method for this research, while experiments were conducted based on hypothesis and observations mainly focusing on expert's current challenges and improvement ideas on the portal. The interview should be completely structured consisting of a series of pre-determined questions so that answers of interviewees from subsidiaries in selected

countries can be in the same order and comparable to avoid high level of bias from respondents. (Dudovskiy, 2012). As figure 4 suggests, there are multiple interviewing techniques for qualitative studies. These techniques include face-to-face interviews, or remote webcam interviews, phone interviews, email interviews and chat/instant message interviews. As most of the interview participants were operating in several global locations, the remote Google Hangout WebCam interview was chosen as the main technique to gather valuable information.



Figure 4: Research methods: Source: Based on Ivancic, R. (2017, p. 10).

The choice of the type of data collection by interviews is supported by a very similar approach presented by Saunders (Saunders, 2015: 319) naming the categories as standard and non-standard interviews instead of qualitative and quantitative interviews. Saunders introduces also the one-to-many (intranet) mediated group interviews that are not used in this study.

In addition, this study focuses on a functional analysis, which is a methodology that is used to explain the working of a complex system. The basic idea is that the system is viewed as a computing function, solving an information processing problem.

3.3 Initial Settings of Primary Data

Interviews to identify the end-user requirements were conducted remotely with the selected global IT supplier managers. Evaluation of the implemented actions and approach is a central part of this functional thesis as it will discover the results that can be utilized and disseminated in a sustainable way among the internal actors at Roche. To gather even more comprehensive information on the portal requirements, the second evaluation method was a feedback survey, which aimed to address the requirements and preferences of

the pilot group after launching the tool. The assumption at this point was that the pilot group had experimented the tool and was familiar with the new integrated functionalities. The feedback survey serves also as a quality assurance process for further development.

3.4 Collecting Primary Data

In order to make the interview a purposeful discussion with the supplier managers, different types of interview were studied. The study helped to gather valid and reliable data that are relevant to the research questions and objectives. An overview of types of interview will be presented and shown how they are related to the particular research process. The Table 1 presents different approaches for collecting data for the requirement specification of the supplier software.

Preparation and execution of an internal Roche IT Event	<ul style="list-style-type: none"> - Preparation of a stand to pitch the development idea of the Supplier Navigator and gather real-time feedback on possible requirements from IT experts. - Execution of the IT Event to pitch the idea for Roche IT audience and to gain feedback on possible requirements from IT experts.
Preparation to investigate the requirements	<ul style="list-style-type: none"> - Preparation of upcoming interviews with the Global Supplier Managers. <ul style="list-style-type: none"> o Introduction slide deck preparation o Questionnaire
Run the user requirement collection-interviews with the Experts (Global Supplier Managers)	<ul style="list-style-type: none"> - Collaboration across Roche's Global VMO sites by consulting experts in different locations on their requirements. <ul style="list-style-type: none"> o Group Functions <ul style="list-style-type: none"> ▪ Location: Kaiseraugst/Basel, Switzerland ▪ Interview type: Face-to-face interview o Global Infrastructure & Solutions

	<ul style="list-style-type: none"> ▪ Location: Kaiseraugst/Basel, Switzerland ▪ Interview type: Face-to-face interview ○ Pharma Informatics <ul style="list-style-type: none"> ▪ Location: Mississauga, Canada/ Kuala Lumpur, Malaysia ▪ Interview type: Google Hangouts Call ○ Diagnostics Informatics <ul style="list-style-type: none"> ▪ Location: Mannheim, Germany ▪ Interview type: Google Hangouts Call
Analysis of the outcome of interviews	<ul style="list-style-type: none"> - Analysis with <ul style="list-style-type: none"> ○ the Head of Group Functions VMO ○ IT Procurement
Analysis of the outcome of feedback from the Event	<ul style="list-style-type: none"> - Analysis with <ul style="list-style-type: none"> ○ the Head of Group Functions VMO ○ the IT Procurement
Analysis and cleaning of data from Procurement. Cleaning = Choosing relevant supplier information to be added to the portal	<ul style="list-style-type: none"> - Gather updated supplier lists from the VMO offices globally with a special focus on receiving <ul style="list-style-type: none"> ○ Updated and relevant information that matches the collected requirements ○ Awareness of possible decommissioning processes ○ Awareness on possible transitioning processes
Technical Go-live for 1 st phase: Pilot group	<ul style="list-style-type: none"> - Gather previously used templates, branding elements and visuals from the Supplier Navigator- application solution owner

	<ul style="list-style-type: none"> - Request an approval from Communications expert from IT Communications department on the "Go-live"-announcement. - Send out the first "go-live"-announcement to the pilot group with a special focus on gathering additional requirements and feedback on the first user experiences.
Validation of requirements - First user experience feedback/ requirements from the pilot group	<ul style="list-style-type: none"> - Results analyzed - Reminders were sent out with a goal to increase feedback rate
Intranet announcement ready for Global Supplier Managers to allow news sharing with their peers	<p>Group Functions IT Supplier Management Office (FG VMO) collaboration platform & communication channel (intranet) finalization.</p> <ul style="list-style-type: none"> - Web-based solution development and deployment, knowledge management incorporation into business processes, publication & presentation organization, e.g. FG VMO homepage development and maintenance. - The creation of the Global Supplier Management Office (VMO) collaboration platform gave site visitors the opportunity to conveniently access best practices, business process flows, tools and relevant supplier management information in single locations. (Head of FG VMO).

Table 1: The landscape of areas of primary research and identified actions in the project.

The methodology for collecting the data in this thesis for meaningful detailed requirements was agreed internally and implemented as follows. The requirements were obtained gradually on the basis of the generic value proposition of Figure 2 (navigator, network and feedback). The means of the collection of

the data were 1) the event to stimulate the discussion and share the competencies, see Fig 8.1) , 2) the internal follow-up one-to-one discussion (interviews) and 3) circulating the draft requirements for further comments and verification from the colleagues (intranet mediated interview and e-mails).

3.5 Analyzing Qualitative Data

In order for the data collection to be useful, the data needs to be analyzed and the meaning understood. Qualitative data analysis allows developing theory from the data. According to Saunders (2009, 489), it is possible to approach data collection and analysis from either a deductive or an inductive perspective.

In this thesis a rather inductive methodology for interviews was applied to generate new practices from the collected data on the view of understanding of the supplier profiles. There was also a need to apply deductive methodologies because the new practices needed to be tested through the verification of the validity of the initiatives.

Fig. 2 contains already the main concept and the settings of the question, which gave a very good starting point and structure for the collection and analysis of data with an easily understandable purpose.

4 Supplier Portals in Organizational Context

This chapter describes the business processes and best practices of the supplier portals necessary to understand the positioning of the supplier portal in the overall context.

4.1 Organizational Processes

According to Andersen (2007, 35), there are number of ways of classifying business processes. The processes are divided into primary and supportive processes (Figure 5). Primary processes are the central and value-creating processes of the enterprise. Support processes are not value-creating processes directly, but rather activities to support the primary processes. They include activities like financial and personnel management. (Andersen 2014, 35).

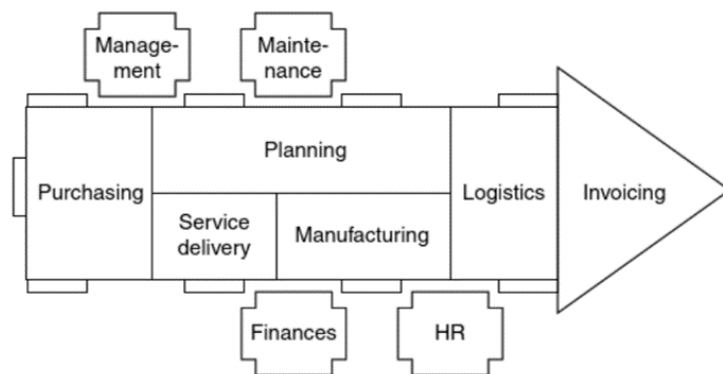


Figure 5: Organization's primary and support processes. (Andersen, 2014: 35).

For instance, a good example of which types of primary and supportive processes exist in an organization are presented in ENAPS (European Network for Advanced Performance Studies) project, funded by the European Commission. The Figure 6 (ENAPS), describes a generic set of processes underneath the primary processes and support processes, which are identified as business and secondary processes within the ENAPS study.

As Andersen (2014, 37) argues, there are four essential factors when identifying organizational business processes. The four important factors are the strategy of the organization, organization's stakeholders affected, expectations with regards to products and the business processes that produce the products and support and enable the delivery of them. (Andersen (2014, 37).

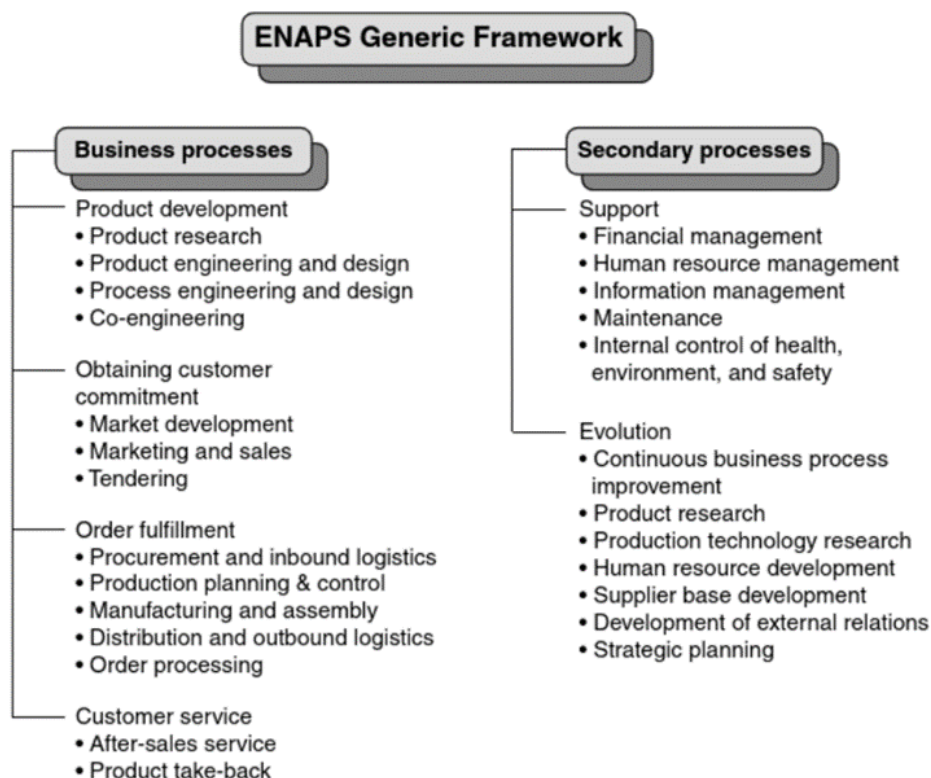


Figure 6: A generic set of processes underneath the primary processes and support processes, which are identified as business and secondary processes, European Network for Advanced Performance Studies project (ENAPS), funded by the European Commission. (Andersen, 2014: 35). In this study, the ENAPS framework is highly applicable to understand the context of the supplier management in the organizational setting.

According to the process model, this work will solely be concerned with the research and planning process. The service delivery processes of the application will cover the design, development, deployment and operation of the service. The planning process of the management is one of the most crucial ones to ensure that the goals are set and resources are available to achieve such goals. The planning process is an ongoing process of the company, which consists of establishing objectives, determining planning premises and alternatives, evaluating alternatives, selecting the best course, formulating derivative plans and implementing the final plans. (Hundekar, 2009: 192).

Regarding the manufacturing processes of the Portal, the company uses two digital manufacturing processes. First, the product life cycle starts with an engineering design definition and follows through sourcing, production and service life. Second, the value chain management focuses on minimizing resources and accessing value at each stakeholder function across the value chain. It ultimately results in process integration, decreased inventories, better products and enhanced customer satisfaction. (Hundekar, 2009: 194).

The handling of invoicing process is usually done by the procurement which plays an important role in providing supplier managers urgent help and information needed after their products or services are being purchased from a certain supplier. The after-sales service will ultimately attempt to keep the buyer a long-term customer by offering instant aftercare and support.

The supporting processes of company include financial and personnel management. The maintenance of the product is also classified as a supportive process as it aims to correct discovered problems, keep the product usable in a changing environment and improve the product's performance. The supporting processes of the company also include internal control of employee health and safety. (Andersen, 2007: 35).

4.2 Best Practices of Supplier Portals

According to Collins, (2003), the ultimate goal of Enterprise Portals is to enable companies to unlock internally stored information, and provide users with a single gateway to personalized information and knowledge to make informed business decisions. Often there are several data sources, systems and applications that need to be combined with an aim to gather the decentralized information into one solution. For example, to place an order for a customer, an employee may need to use several applications. (Collins, 2003, 27).

Knowledge management initiatives are usually taken under consideration, when employees need to make more informed and consistent decisions or are asked to complete more activities online and store more information electronically. In addition, when content, applications and complexity of information continues to grow and employees find difficult to find, navigate, understand and use it. (Collins, 2003, 27).

The enterprise portal is useful in gathering and distributing document information, indexing and text search. Also, categorization can be identified as a critical knowledge management objective for the organization and prioritized as critical features to be integrated into the enterprise portal. The enterprise portal should allow employees to receive notifications when new information is available, review project status, complete customer updates and perform activities on any other requested information. Furthermore, employee self-service would require close collaboration with the appropriate experts in the organization, especially when questions are being raised or when the employees have knowledge to share or insight to contribute. Ultimately, the employees need to be able to easily organize and personalize any information available according to the categories defined for the organization and categories they would like to define themselves. (Collins, 2003, 27-28).

As Colin (2003) argues, an enterprise portal defines the central location where navigation services are available for employees to find information, launch applications, interact with corporate data, identify collaborators, share

knowledge and make decisions. Several of the benefits of the enterprise knowledge portal include a consistent view of an organization, information organization and search capabilities. The benefits also include a direct access to corporate information and resources and direct links to reports, analysis and queries as well as relative data and human expertise. The portals also provide access to personalized content. (Collins, 2003, 28).

The types of enterprise portals consist of enterprise information portals, e-business/ e-commerce portals, mobile commerce portals and internet portals. There are several categories of functionality available in the enterprise knowledge portal that will be essential in supporting knowledge management in an organization. First, presentation, which refers to the complete set of technologies and services to provide the visual experience to users. Second, knowledge organization systems refer to a collection of technologies being key to bringing meaning and focus to the information users use. Search and index refer to full-featured advanced search technology to look for mission-critical information. Personalization and role-functionality is concerned with the roles a knowledge worker is acting in and preferences and responsibilities the same employee is responsible for, Figure 7. (Collins, 2003: 75).

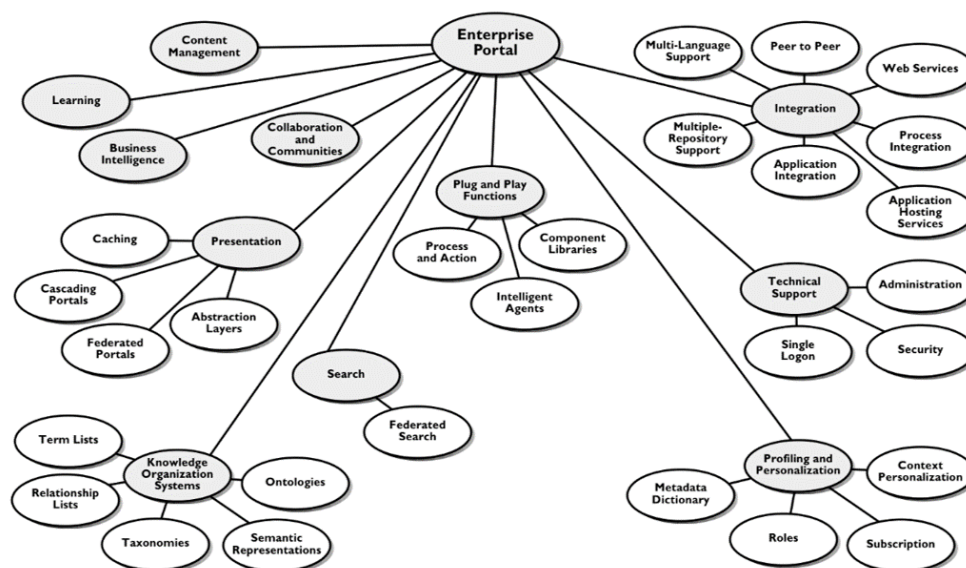


Figure 7: Enterprise knowledge portal IT-enabling framework: (Collins, 2003: 125).

The visual characteristics of the Portal are developed in accordance to three core principles that most strongly affect application design presented by Schlatter (2013), These core principles that most strongly affect application design are consistency, hierarchy and personality. (Schlatter, 2013).

Regarding consistency, successful application design requires several aspects to provide a consistent application design to cover the needs of an end-user.

These factors regarding consistency include consistent layout across the portal, similar typography, systematic colors and similar imaginary and controls, such as similar motions for feedback. Ultimately, the consistent application design should promote company-specific business goals, audience needs and technical capabilities. (Schlatter, 2013).

Hierarchy helps people know what to do, how to do it and what to expect. In practice, a lack of hierarchy exists when objects all attract the eye equally. That is, when nothing stands out more than any other thing on the concept. Therefore, visual hierarchy is very similar to organizational hierarchy. It's an order based on ranks defined as part of the system, Figure 8 (Schlatter, 2013).

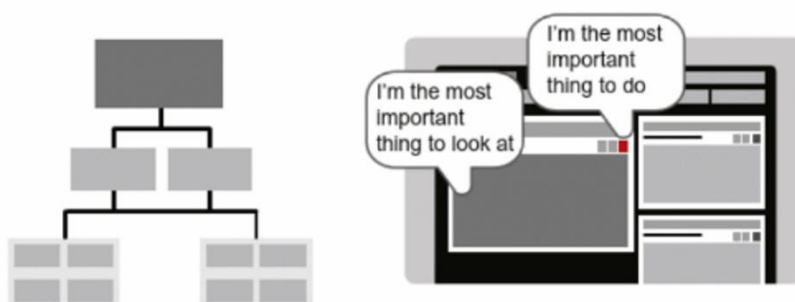


Figure 8: As with organizational structures in which one person or group is more important than others, rank is hierarchy's key concept. In interface design, rank is expressed through size, color, position and treatment. (Schlatter, 2011).

Regarding the third principle: personality - it takes into account the visual aspects that are formed based on the appearance and behavior - a concept that applies to applications as well as people. Product personality can be classified in three aspects; visceral design maps to appearance, behavioral design represents the effectiveness of use and reflective design relates to self-image, personal satisfaction and memories, see Figure 9. (Schlatter, 2013: 53).

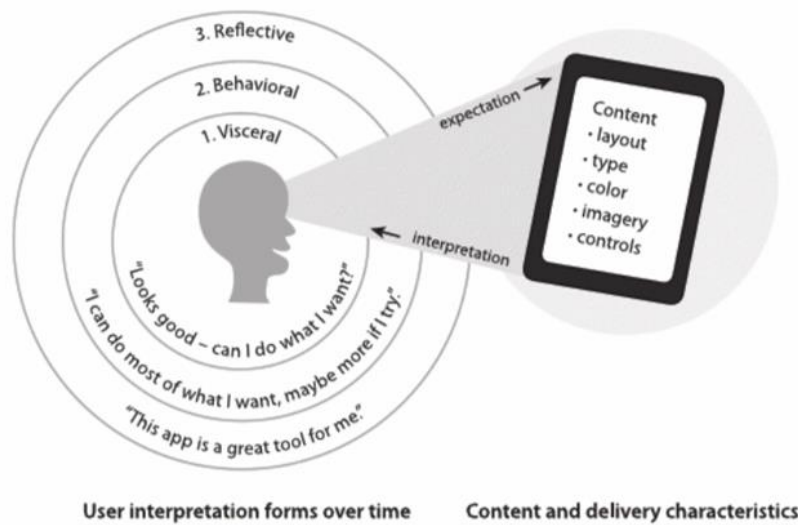


Figure 9: Not all aspects of an application’s personality can be determined at a glance (visceral). They are revealed through use (behavioral) and time (reflective). (Schlatter, 2013: 54).

According to the Pogorelova (et. Al, 2016), the physical evidence in e-business is divided into two components: the traditional physical and virtual. The physical environment could be presented by delivery points, off-line shops and offices of the company. The virtual environment owns a significant importance in its electronic environment due to the accessibility and convenience of a purchase. Therefore, the physical evidence on virtual environments include a website and community pages in social networks and applications. (Pogoreleva, et al, 2016).

In this study, the visual characteristics of the portal should be carefully analyzed to improve the user experience, not only through improved categorization, but also with an interactive design as the application personality plays a central role in the user experience. A carefully designed application personality will be an essential element to enable end-users to understand the context of the supplier in an organized and clear manner.

4.3 Appearance of the Implemented User Interface

The user interface was already used in the company and therefore out of the scope of the thesis. However, for the sake of credibility a screenshot of a typical “supplier card” is presented in Figure 10.

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Affiliates	Italy
Products	
Name of the Sourcing Manager	Biagi, Guendalina (MWIF-Monza)
Email of the Sourcing Manager	guendalina.biagi@roche.com
Created	by Karina Graciela Revelo Moreno on April 26, 2016
Modified	by Karina Graciela Revelo Moreno on April 26, 2016

Supplier General Information

Website	www.karina.net
Speciality	Facilities
Description	Building refurbishment
Pharmacovigilance relevant?	No


Supplier contacts

Karina	Sales	ljdfb@skymail.com	-
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Supplier Address

Street	Street xsw
City	Milano
Zip Code	48731
State	
Country	Italy
Phone	+76187321658

Documents

No	Type	Name	Language	
1	Presentation	 unnamed.png	English	Preview not available download

Rating

Timelines	★★★★☆ (2 votes)	Add a Comment
Have the agreed deadline(s) been respected?		
Quality	★★★★☆ (2 votes)	
Were the final deliverables or services within the expected quality levels?		
Customer services	★★★★☆ (2 votes)	
Did the supplier conduct themselves as you expected?		

Supplier Performances comments

Stephane Laine	May 10, 2016, 14:39
very good collaboration	
Karina Graciela Revelo Moreno	Apr 26, 2016, 14:00
Delivery time should be improved. 2 days of delay	

Figure 10. A supplier card illustrating all relevant supplier information categories developed.

5 Results

This chapter aims to capture the current situation and the software development needs of the supplier portal. In addition, the feedback survey results are analyzed to map the current status and the future needs from the end-users of the portal.

5.1 Current Situation and the Software Development Needs

Supplier Navigator is an innovative solution to store and maintain preferred suppliers lists so that they are readily available to every stakeholder at Roche. The mission of the Supplier Navigator is to enable stakeholders to navigate through the portal in an easy and transparent way to find their Procurement partners. The portal would act as a simple and user-friendly interface that provides valuable information about suppliers and their capabilities. The aim of the portal is to provide one easy and modern solution across the regions. In addition, the Supplier Navigator aims to show the relationship between Suppliers and Roche products portfolio and leverage preferred suppliers across the regions. Furthermore, the aim is to encourage internal customers to provide real-time feedback and their preferred suppliers based on experiences and facts.

At the starting point of the project, the supplier information included supplier's name, description and the field in which the supplier was operating. Early investigations revealed that various supplier or supplier portals existed at Roche. However, the Supplier Navigator was selected as the main platform for this project.

Several requirement specifications were identified in the work as a central part of this thesis. First, the Group IT supplier information is decentralized and has not yet been integrated into any information portal. Furthermore, there has been no actions taken regarding the identification process of supplier information requirements for the IT supplier managers and therefore the main information offered by the Supplier Navigator is inadequate. In other words, the development need would be to enrich the categories with more identified information. The information should simplify the end-user experience and get connected with relevant business partners in an agile way.

As part of the goals for Group Functions Supplier & Partner Management Office for 2018-2019 was to create a platform for internal stakeholders to enable transparency across the supplier landscape across FG. The assessment of

the requirements for the platform was done in close collaboration with the global supplier managers to identify and capture the needs of the end user in order to request the change proposals for Supplier Navigator. An essential development need was left out-of-scope i.e., to allow suppliers' self-registration, to bring visibility on their products and to enable external suppliers to assess their readiness for further collaboration with Roche. The access to the suppliers themselves would have required a longer integration plan with the security and compliance network which was not considered as a priority at this point of time.

The following requirements from the experts were identified to enrich the supplier software:

- a) Navigator - allowing to access a simple and user friendly navigator that provides valuable information about suppliers and their capabilities.
 - The supplier information database required more detailed category overview and a tagging system to enable finding specific information for different stakeholders' needs. New categories will be implemented as requested;
 - Supplier ID - Legal entity of the supplier
 - Commercial Supplier Name - optional field to provide clear visibility at local and global level when the local supplier name is not related to a parent name.
 - Local/ Global Contract
 - Affiliate - Should be pre-populated with the stakeholder's own affiliate.
 - Category - Select one or more categories that will be displayed in the system.
 - Product - Only if applicable to the category. For example, Strategy Branding & Creative Agency can be dedicated to a product.
 - Name and contact details of Procurement - Indicates the main procurement contact owner/responsible of this supplier. The email will be auto-populated.
 - Name and contact details of the Business
 - Supplier Website/ specialty - Provide relevant information that is required to highlight in the Supplier profile and potentially provide instructions on what stakeholders want to share with other end-users.
 - Supplier Data

- b) Network - To enable social aspect of more exchanges relating to the availability of high-level documentation in one location
 - Any type of document attached will be visible for everyone internally at Roche.

c) Performance Evaluation

- Rating system to encourage business to provide real-time rating of their preferred suppliers based on own experiences and facts. Visual input for other stakeholders to choose their paths on previous experiences with suppliers.
- Free text to provide further explanation/ details of the feedback based on stakeholders' experiences and facts to encourage other stakeholders to choose their paths on previous experiences with suppliers.

5.2 Feedback Survey

As a part of the thesis a feedback survey (Appendix 1) was conducted. The feedback results were analyzed to map the current status and the future needs from the end-users. From the collected and analyzed information, an upgrading of the portal was expected to result to a considerable improvement of the supplier portal. The proposals for the implementation were based on the needs of the user experience and categorization. The underlying work on this thesis provided qualified and needed improvement for the supplier portal in terms of improved supplier management processes.

The results of the survey revealed that the overall satisfaction on the newly launched tool was a considerable success. The tool was found to ease the search process and provide a comprehensive overview of the suppliers. According to the results, it was found useful to identify suppliers in a single location and rate them according to own experiences on a certain supplier. The supplier information gathered was also found to be comprehensive. It was pointed out that the portal will be further advertised across Roche's internal intranet and supplier management communities.

Despite the fact, that the general satisfaction on the newly launched tool was comprehensive, several improvement proposals, questions and suggestions were addressed by the supplier managers. According to one comment, it was not evident who exactly was the target group of this tool and which processes would it affect. Also, a concern regarding a lack of training on certain people would not allow the tool to be ultimately visible. It was not also clear who would be managing the tool. Furthermore, a new question was raised regarding supplier manager's quarterly business reviews (QBRs), whether the information on the portal could be documented and used within those quarterly business meetings with the suppliers.

It was requested that the supplier skills and specific domains would add value to the tool. Furthermore, the performance of the tool itself was found to be slow with technical issues and losing of the search functionality. It was, however, found useful to have future cooperation with procurement with an aim to provide awareness to the end-users and re-launch advertisement. It was

also suggested that the tool would ultimately gain more supplier information when combining the database with other information tools.

Ultimately, the following requirements were identified and implemented to enrich the Supplier Portal: The tool allowed the end-users to access a simple and user friendly navigator that provides valuable information about suppliers and their capabilities. The tool enabled social aspect of more exchanges in regards to the availability of high-level documentation in one location. In addition, a performance evaluation rating system was integrated to the tool to encourage business to provide real-time rating of their preferred suppliers based on own experiences and facts.

6 Project Organization

According to Galbraith (2014, 23), the hierarchy of authority varies in every organization. For companies acting in an organized way, it's necessary to create a division of labor. The division is done between people who sell the products, while other people are producing and delivering these products. Another group of people are recording the transactions while the others are looking for funds to grow the enterprise. Therefore, certain people are selected to place them in a hierarchy of authority. In addition, Galbraith (2014, 23) argues, that when any organizations begin, they usually have a functional organization (Figure 1) as the main reason being that the society itself is organized around these functional specialties. (Galbraith, 2014: 24).

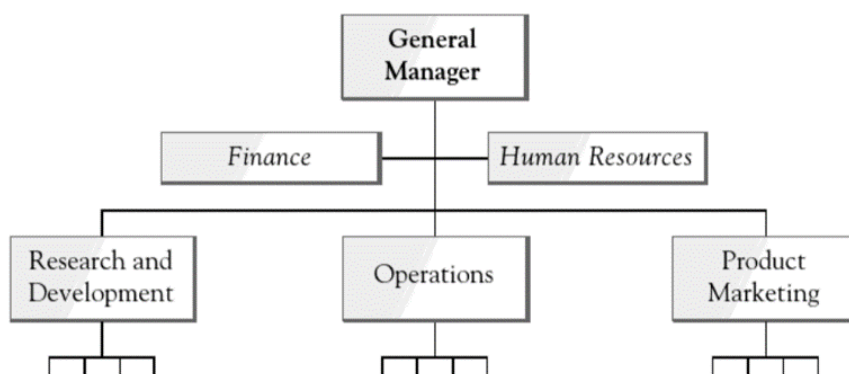


Figure 11: Basic Functional Organization model. (Galbraith, 2014: 25-26).

Acknowledging the normal functional model of Figure 1. It became evident at an early stage that there are multitude of interlinked internal actors related to the supplier portal crossing the organizational boundaries. Therefore, in when assessing the needs, it was necessary to investigate who those actors are and what their roles and responsibilities are. In this context, it was important to communicate to all that the project concerns solely the research and development-function of the portal.

As an important part of the thesis was to investigate (Table 2) and analyze the relationships between the internal actors at F. Hoffmann-La Roche, the roles, responsibilities and relationships between the internal actors at Roche interfacing the supplier portal on the basis of the internal communication are summarized in Table 2.

Role	Responsibilities
Project Lead (Supplier Management Office)	<ul style="list-style-type: none"> - Supplier Navigator Project execution 2018-2019
IT Procurement	<ul style="list-style-type: none"> - Selection of the Supplier - Identification of Suppliers
Supplier Software Solution Owner	<ul style="list-style-type: none"> - Issue analysing, tracking, assessing and solving - Create and modify functional specifications on basis of business needs - Architectural Consulting - Creation and update on technical Documentation - Assist on technical and process improvements
IT Group Communications	<ul style="list-style-type: none"> - Assistance on communication, branding and advertisement of the solution
Global Infrastructure & Solutions VMO, (end-user) * Bring value for Roche IT by implementing a Sourcing & Supplier Management strategy that can ensure both, Operational Excellence and smooth and compliant Managed Services Operations.	Expert Interview Participant
Global Pharma VMO, (end-user) * Accurate measure and track supplier performance and relationship management to drive cost savings while providing value back to the organization. Together with IT we co-drive unification and best practice sharing in supplier selection, contracting and monitoring process in the region.	Expert Interview Participant

Role	Responsibilities
Global Diagnostics VMO, (end-user) * Support across the supplier life-cycle in order to increase the value we get from our strategic suppliers, driving the culture of innovation and collaboration whilst minimizing the costs associated with non-performing strategic suppliers.	Expert Interview Participant
Global Group Functions VMO, (end-user) * Bring value for Roche IT by introducing controlled spending and pricing methodologies, constantly measuring the performance using internal score-cards and metrics, standardizing the transition processes, leveraging the risks by partner regulations and providing advice on market trends and best supplier selection.	Expert Interview Participant

Table 2: Roles and relationships between the internal actors at Roche participating in the interviews.

7 The Time Table

STATUS	START	TASK NAME	COLLABORATOR	MILESTONE	COMPLETION DATE
Completed	AUG '18	Preparation and execution of an internal Roche IT Event	General IT Audience	Prepare elevator speech to pitch the idea of Supplier Navigator Optimization	AUG
Completed	SEP '18	Preparation to investigate the requirements	Global Supplier Managers	Slide-deck preparation to run online discussions/ interviews with supplier managers globally	SEP
Completed	OCT '18	Run the requirement collection-interviews with the	Global Supplier Managers	Finalization and approval of questions from VMO line-manager	OCT

		Heads of Global Supplier Management Offices			
Completed	OCT '18	Analysis of the outcome of interviews	Line-manager, Procurement		
Completed	OCT '18	Analysis of the outcome of feedback from the Event	Line-manager, Procurement		
Completed	NOV '18	Analysis and cleaning of data from Procurement	Line-manager, Procurement	Update the information together with each global supplier managers	NOV
Completed	NOV '18	Technical Go-live for 1st phase): Pilot group	Supplier Navigator Solution Owner/ Communications Department	1. Gather previously used templates, branding elements and visuals from the application solution owner 2. Request an approval from Communications Department on the "Go-live"-announcement.	NOV
Completed	DEC '18	First user experience feedback/ requirements from the pilot group		Send out the approved announcement	DEC
In Progress	DEC '18	Intranet announcement ready for Global Supplier Managers to allow news sharing with their peers			
Completed	AUG '18	Global VMO Advertisement chan-	Global Supplier Managers	Kickoff Meeting	Completed

		nel (Intra- net) ready for News sharing			
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8 Key Results and Recommendations

This thesis introduced an improvement plan for a supplier portal for a pharmaceutical and diagnostic company, F. Hoffmann-La Roche Ltd. The Supplier Portal is a new tool used in the company and was successfully improved to address the needs of an end-user. The research also revealed that after the launch, there were still needs for improvement. The upgraded application was found to provide transparency in terms of available supplier information within one central location between internal stakeholders across Roche's IT- and business departments.

The results of the satisfaction survey indicate an overall satisfaction of the newly launched tool. It was found to ease the search process and provide a comprehensive overview of the suppliers. According to the results, it was found useful to identify suppliers in a single location and rate them according to own experiences on a certain supplier. Several improvement proposals were reflected in the survey such as clarification of the target group of this tool, which processes would it affect, improving of training, internal resources are need to manage the tool, documentation of the quarterly business reviews, documentation of the information to the quarterly business reviews, accelerating the speed of the tool not to lose vital information.

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Appendix 1:

