Business analysis and functionality design for Connect Consult

BUSINESS ANALYSIS AND FUNCTIONALITY DESIGN FOR CONNECT COOPERATIVE

HAMK
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ABSTRACT

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ABSTRACT

This thesis was aimed at establishing what were the business requirements for a small start-up company in the name of Connect Cooperative. The commissioning body of the thesis is HAMK UAS indirectly doing so on behalf of the Connect Consult start-up which itself generated from the Connect project in which students and staffs of HAMK contributed by running various sub researches and information.

From this business requirement a set of technical requirements were being generated with a major restriction placed on the project or research scope limiting the project to the soft-component of the system in accordance to Sun Java's guide on deployment planning clearly stating the importance on placing boundaries so as to avoid infinite scenarios or situations. The search starts by clearly identifying the adopted organization structure of Connect cooperative and presenting and classifying the proposed start-up's services. The thesis further goes on to articulate how this organization structure and proposed services could be integrated into an online or virtual portal aimed at various purposes but with a major aim of assisting the start-up deliver value and services to its customers.

Information gathering was done verbally by attending various meetings with the start-up's members and also requesting information from the start-up directly such as their previous research results like the one they did in order to identify their human resources.

In order to achieve results of standards, guides were being used so as to give a step by step method used in result achievements with a major use of the Sun java's enterprise deployment plan –white paper guide. The business requirements were identified as the business constrains and a technical requirement with respect to the project from which the use cases were used representing and designing the systems functions.

Keywords   Business analysis, functionality design, business requirements, use case.

Pages   34 p.

CONTENT

1 INTRODUCTION

This thesis/research was being carried out in an effort to strengthen a start-ups (CONNECT COOPERATIVE) vision on what kind of systems and tools it needs in helping it provide various services to its various customers. There was a good number of tools identified but some as previously analysed by the cooperative may be less efficient and cost adding to the Start-up. The start-up already has a clear picture of what services it has to offer based on previous researches and projects carried out as well as it knows already some of its customers. The research will serve additional purposes such as providing a framework or building block for subsequent researches or projects which has to do by near or far with the research questions and subsequently reduces rework.

One of the tools which the start-up has so far identified in order to assist in producing value is an online portal, which will serve diverse purposes such as marketing the start-up services and providing a virtual office by which different stat-up workers will have to work through in order to deliver services.

In order for an online portal to be efficient, it has to be designed in a specific manner so as to match not only the commissioning organization's demands and avoid extra functionalities capable of bugging the system and avoid paying for unwanted services. It has to be tailored on bases of the type of business and what kind of activities the business is doing. There are a good number of online/virtual portal designs, each having specific goals such as simply for marketing purposes, communication purposes or more interactive purposes with good examples on social media web-portals. This thesis analyses what the star-up aims at doing, providing and what activities have to be done in order to support the value creation processes by means of the online portal.

At the ending parts of the practicalities, the functionalities of the system are identified under the various use cases in relation to the various groups of target users (Actors).

2 COMMISSIONER

2.1 Commissioning Organization

The commissioning body of this thesis is the Degree Programme in Industrial Management at HAMK University of Applied Sciences. It is part of an initiative to build up the feasibility studies requested in the structuring of a consulting start-up company. The start-up company itself came as a result of some Connect Project research team members wishing to assist in the implementation of the Connect Project's objectives where the key aim

was to help Finnish based solution providers in the field of renewable energy penetrate developing countries' market with a major focus on African countries (Kenya, Nigeria and South Africa being short listed as priorities).

2.2   The Connect Project

The Connect Project was commissioned by the Finnish Funding agency for innovation and technology (TEKES) to the Federation of University of Applied Sciences (FUAS) which itself comprises of three universities of applied sciences which are HAMK, LAMK and Laurea. The project started at the beginning of the year 2012, precisely in the month of January and scheduled ending in the month of June of the year 2014. Within the project a good number of activities and studies were being carried out so as to reduce the number of potential countries to three which are Kenya, Nigeria and South Africa. Countries which were highly being considered at the analysis stages were Ghana, Nigeria, Cameroon, Namibia, Botswana, South Africa, Uganda, Kenya, Tanzania and Vietnam (the only Asian country). Various criteria were being used to enable to reduce the list the number of potential countries to three. Sample criteria where;

-Renewable energy potential and need
-Available workforce
-English as an official language
-Education level
-Governmental policies and structures
-Cultural differences
-Evaluation of how easy it is to establish a new business
-Various economic factors such as economic growth and available sectors of investments.

Although most criteria mentioned above were looked in detail or partially, a major focus was really made on the renewable energy potential of the various countries and how these needs could serve as a business opportunity for Finnish solution providers (companies).

The targeted companies in Finland are small and medium size enterprises (SME's) manufacturing energy (electrical as main focus) generating equipment's such as solar panels based on solar technology, bio technology or wind. According by Laurea, the project aims were being outlined as follow,

-"To develop internationalization skills of Finnish SMEs"

-"To improve SME's abilities to participate in value networks and cooperation between business and research partners"

-"To increase the understanding and utilization of value potential of international students and expats for SMEs"

-"To open possibilities for new recruitments in renewable energy industry and new intermediating companies"

-"To co-create effective modes for networking theories and experiences". (Laurea, 2013)

2.3   The Consulting Cooperative

The consulting cooperative was born as a result of part of the Connect researchers' team identifying a business opportunities which could significantly assist in achieving the previously stated Connect Project objectives come to reality. The consulting company is aiming at achieving the Connect Project objectives by diverse means such as carrying out test marking exercises in target countries and collecting valuable marketing results. The company also aimes at helping businesses in their market penetration strategies, expansion strategies and related areas of business in the various target African markets.

The Cooperative for a start constitutes of the FUAS students who worked as researchers for the Connect Project but based on demands, it will increase to accepting graduates of Finland's higher education system. So the Cooperative aims at enjoying various competences and experiences from different Cooperative members as they range from Automation, Construction and Industrial Management Engineering graduates and students to international students and graduates at various education levels.

2.3.1   Cooperative structure

The startup cooperative aimed at acquiring a basic structure so as to reduce the amount of bureaucracy and encouraging a friendly environment.
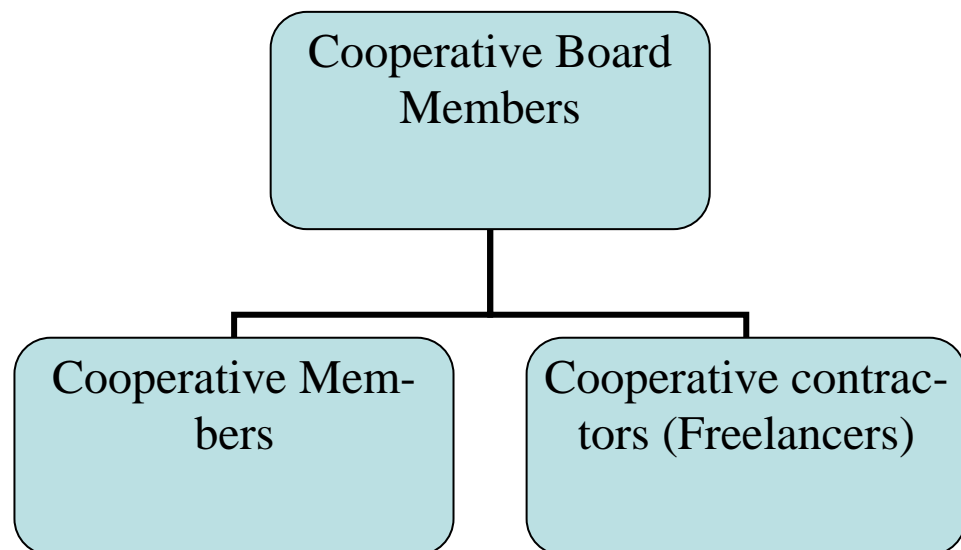

Figure 1   Cooperative structure (Organigram)

1. Cooperative board members

The cooperative board members are in number of seven who are individuals who serve the purpose of establishing the policies of the cooperative. The board members serve as the last line of debate in policy making procedures.

2. Cooperative members

The cooperative members all have an interest in the cooperative and also serve the functions of assisting in policy making by diverse means such as debates or by voting.

3. Cooperative Contractors (Freelancers)

The cooperative contractors are the persons found at the operational level of the cooperative. They are those whom various tasks are being attributed in order to satisfy a customers' specific need. They do not have fixed positions as their positions and roles are defined by the type of project on which they are working and their level of expertise.

4. Notion of cooperative equality

The notion of cooperative equality refers to the fact that bureaucracy is being reduced or broken down, but it further implies that the cooperative members are the same or equal to the cooperative contractors (freelancers) but their roles and positions are being defined or based upon the need or demand at that specific moment.

5. Remoteness

The cooperative is further designed in such a way that cooperative members and freelancers can work from various, even remote locations thus avoiding cooperative members to travel long distances on daily bases as the members are living at several locations in Finland far from each others.

2.3.2 Cooperative proposed services

The cooperative in lack of finance adopted the decision to focus on services which are independent of physical objects. A list of their proposed services is illustrated below as follows:

1. Marketing and Sales

   - Test marketing
   - Search for contacts in markets
   - Sales order sourcing for companies
   - Sales negotiation assistance
   - Marketing content development for local markets

2. Business Networking

- Organizing business meetings
- Sourcing local partners

3. Business Development

- Sales translations & interpretations (Chinese, English, Finnish, French, Russia, local languages etc.)
- Expansion strategies
- Market analyses
- Production feasibility studies for companies
- Project management
- Production management and improvements

4. Company Internationalization

- Cultural knowledge transfer and training
- Language skills training, guidance and improvement
- Organization development.

2.3.3   Classification of services

In order to further classify and organize the services that the cooperative offers, the services have been classified into two major categories based on what kind of tasks are executed when providing the services. A picture of the classified services is shown in (figure 2) below.

The first group comprises of project related tasks elements that could be identified by the business elements of the company's proposed services as illustrated on figure 2.

The second main category in which the various services could be grouped into is under communication. This group comprises as a major path the section (4. Company Internationalization) of the overall services proposed.
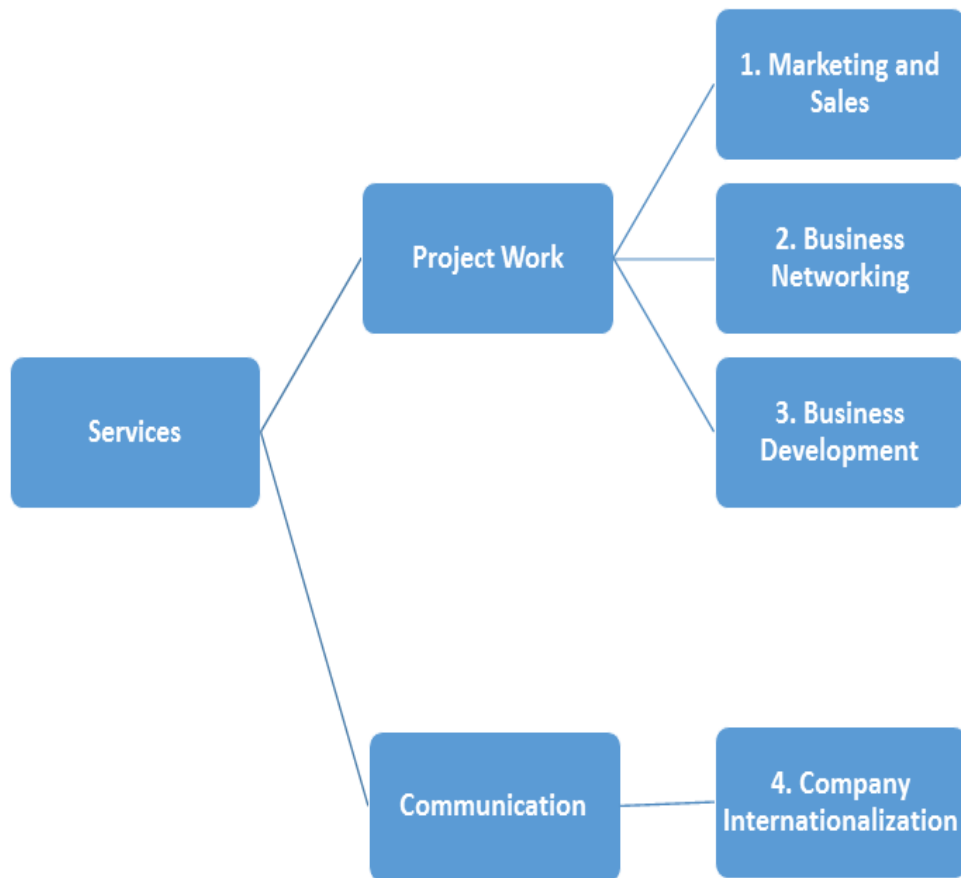
Figure 2   Classification of business process

3   RESEARCH FOCUS

3.1   Targets

This study aims primarily at establishing a framework from which subsequent results or projects could be obtained from. It aims at identifying what has to be done in order for the business to create and deliver value by means of an assisting system. It will aim at identifying and designing the functionalities for the future virtual (online) portal. These research focuses are being simplified into two simple questions which are presented below.

3.2   Research questions

The research questions for this study are:

1. What are the business requirements for the cooperative?
2. What are the business constrains of the cooperative?

4 RESEARCH METHODS

In order to achieve results of standards, the research was carried out using guidelines provided by Sun Java Systems covering the subject matter. The researcher being a board member of the cooperative, made use on various information gathered verbally on the subject matter based on various meetings with different cooperative members and Connect Project team members with respect to the development of the business and as the researcher also contribute and participate in the policy making.

The Sun Java's deployment planning guide served as a questioner's guide in which answering the questions provided on the guide assist in establishing results for the stated research questions. Therefore, it was approached as a question and answer research and use case, functionality is being designed at the end of the technical requirements analysis.

In addition to Sun Java's guide on deployment planning another short guide was used in the designing of the systems anticipated use cases or functionalities.At the start of each subsection, the target or instruction given by any of the guides on how to approach the subject matter were written. After the guide's instruction, a justification was given on the related choice with respect to the desires of the start-up and later summarised on tables.

4.1 Exclusions

The research was restricted to the soft-component of the system. Any hard ware related activities were simply ignored with a justification that the start-up aims at making low cost acquisition and meaning it will subcontract a majority of its hardware needs thus limiting its concern on the hardware details which will be an issue of the sub-contracting service provider.

As the Sun Java's guide emphasises, not all steps were included, just those applicable to the current design meaning the logical design, deployment design and implementation phases of a deployment plan were as well left out.

4.2 Software

In order to establish this report, Microsoft Word 2013 was the major editing and text correction software. Microsoft Word 2013 also serves in drawing simple classification diagrams such as that of the organization structure (Organigram). In addition to the Microsoft Word 2013, the sys-

tem and software architecture-designing tool called Argo UML was used in the designing of the various scenario diagrams and finally the use case diagrams as well. Argo UML is an open source designing tool and due to the fact that there are many more different similar software with slightly different symbols, a short explanation of the various symbols used in designing the scenarios and use cases are presented in figure 3 below.
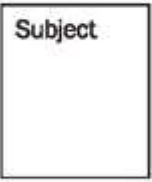
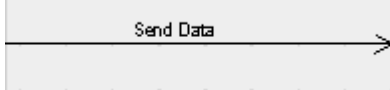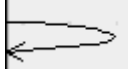| No.	Symbol	Name &Brief description
1	Actor	Actor It represents a role that an out-sider takes on when interacting with the business system (Source making, n.d.)
2		Association An association is the relationship between an actor and a business use case (Source making, n.d.)
3	Business Use Case	Use Case Business Use Case describes the interaction between an actor and a business system (Source making, n.d.)
4	Subject	Subject Subject describes a business system that has one or more business use cases attached to it. (Source making, n.d.)
5	«Include»	Include Relationship Include Relationship is a relationship between two business use cases that signifies that the business use case on the side to which the arrow points is included in the use case on the other side of the arrow. (Source making, n.d)
6		Actor (In scenario diagram) Actor has the same function as the first actor earlier mention but it's a representation in a Scenario diagram.
7	Send Data	Direction of Action Direction of Action is an interactive sign indicating the direction of action.
8		Self-Acting Self-Acting is an interactive sign indicating the direction of action.

Figure 3   Argo UML symbols

5   THEORITICAL FRAMEWORK

A clear way for establishing the functionalities of a business system based on studies of the business requirements, needs and goals is to follow a system deployment plan in which for the case of this research, the Sun Java enterprise deployment plan was used as a step by step guide to approach the subject matter.

5.1   Deployment Plan

Basically a deployment plan could be defined as "A deployment plan defines the sequence of operations or steps that must be carried out on an asset to deploy it together with the specification or profile that each step should apply and the resources that will be required to apply it as network addresses, host names and so on." (Oracle Corporation, 2007)

Based on Sun Java's guide on the phases of a deployment plan, a pictorial representation of the phases included in creating a deployment plan is illustrated on the figure 4 below,

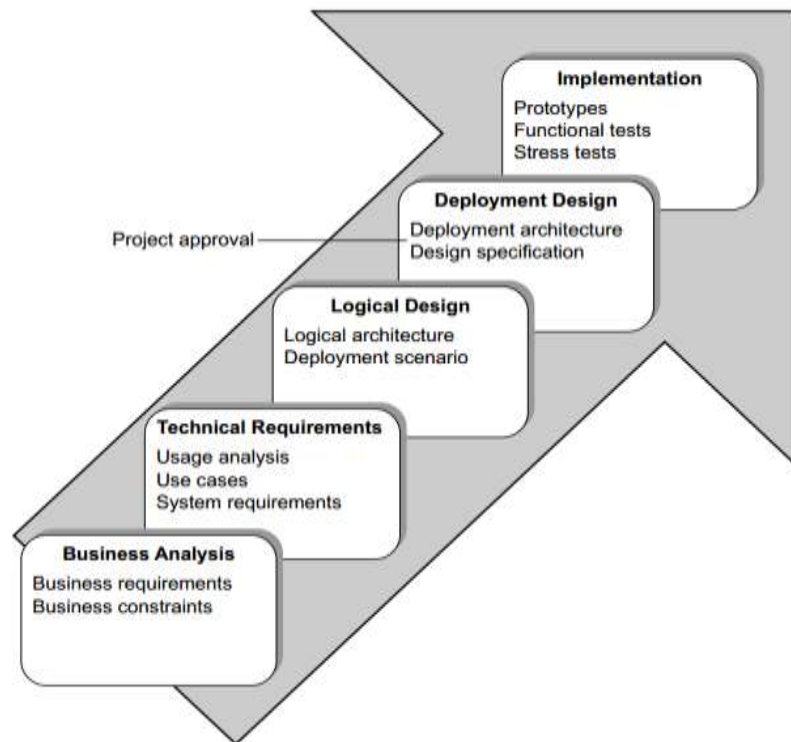Figure 4   Phases of deployment planning (Sun Java, 2004, 11)

5.2   Business analysis

Business analysis according by IIBA is "Business analysis is the set of tasks and techniques used to work as a liaison among stakeholders in order to understand the structure, policies, and operations of an organization, and to recommend solutions that enable the organization to achieve its goals." (IIBA, 2014.)

It can furthermore be presented as "Business analysis is the definition of business goals and business requirements needed to satisfy the previously established business goal." (Sun Java, 2004, 18).

Both definitions have a similarity with respect to business goals and requirements but with Sun Java's definition on the subject matter being more specific on the procedure which starts by first establishing business goals.

5.2.1 Business Requirements

"Business Requirements describe why the organization is undertaking the project. They state some of the benefits that the organization or its customers expect to receive from undertaking the project." (Parker J, 2012)

5.2.2 Business Constrains

According to the exact words found on the online business dictionary, Business Constrains are defined as "Element, factor, or subsystem that works as a bottleneck. It restricts an entity, project, or system (such as a manufacturing or decision making process) from achieving its potential (or higher level of output) with reference to its goal. See also theory of constraints."(Business dictionary, n.d).

5.3 Technical requirements

A technical requirement pertains to the technical aspects that a system must fulfil, such as performance-related issues, reliability issues, and availability issues (Agile modelling, n.d.,).The technical requirements phase starts with the business requirements created during the business analysis phase and translates these requirements into technical specifications that can be used to design the deployment architecture.

During the technical requirements phase the following information are prepared,

-Analysis of user tasks and usage patterns
-Use cases that model user interaction with the planned deployment
-System requirements derived from the business requirements, taking into consideration the analysis of user tasks and usage patterns (Sun Java, 2004).

6   EMPIRICAL STUDIES

The empirical studies of this thesis constitutes of the justifications on the choices made with respect to various aspects which constitute both the business requirements, technical requirement as well as the design of the

functionalities of the system based on results obtained from the analyses of the organization structure, goals as well as the business requirements.

6.1 Business Analysis

6.1.1 Business Requirements

The various elements constituting the establishment of the business requirements were elaborated and analysed to accord with the cooperative's desires and proposed services are explained in details below,

a) Business goals

Java's plan (Sun Java, n.d, 22-23) states "Clearly articulate the goals of the project. A clear understanding of the goals helps focus design decisions ".

In order to have a better idea of what the business goals are, there was a need to have a better look at the cooperative's structure and desired proposed services. With respect to chapter three of this thesis, the cooperative's provided services could be classified down to project works and communication services as broad terms to identify the services. Therefore, the business goals are those which enable the services to be rendered and in addition with achieving business goals additional services such as marketing services are being covered as well.

As a primary fact, the main objective of the deployment is to support project planning, control and management. So resource scheduling and control tools are were considered as well due to the fact that a major portion of the cooperative's services are based on project works.

One of the main requirements for the deployment plan was that the internal communication should be supported amongst cooperative members and contractors as the organization is designed in a way that members and contractors can work from remote locations. In addition, a good communication platform had to be set to enable a good flow of information between the cooperative and the customers.

The system should as well comprise a portal open to the general public to serve the marketing purpose of the services offered by the cooperative and in addition to that, the portal should also serve as a first means by which the cooperative can be contacted for diverse purposes such as information seeking.

b) Type of deployment

Furthermore, Java's plan (Sun Java, n.d, 22-23) states "Identify which of the following types of deployments you envision".

Based on the previously mentioned business goal, it was been observed that the deployment is primarily aimed at the cooperative's employees (members) as they have to be managed efficiently in order to achieve results by tools such as resources scheduling tools and task attributions. The business goal also reveals the fact that internal communication has to be properly enhanced in order to have a smooth execution of task as project works require a good number of meetings and discussions.

The deployment further more takes in consideration the customers as they form a part of the project as much information may be required from them and to a certain level, they may at some point wish to have an update or a follow-up on how the project has been going on so far.

Lastly, potential customers could as well be acquired from the information being provided by the external portal of the deployment open to the general public from which new customers could obtain various information and contact the cooperative.

c) Scope

In order to bring forth the scope, Java's plan (Sun Java, n.d, 22-23) states "Clearly state the scope of the project. Make sure you identify area that can be solved and avoid "open-ended" statements that make the goal either unclear or unreachable".

The deployment limits itself to the soft component (intangible parts) of the deployment. Its deal mostly with the software component of the deployment as the cooperative board members aim at maximizing profit by the use of freeware and open source software thus reduces expenditure on the purchase of hardware dependent components such as servers.

d) Stakeholders

In order to identify the stakeholder, Java's plan (Sun Java, n.d, 22-23) states "Identify individuals and organizations that have a vested interest in the success of the deployment".

The simple structure adopted by the cooperative is one in which all members have an interest in the wellbeing and delivering of services as all members have an equal interest in the overall image of the services rendered by the cooperative.

In addition to the cooperative members having an interest in the success of the cooperative, the customers who in turn commission these projects to the cooperative also have an interest for the success of the project as from their perspective, they pay services and thus desire them to be handled with care and quality results should be provided.

e) Critical Qualities

Java's deployment plan (Sun Java, n.d, 22-23) determines the critical qualities by stating "Identify areas that are critical to success. This allows for analysis of the design with respect to the most important criteria".

As earlier mentioned when building up the goal, a good project management and communication tool will in turn strengthen the cooperatives ability to deliver its proposed services. So what is critical are the tools to enhance and strengthen the cooperative's proposed services.

f) Target users

In order to identify the user types , Java's deployment plan (Sun Java, n.d, 22-23) states "Identify the types of users the deployment targets".

The commissioning organizations will in-turn have to work closely with the cooperative as they serve as a primary information resource. In addition to the fact that they are as well stake holders, they may wish at the same time to have a follow-up on the status of how the project execution has been handled and at what point the project is currently and what may be the future project plans as the cooperative wishes to assist customer organizations in their various operations by providing them with valid intermediate results.

The cooperative primarily handles tasks with respect to project management and related types of tasks. In project management, meetings are being planned, scheduled and held in which information on what has been accomplished so far and what has to be done in the future and how to accomplish them in return. Additional project works such as resource planning are to be executed as well in order for the project objectives to be set and attained. For previously mentioned reasons, cooperative members working on projects where they execute project roles such as project managers or coordinators will need tools to enable them manage the project resources by it tangible or intangible. Project officials like the project manager will need to plan, schedule and allocate resources in order to have tasks accomplished efficiently.

Cooperative members working primarily on the various attributed tasks so as to fulfil their proposed tasks will depend on the deployment and system infrastructures present so as to assist them in task execution. In order to coordinate and manage the way tasks are being executed following a planned pattern, cooperative members will have to follow instructions being set up by the project supervisors and control on how to accomplish the tasks and when results are to be submitted.

The cooperative will be using the virtual media by which it will be marketing and informing about its services, so the general public will also be in use of the system in order to acquire or require information or services provided by the cooperative.

g) Benefits to the users

In order to state the benefits to the user, Java plan (Sun Java, n.d, 22-23) states "State the expected benefits to the users of the deployment".

Based on the previously identified user groups and their various needs and how the deployment will assist them in their tasks execution, the deployments will serve as follows,

− It will assist in project management tasks such as resources scheduling by administrators.
− It will serve as source of information for the general public as well as internal users.
− It will facilitate coordination and cooperation between cooperative members and project team members by the use of communication tools such as instant chat.
− Remote accesses by cooperative members will as well give to cooperative members more flexibility in their movements and accomplishment of tasks and avoid the cooperative spending heavily on physical assets.
− Commissioning organizations will benefit as well in having an update and a follow up of project execution.
− Various members of the cooperative will have their tasks being simplified by means of integrated shared tools such as calendars.

h) Service level agreements

Java plan (Sun Java, n.d, 22-23) addresses the service level agreements as "Define the level and extent of customer support you must provide should the deployment fail to meet specific system requirements".

The cooperative, comprising of various categories and levels of professionals from diverse fields is going to rely on its internal resources for third-party free services such as programing and planning the deployment. Third party service providers such as hosting service providers will be negotiated a maintenance plan which should assist the deployment in case of system crash o attacks from external users.

i) Security issues

In order to smoothen the identification of vulnerability in security, java's plan (Sun Java, n.d, 22-23) states "Goals that you previously identified might have implicit security issues that you do not need to list in the problem statement".

The cooperative will be handling external parties' information which has to be secured so that is should not fall into the hands of competitors or for fraud. Information should be distributed only to parties or cooperative members who administer or work as project team members. The deployment should also be secured from the commonly known virtual platform (internet) traits such as viruses and Trojans.

j) Priorities

Further Java's plan (Sun Java, n.d, 22-23) stresses the fact to prioritize by stating "State the priorities of your goals".

The cooperative relies on its proposed services to generate income, so project works and project management tools come as a priority as results have to be presented on specific datelines. The cooperative will need to acquire more customers so as to assure sustainability and continuity. So the marketing and information role of the system is being prioritized as well. Communication between parties involved in the execution of projects is as well important as there should be a good low and sharing of information and idea. The table illustrated in figure 5 below is one which summarizes various business requirements into simpler and more standardized language with an exclusion of various justifications and explanations on various choices.

Topic	Decription
Business goals	- Enterprise resources scheduling for task attribution and follow up - Enterprise collaboration by means of tools such as instant chat services - Enterprise commerce to market services
Type of Deployment	- Business to Employee - Business to Customer
Scope	- SoftComponents (software)
Stakeholders	- Cooperative members - Customers
Critical Qualities	- Project management tools
Target users	- Active customers - Administrator - Current employees - General public
Benefits to the users	- Remote access to company resources - Enterprise collaboration - Reduced error rate - Simplification of daily tasks - Sharing of resources by remote teams
Service level agreement	- Maintenance plan or third part service providers
Security Issues	- Access to proprietary information to authorized users - Role-based access to confidential information - Secure communication between remote locations
Priority	- Enterprise resources scheduling for task attribution and follow up - Enterprise commerce to market the cooperatives services - Enterprise collaboration by means of tools such as instant chat services

Figure 5   Business requirement summary

6.1.2   Business Constraints

The deployment has a minor group of limiting factors that are being identified and explained below with respect to the Sun Java's deployment guide as,

17

a) Budget considerations

A significant issue which the deployment may face is its budget and Java's plan (Sun Java, n.d, 24-25) states: "Most deployments must adhere to a specific budget. This budget should always be considered during the design process to avoid cost overruns."

The cooperative is a start-up that has a reduce access to finance and works in a way that the customer in some way contributes to the financing of the operations by means such as advance or progressive payment methods. Due to these restrictions, the cooperative tries to make use of affordable and competitive tools such as freeware or open source systems and also in case a particular service has to be paid for, the cooperative tries as much as possible to make a low cost and price agreement of the service or product a priority when purchasing.

No specific budget has yet been allocated on the enterprise deployment plan and system, thus the deployment planning serves as an evaluation on what is necessary in order to run the cooperative efficiently and what will be the possible cost attached to them. It also serves the purpose of identifying what tools are critical for the business services to be offered rightfully as well as functionalities.

b) Resources

The directives on how to addressed resource issues is presented by Java's plan (Sun Java, n.d, 24-25) as "Consider all resources necessary for a successful deployment, not just the capital expenditures".

Based on the simple structure of the cooperative and it being a start-up, the cooperative is in lack of resources except the human resources and intellectuality.

-Financial

The cooperative has reduced access to finance as earlier mentioned and so far have acquired some amount of money from HAMK's authorities in a form of a grant to enable it cover its registration cost.
Further sources of finances are being studied with organizations such as TEKES and FINPRO being taken into consideration for additional grants or other forms of business supports with respect to finance.

-Material

The cooperative being a start-up is in lack of material resources such as a cooperative owned server.

Topic	Description
Budget Consideration	-Reduce access to finance
Resources	-Financial -Material (Hardware)

Figure 6   Summary of constraints

6.2   Technical requirement

The Usage Analysis that constitutes of the technical requirements is analysed below.

Number and type of users

As earlier mentioned, the two types of deployment identified for the system are the business to Employee deployment and business to customer type of deployment.

The systems will have to support internal cooperative users such as project managers and project team members as earlier illustrated. By use of the incremental approach to deployment planning, approximations are going to be made at this point based on numbers.

So far the cooperative can easily identify seven board members which participated in the registration of the cooperative all together with approximately 40 prospective cooperative members based on an interest survey carried out by the cooperative in which formal and current FUAS student and graduates expressed their willingness on being members of the cooperative. A set of questions were being put in front of them, such as how can the Finnish education market use the competences of the international students and if survey respondents were willing to work as freelancers for a future consulting cooperative. The survey period has not yet been elapsed so the figure (40) mentioned above is an approximation based on survey current results as this thesis was being written. The information was being stored using google spreadsheet in which the representation of results is being shown on the figure 7 below,

	Timestamp	Title	Names (First, middle & last)	Date of birth	Email	Telephone	Nationality
1							
4	3/18/2014 12:25:17	Miss	seblewengel	6/10/1984	t_sebli@yahoo.com	+358404142514	ethiopian
5	3/18/2014 14:30:03	Mr.	Aioi Uyji	4/26/1993	aioiuyji@gmail.com	447779991	Kosovo

Figure 7   Expression of interest

Usage cases

In order to design the use Case for the system, a guide of designing use cases is going to be used, with a step by step approach on the subject matter of use case design. In order to avoid repetition some sections of the designed are being streamlined and grouped to reduce the bulk as well.

> ➢ "Step 1. Identify who is going to be using the system directly" (Aguirre n.d, 6)

From the above stated step, the actors will constitute targets users previously identified when doing the business analysis which constitutes of the

1) Active customers
2) Administrator
3) Current employees
4) General public.

In addition to the stated actors above which were previously identified when carrying out the business analysis, other actors which in this case are non-human and external to the system are going to be identified as well as:

5) External storage
6) Security.

Now that the actors have been identified based on step 1, the next step are:

- ➤ "Step 2. Pick one of those Actors." (Aguirre n.d, 6)
- ➤ "Step 3. Define what that Actor wants to do with the system"(Aguirre n.d, 6).
- ➤ "Step 4. For each of those Use Cases decide on the most usual activity the Actor performs while using the system." (Aguirre n.d, 6)

Both steps 2 ,3 and 4 are going to be combined in order to reduce repetition and reduce the bulk and at the same time grouping similar functionalities together. At this stage, the anticipated tasks to be accomplished by different actors are shown as thus:

1) General public

❖ Read Information:

The user will wish to navigate around the portal to obtain information

❖ Contact and request Information:

The User may wish to request or contact the start-up for diverse reasons such as a potential customer asking the portal administrator to create he/she an account to monitor the execution of his/her commissioned task.

2) Active customers

❖ Start Session:

For user in possession of an account, they will wish to access their own section of the portal enabling them carry various activities.

❖ Read Information:

(Same as that of "general public")

❖ Contact/Request Information:

(Same as that of "general public")

❖ Monitor task accomplishment:

The user may wish at some point in time check the state and how far the company has gone in executing the tasks commissioned by it thus increasing customers perception of value.

Note: The customers do not see the content of the project execution but indicators such as percentages are used to demonstrate the level of completeness.

❖ Close session:

After a particular user must have been done using his/her account, he /she will automatically need to close the current working session.

3) Administrator

❖ Start session:

(Same as that of "active customers")

❖ Read Information:

(Same as that of "general public")

❖ Contact/Request Information:

(Same as that of "general public")

❖ Give instructions (Task scheduling):

The user will need to set parameters and give written instructions to various user groups on how and what to use to accomplish their tasks and by so doing , knowing exactly what amount of time a specific user used in task accomplishment because he/she made a prior set which is vital for further processes such as payments of wages.

❖ Monitor task accomplishment:

(same as that of "active customers")

❖ Comment on task execution:

Based on how tasks are accomplished, if there are derives in objectives or different approaches to tasks accomplishment, the aim here is to re-make comments for adjustments.

❖ Close session:

 (Same as that of "active customers")

❖ Create account:

At this stage of account creation, the administrator is the only one allowed to create accounts for different groups of persons at different levels to avoid a good number of external (general public) have to create inactive accounts.

❖ Delete account:

The aim of the delete account option at this juncture is to delete already existing accounts or possibly modify them.

❖ Embed new functionalities:

The administrator should be capable to add more features to the portal base on needs.

4) Current employees

❖ Start session:

(Same as that of "Active customers")

❖ Read Information:

(same as that of "general public")

❖ Contact/Request Information:

(Same as that of "general public")

❖ Close Session:

(same as that of "active customers")

5) External storage

❖ Receive Data:

The aim here is just the storage of date.

❖ Retrieve Data:

The aim here is just the reading and retrieval of data.

6) Security

❖ Cross Check:

The aim here is just to make various camparisons between user entered data and existing information as well as against restrictions and to deliver results.

N0.	Actors/User groups	Goals
1	-Active customers -Administrator -Current employee -General public	-Read Information -Contact/Request Information
2	-Active customers -Administrator -Current employee	-Start session -Close session
3	-Active customers -Administrator	-Monitor task accomplishment
4	-Administrator	-Give instructions -Comment on task execution -Create account -Delete account -Embed new functionalities
5	-External storage	-Receive Data -Retreive Data
6	-Security	-Cross Check

Figure 8   Tasks grouping

According to step 5 of the design guide:
Step 5. Describe that basic activity in the description for the use case. (Aguirre n.d, 6).

The goals or use cases are going to be described briefly on small tables and in order to make them clearer, they are going to be presented in a diagram formed and designed by means of Scenario diagrams with Argo UML. The scenario diagram at this stage tries to anticipate what kind of interactions and activities the various use cases/functionalities will have or will go through.

Use Cases (Goals) activity description and Scenario diagrams

- Read Information

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The anticipated sequence of activities in the "read information" use case is being presented on the table in figure 9 below with black arrows indicating the flow in activities.

User/Actor	System
Request page/info →	Location search ↓
	Retrieve ↓
	Display Information ↓

Figure 9   Read information sequence table

Furthermore, the scenario diagram expressing the relationships above on the sequence table is being illustrated on the scenario diagram in (figure 10) below,
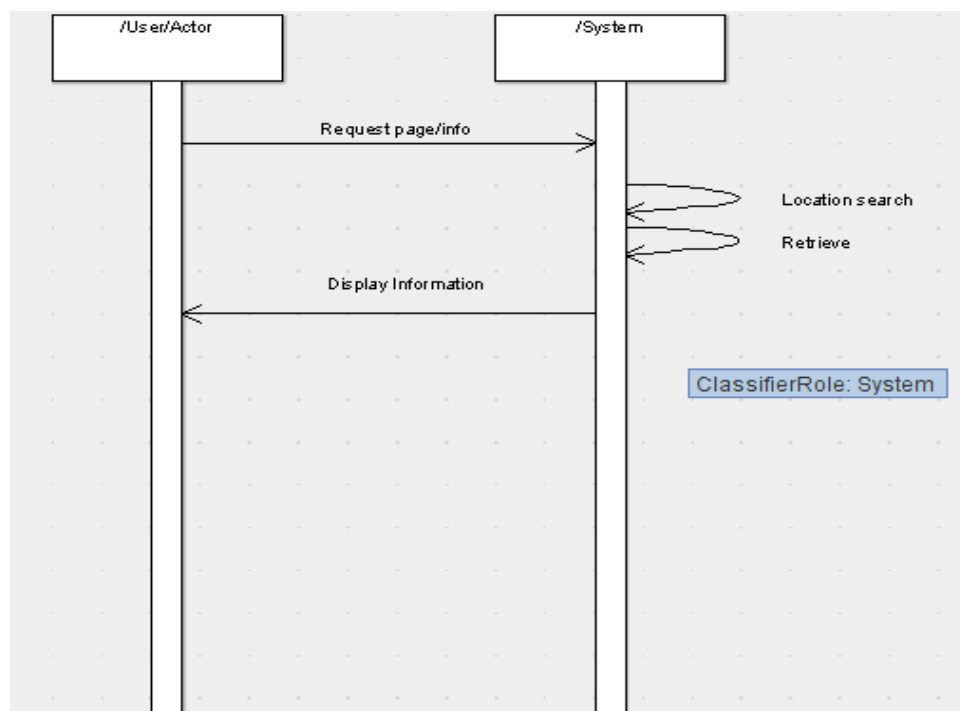

Figure 10   Read information scenario

- Contact and Request Information

Similar to the read information use case, the anticipated sequence of activities in the "contact and request information" use case is being presented on the table in figure 11 below with black arrows indicating the flow in activities.

User/Actor	System	
Request page/info	Location search	
	Retrive	
	Display informmation/Form	
Fill In form		
Submit	Chross checking<<include>>	
	Approval/reject<<include>>	
	Redirect	

Figure 11   Contact and request information sequence table

In addition to the sequence diagram for the "contact and request infor-
mation" use case, the scenario diagram for this use case is presented below
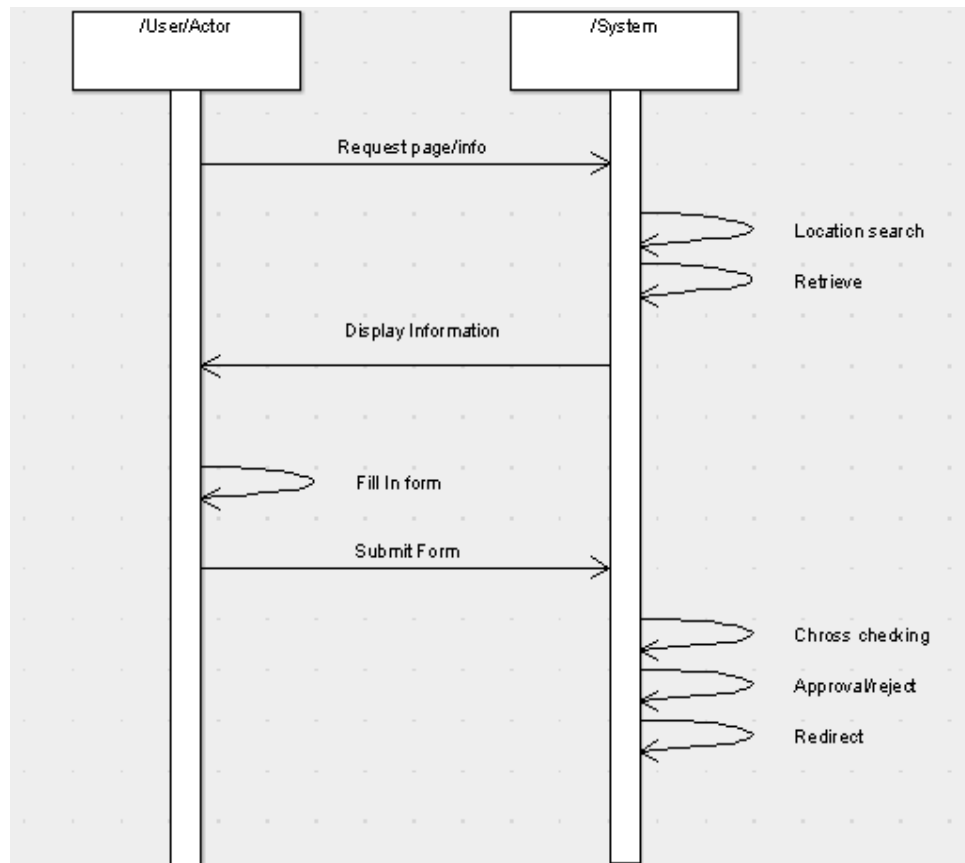in figure 12 below,

Figure 12   Contact and request information scenario

- Start session

This use case as well has the same type of activities as the " Contact and
Request Information" use case , so it is also going to serve as an <<include
type of a use case>>

- Close session

The close session serves the primary goal of quitting an active session and the sequence of activities which may occur during the execution of this goal is represented on the table in figure 13 below.

User/Actor	System
-Request Session termination ➡Execute Session termination ⬇	
	-Redirect ⬇
	-Display redirected page ⬇

Figure 13 Close session sequence table

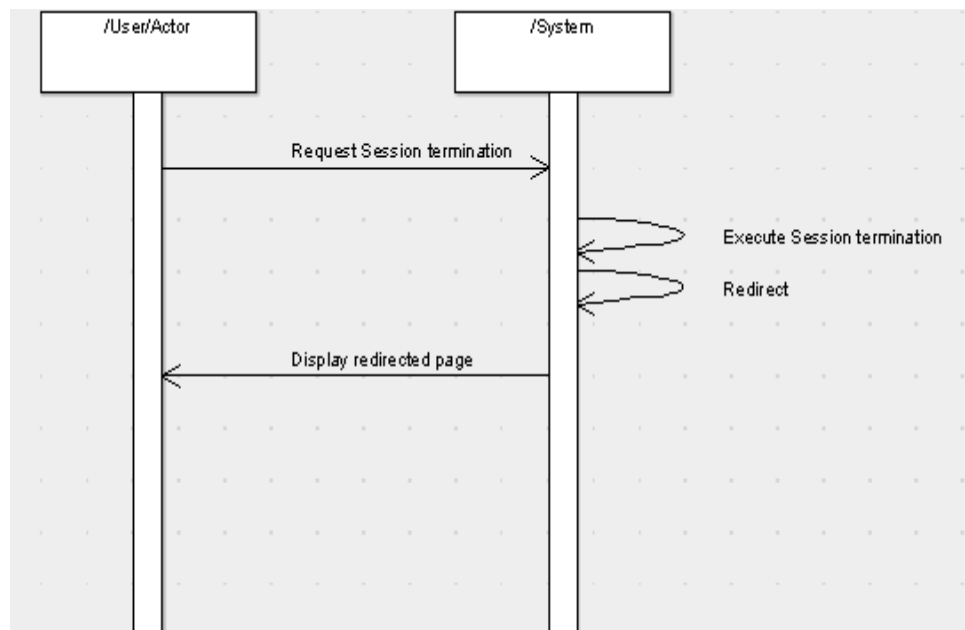The scenario diagram describing the sequence elaborated above is presented in figure 14 below.

Figure 14   Close session Scenario

- Monitor task accomplishment:

The monitor task accomplishment use case has the similar properties (Sequencies) as those of the "Read Information" use case but with different aims and accessible by different users. According to the steps of the guide, the "Monitor task accomplishment" use case will be part of a <<Uses>> use case similar to the include functionality present on the Argo UML software.

- Give instructions

The give instruction use case just as the "Monitor task accomplishment" use case earlier mentioned, this "Give Instruction" Use case or Goal has the same sequence of activities as the " Contact and Request Information" Use case. So it is an <<Include >> use case but with a specific aim of tell-

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ing the organization workers who and what work to do and on what resources they are to use.

- Comment on task execution

The Comment on Task is also an <<include>> type of use case with similarity in properties or sequences with the "Contact or Request Information" But with a different aim of possibly telling what may be wrong or tight towards a particular task or results

- Create account

The "Create account" has the same sequence of activities as that of the "Contact/Request Information" use case but with a different aim of creating and suppression of account. But unlike the <<include>> types of use cases previously mentioned , the " Create account" is not some kind of a must activity or functionality used at all times so it's a use arbitrary goal making it an <<exclude>> functionality based on UML.

- Delete account

Just as the create account function mentioned above , the " Delete account" has thesame sequance of activities as that of the "Contact/Request Information" use case but with a different aim of creating and supression of account. But onlike the <<include>> types of use cases previously mentioned , the " Create account" is not some kind of a must activity or functionality used at all times so its a use abbitrary goal making it an <<exclude>> functionality based on UML.

- Embed new functionalities

The "Embed new functionalities" has as a main function the developemant and insertion of new functionalities to the system ad the sequence of activities included in this specific goal is represented on the table in figure 15 below,

User/Actor	System
-Design	
-Submit	-Receive codes
	-Checks codes
	-Validate code
	-Send feedback of operation completion

Figure 15   Embed new function sequence table

- Receive Data

The "receive data" functionality or goal as a spefic task the collection of data and storing them into dedicated location and seding back feedbacks

on operation execution status and the anticipated sequences of activities in this use case as presented on the table in figure 16 below.

System	External Storage
-Sends data	-Receive data
	-Store Data
	-Send feedback of operation completion

Figure 16   Receive Data sequence table

The scenario diagram concurring with the sequence mentioned above is illustrated in figure 17 below.
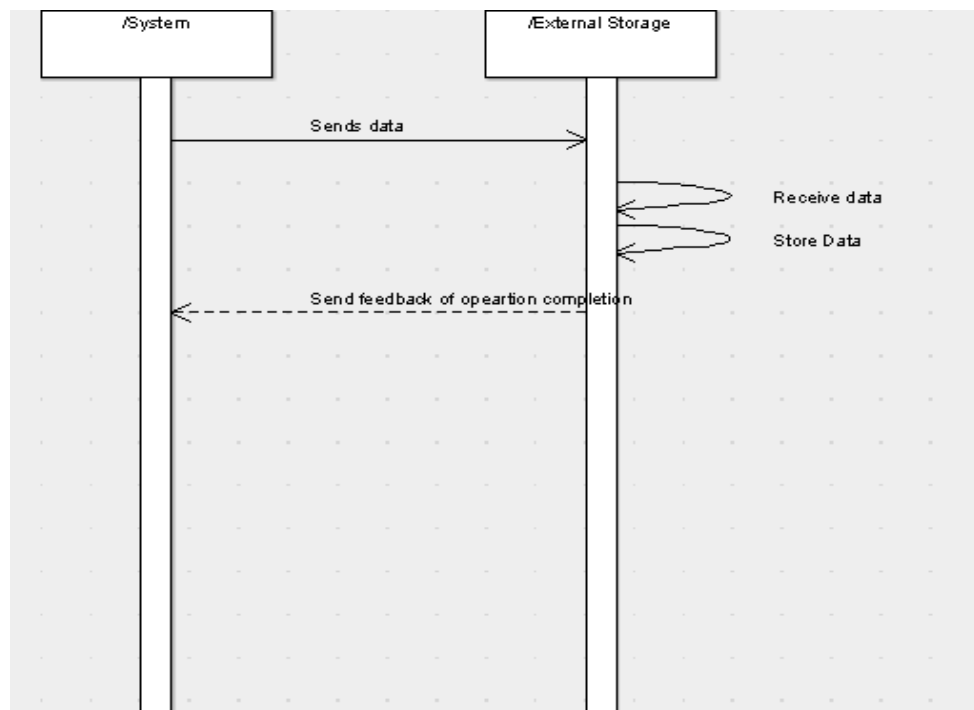

Figure 17   Receive Data scenario diagram

- Retreive Data

The "retreive data" use case has a major function of collecting requested information in which the anticipated sequence of activities for this specific use case are presented on the table in figure 18 below.

System	External Storage
-Send Data Request	-Receive Data Request
	-Retreive
	-Sumbit data
	-Send feedback of operation comple-tion
-System Receive data	

Figure 18   Receive data sequence table

The Scenario diagram illustrating the above relationship on the sequence diagram are represented in the figure 19 below.
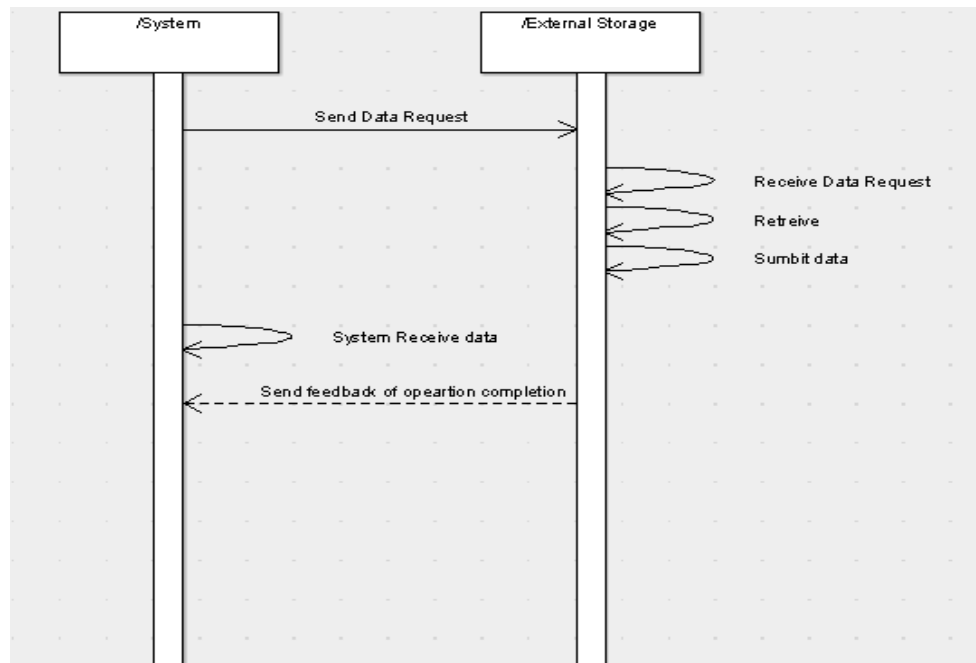

Figure 19   Receive data scenario diagram

- Cross Check

The "cross check" use case with major aim of making comapisms between new data and existing data as well as data restriction , has its anticipated sequene of activities presented on the table in figure 20 below,

System	Security		
-Send data	Receive data		
	-Carry out comparism		
	-Sumbit results		
-Receive results			

Figure 20   Cross check Sequence table

The scenario diagram describing the relationship presented in the sequence diagram previously drafted is illustrated in figure 21 below.
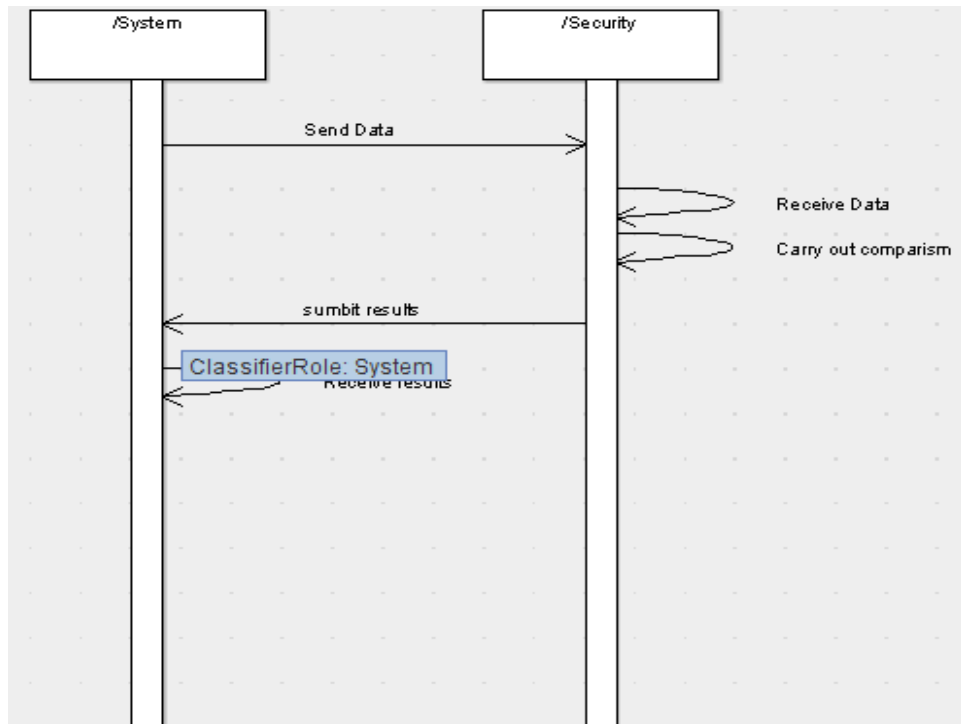
Figure 21   Cross check scenario diagram

Based on the simplified definition that "The Use Case model is about describing WHAT (as opposed to How) the system will do at a high-level and with a user focus for the purpose of capturing system requirements."(Aguirre n.d, 1). The high-level picture of what of the various user goals (Use) cases and what user, uses what functionality can be presented is presented in figure 22 below.

The use case diagram does not include other factors of the use case diagrams such as dependency or generation kind of relationships already explained above due to the shallow space and risk of having a confusing diagram with numerous amounts of lines.
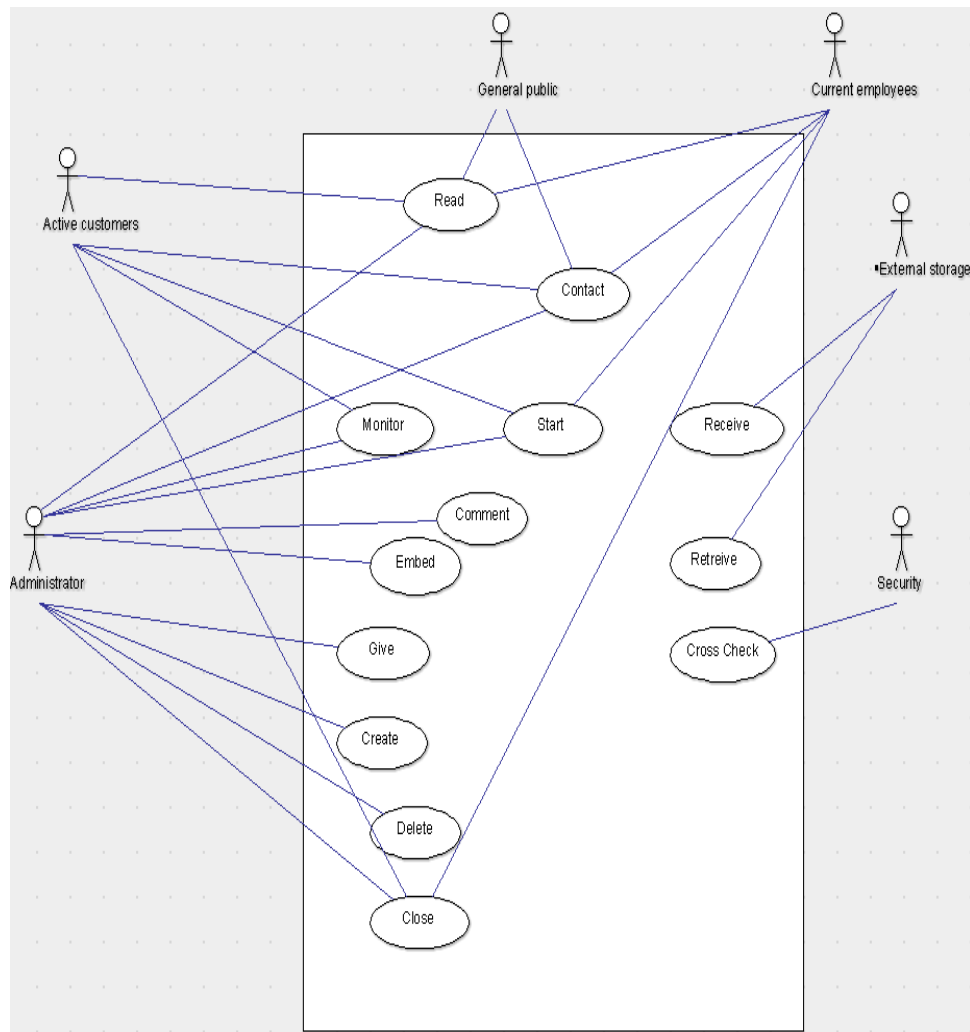
Figure 22   Simple Use Case Diagram (Only actors and goals)

7   RECOMMENDATION

Subsequent researches and organization projects should be made with use of previously established guides such as the Sun Java enterprise deployment plan. They are easy to be followed which helps in providing results of standards and are understood by most as they make use of standardised industrial languages and designations. More standardized language tools like Argo UML should be used to communicate ideas as well and make it easy for external users to understand designs.

Furthermore, it is advisable to make use of tools provided by companies like Sun Java as they have a good number of modular tools solving various problems, which they can offer as a package rather than making use of tools from companies developing highly specialized tools with fewer options of customizations that may lead to new purchases instead of updates.

8   CONCLUSION

Recent day technologies have improved consistently as years past by and most of them have to agree with the fact that products and services have to be streamlined and tailored based on customer needs. This thesis accords with most industrial practices, which outline that tailored services or products create benefits and reduces the amount of waste.

This thesis further accords with academic practices that outline that researches and decisions should be made by the collection of facts, data and not impressions. The research was focused on finding what were the business requirements as well as the technical requirements which were successfully achieved and with both achievements leading to the design of the systems functionality with special care taken not to cross the project's area of restriction, which includes the physical parts of the system to be handled by external service providers.

By following a step by step guide, it is possible to establish results of standard from which subsequent researches could be carried out. The business requirements as well as a part of the technical requirements were being achieved with other hardware related sections of the deployment ignore for previously stated reasons. The systems functionalities as well were derived based on previously identified user groups received from the business requirements and analysis and anticipation of user goals.

By means of this research, a detail understanding was gained on how a leading system developer or provider handles the subject matter of deployment planning. Furthermore, the research enabled the creation of a design based on a real life problem, solving a real life situation and providing a foundation for future studies related to the various research problems.

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