



UNIVERSITY OF NAIROBI

GRANT MANAGEMENT SYSTEM

Project Proposal

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Grant Management System

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Chapter 1: Introduction

1.1 Background

According to businessdictionary.com a grant can be described as bounty, contribution, gift or subsidy (in cash or kind) bestowed by a government or other organization (grantor) for specified purposes to an eligible recipient(grantee). Grants generally come from one of four sources: governments, private organizations, individuals and trusts. Each grant source tends to favor targeted areas of need and certain types of recipients. Federal government grants often go to state agencies, individuals and organizations to boost citizens' quality of life and address social issues. Private scholarships are common among individual and trust grantors, helping others to follow in the footsteps of successful people. Grants offered by organizations run the gamut in the areas of need they address (David Ingram, ehow.com).

Governments in developing countries have for a long time depended on grants from foreign governments that have a considerable amount of resources. Many of these developing country governments are embracing growth in their economies through giving financial support to its citizens. This financial support in form of grants, are not given to just any citizen but to those who can demonstrate their ability to come up with lasting solutions to benefit the community and the country at large. It is not just the government that is involved in giving financial support to the eligible party. Organizations have come up to identify the impressive projects and award them with grants. Many Non óGovernment Organizations are involved in this and many of the financed projects have been successful in the selected areas. The very well-known Organizations are United Nations, IMF, World Bank and USAID among others.

Kenya owes a considerable portion of its economic stability and growth to the programs that aim to make a difference as well as empowering the community. From the 1980s the country has experienced relatively unpredictable flows of inter-national aid. Nominal aid flows increased from US\$ 393.4 million in 1980 to an average peak of US\$ 1120.5 million in 1989-90, before declining to a low of US\$ 308.85 million in 1999, with some recovery thereafter in response to a new government in December 2002 (Mwega, 2009).

The political stability of Kenya has also influenced the emergence of organizations ó local and international- that offer grants to the different projects that promise to make a difference in society. Food security which has become a major challenge in Kenya is among the areas that have gained support as many new ways of eradicating this issue have come up and are being sustained by these funds. USAID is one of the most recognized aid and funding agencies whose main aim is to feed the hunger stricken areas as well as help in developing the agricultural sector of a nation.

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The Kenyan government however has taken strides in trying to stabilize and become independent of the international aid by putting up several bodies that give financial support to the projects that focus on the different demographics. One of the grants in the Information Technology field is the Tandaa initiative by the Kenya ICT board. It aims to support Kenyan developers and òtechpreneursö by funding their innovations so as to enable them get to the next level.

Non-Governmental Organizations are also involved in community building projects in Kenya. Such projects help in encouraging innovativeness among citizens and in turn this leads to the economic growth of a country. This also helps in opening up the country for investors.

1.2 Problem Statement

Despite the great work that has been achieved by these grants, there are external and internal forces that hinder these activities' progress and most of the projects do not get to the completion stage. The main one being corruption. Misappropriation of funds has been a great challenge to the different projects. A recent case where the Kenyan people with disabilities funds were looted and many people were affected because the funds meant to sustain their upkeep did not get to them. öHundreds of millions of shillings are unaccounted for ó and possibly stolen ó thanks to a flawed and wasteful disbursement processö (standardmedia.co.ke. 2012).

Transparency and the following up of a granted project is also a problem. This is an issue that can be addressed once the proper mechanism has been put in place. Other projects that have been funded may reach a point and get abandoned before completion due to bad management as a result of not accounting the funds or not following the proposed budget.

1.3 Purpose of study

In the proposed study, I will investigate the effect of automating the business processes involved in the granting process as well as using ICT to manage and monitor projects as opposed to the old manual ways. The study also seeks to investigate social and economic impact such a system will make as it aims to introduce transparency and accountability in managing a project to completion.

Insight acquired through this study is expected to be useful for the development of project management skills, which is identified to be relevant to problem solving and efficient management of funds.

1.4 Significance of study

The system will introduce a transparent and fair way of recording the details of the approved proposals only as well as an efficient and economic method of managing multiple projects under one organization.

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The system will encourage accountability on the part of the grantees by ensuring that the allocated resources have been use so as to achieve the intended goal. This will also help in restoring integrity and trust in the various organizations that are involved in offer grants thus more funding. This will help improve in agency performance goals.

1.5 Project objectives

Research Objectives

To understand and develop a system that will be used by organizations that give grants to monitor projects as well as manage these projects. This system will have customized modules that work according to the processes involved in a certain organization.

System Objectives

- To develop a portal where grantees can update their project progress.
- To come up with a module that will help an organization monitor the progress of the various projects it has given grants to completion.
- To come up with a module that visualizes the relevant data in a certain project. This may include uploading pictures and progress graphs of the current project being undertaken.
- To provide real-time data thus increase accountability and efficiency in delivery of services.
- To come up with a system where grantees and the organization can collaborate as they follow up on the projects.
- Incorporate a map on the system for better user experience and visualization.

1.6 Project scope

The system will be used to help grant-giving organizations allocate the required resources to the selected projects and effectively monitor the project a given grantee is pursuing. It will be used by these organizations that have been charged with the duty of managing the various projects. The system will also include a social media aspect of collaboration within a given project hence enhancing project management.

Chapter 2: Literature Review

2.1 Introduction

Financial aid goes a long way in economic development of countries and it is for this reason that the International Monetary Fund, (IMF), and the World Bank's forerunner (International Bank for Reconstruction and Development) were set up to manage the post-World War II global economy in 1944. The IMF aims to preserve economic stability and to tackle - or ideally prevent - financial crises; over time, its focus has switched to the developing world (BBC, 2012).

The laws governing the criteria of giving of grants and financial aid are not clearly defined in many of the organizations but they all have criterion that are required to be followed. Each grant has a specific purpose. Other organizations put in place ethics that must be adhered to by the grantees and a legal advisor is involved in this stage and the different clauses may be edited so as to favor both parties.

The Kenyan Government through the ministry of Finance allocates a certain amount of the budget every year to grants gives funds to various ministries. These ministries have bodies under them which are tasked with the duty of issuing grants to the deserving parties. Perhaps the well-known Tandaa Digital Content Grant initiative is the best example as it touches on the ICT sector. It is a brand of the Kenya ICT Board that promotes the creation and distribution of locally relevant digital content through the Tandaa Symposium and seed money to ICT entrepreneurs .Supported by World Bank, the Ministry of Information and Communications, through the Kenya ICT Board, the initiative has seen a rise in the technology sector. The government allocated Kshs. 7.2 billion in the 2012/2013 national budget for the advancement of the ICT sector (Budget highlights, 2012). According to the African Bank Group, Increase Investments in ICT in Kenya is due to the rise of innovations (Mutahi, 2012).

Non-Governmental organizations in the country also take part in the funding exercises. Many of these organizations act as intermediaries between a larger international body and the country. They are sometimes considered more trustworthy so they are entrusted with the large sums of money. A number of the organizations/individuals who run these projects prefer to be referred to as philanthropists. Some of the notable organizations in Kenya are; USAID, Ford Foundation, Rockefeller Foundation, Kenya Community Development Foundation just to mention a few. As discussed earlier, billions of dollars have been poured into the countries by many of these organizations and a substantial growth in the economy has been seen as most of these projects facilitate and encourage empowering the communities being supported.

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Universities are also attracting funding from various parts of the world. These funds help in doing research projects and also go a long way in helping the community either directly or indirectly. In Kenya for example, the University of Nairobi has been on the fore front of researchers getting these grants. In 2012 the research portfolio of the University of Nairobi stands at Kshs. 3 billion, largely through the research activities of academic staff members (Magoha, 2012). This is gradually increasing due to the world class quality of the University's research work and deliverables. The University of Nairobi Grants office has been charged with the duty of managing and monitoring the different projects by the academic staff and they have been identified and have won grants. This department also helps the grantees to manage their funds well and facilitate in auditing of the same. Another department is responsible of the monitoring and evaluation of the different projects being undertaken.

The effect of introducing IT to manage grants has been greatly positive. The main advantage of grant-management software (or systems) packages is the way they integrate and streamline a number of computer-based processes (Bocock, 2003). However there are a number of negatives that arise from this either directly or indirectly these bring about various consequential results and improvement on this is highly advised.

There are a number of publications that touch on the need to monitor and evaluate grants and manage them well even after completion.

2.2 Monitoring and Evaluation

The main purpose of grant management is to bring in accountability and facilitate the completion of a project from the moment an agreement is reached between the grantor and grantee. Although this is sometimes treated as a separate entity from the grant management process, it is an essential part of the grant management process. Monitoring and evaluation is the process of collecting and analyzing information about the project that tells you whether you are on track to reach your objectives, and whether or not the project achieved or contributed to the desired impact (IRC, 2001).

Monitoring and evaluation (M&E) of development activities provides government officials, development managers, and civil society with better means for learning from past experience, improving service delivery, planning and allocating resources, and demonstrating results as part of accountability to key stakeholders (World Bank, 2004). There has been debate on how to approach this so as to ensure the right procedures are being followed. Bodies such as The International Bank for Reconstruction and Development under the World Bank have come up with an *Overview* that entails sample of M&E tools, methods, and approaches, including their purpose and use so as to strengthen awareness and interest in M&E, and to clarify what it entails.

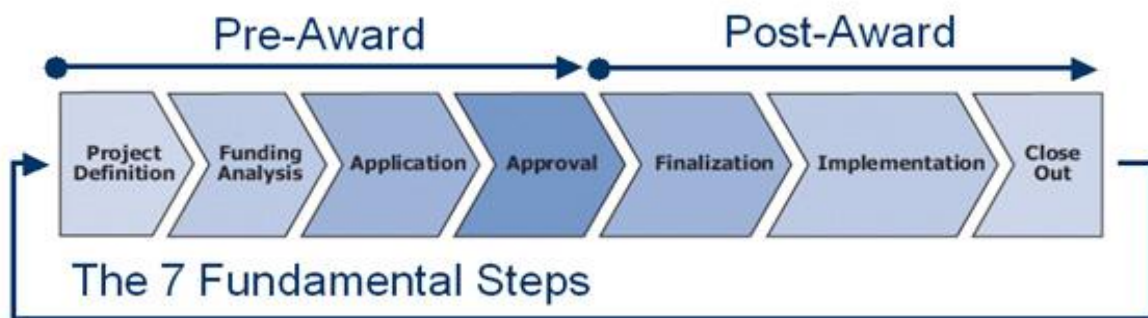
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This M&E *Overview* discusses the following (Not comprehensive list):

- Performance indicators
- The logical framework approach
- Theory-based evaluation
- Formal surveys
- Rapid appraisal methods
- Participatory methods
- Public expenditure tracking surveys
- Cost-benefit and cost-effectiveness analysis
- Impact evaluation

2.3 Grant Process

There are 7 fundamental steps in the grant process. Seeing as the process is usually hard to understand an image and explanation have been provided below: (source: *ecivis.com*)



Each of these steps is fundamental in an organization that gives grants. The steps act as a guideline for organizations that would want to give grants but they are free to customize their own technique and process.

The steps according to *The eCivis guide* are explained below:

Pre-Award

- Step 1 - Project Definition: Projects should reflect the organization's mission and grants should align with how business is done in your organization.
- Step 2 - Funding Analysis: This is your time to find grant programs. The type of project, eligibility, and special considerations should be evaluated for each program you are investigating.
- Step 3 - Application: Many agencies won't even look at your proposal if it is not formatted correctly. It is also important to be reasonable in your proposal and budget requests.

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- Step 4 ó Approval: Congratulations! You have been awarded a grant. The approval phase usually presents itself in the form of a formal award letter from the funding agency.

Post-Award

- Step 5 ó Finalization: During this phase, your organization and the funding agency hammer out the details of the contract and arrange its execution.
- Step 6 ó Implementation: The implementation phase occurs once the project period begins and you start to carry out the activities of your project.
- Step 7 - Close-Out: Once all the program funds have been expended, a final report on the use of funds as well as the resolution of all accounts is required.

2.4 Types of Grants

Most grants awarded by the organization and governmental bodies can be categorized into two:

- **General Purpose or Operating Support Grants**

When a grant maker gives your organization an operating grant, you can use it to support the general expenses of operating your organization, from a specific program to the heating bill. An operating grant means the funder supports your organization's overall mission and trusts you to make good use of the money.

- **Program Development or Project Support Grants**

Aside from general purpose or operating support grants, most other grants are some form of program or project support. In general, a project grant is given to support a specific, connected set of activities, with a beginning and an end, explicit objectives and a predetermined cost. When a funder gives a grant for a specific project, it is generally a restricted grant and must be used for that project.

Typically project grants are given to support projects related to the mission of the nonprofit receiving the money. Examples of the above mentioned include; **Planning Grants, Seed Money or Start-up Grants, Management or Technical Assistance Grants, Facilities and Equipment Grants, Endowment Grants and Program-Related Investments (PRIs)**

These may not be exhaustive as many different types of grants come up. It is a fairly dynamic field.

Source: Minnesota Council of Foundations (mcf.org)

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2.5 Problems faced

For a period of time, the granting process has been a manual and hidden matter and as a result, a number of problems have come about as a result of issuing of grants to either individuals or organizations.

Introduction of IT into this area has been reluctant. Although many organizations would love to incorporate technology and re-engineer their business processes, cost of this implementation is an issue. Most foundations would much rather spend money on their grantees than on themselves (Scott, 2003). This may discourage organizations to use systems which are mostly expensive.

The organizations have over time begun to trust these systems and adapt to them as a result of the following issues/problems they faced:

- Lack of Funds/accountability
- Poor Governance
- Absence of Strategic Planning
- Poor Networking/ communication
- Political Interference
- Corruption
- Under-staffing

2.6 Existing systems

As a result of the problems associated with the grant process, software and systems to address these issues have been built. In this section the different systems in the market are discussed and from the findings get to understand how they work.

Newdea (Grant Management Software)

The system named above is one of the leading and most powerful systems that are involved in grant management. The grant management software, which is cloud based provides solutions to the parties involved in the grant process. It provides a collaborative environment for the involved to share information as in a social media setting thus making it effective. The donor and granter are able to connect directly to the results of the grants creating transparency, efficiency and collaboration.

The summary of the systems' features are listed below;

- Complete grant management and portfolio management capabilities.
- Full integration with Monitoring & Evaluation software to measure the performance of grantees.
- Increased Grantee impact by delivering management solutions to run more successful programs.

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- Collaborative platform that allow grantors to participate in the successes of their recipients.

AIMS - Award Information Management System

This is an enterprise based system that is designed for the needs of funding and grant making organizations. The system takes care of and controls the whole funding process. It is also fairly flexible as it allows the users to configure the system according to their needs. A user of the system is easily able to configure the following components of the system: *Workflows, Smartforms, Flexbase, Template letters, Payment and Finance, Permissions, Translations, Inbox and Static data.*

In addition to that the AIMS system tracks every application to the system and this facilitated accountability and governance within a given organization. As an online system, it supports on-line peer reviewing, home/teleworking and e-government.

Award Vision

This is a desktop based Grant Management System developed by Seneric and is meant for use in an organization setting. It therefore cannot be used outside a particular organization. This also means that there is no much collaboration as there is no discussion board provided by the system. This software is also only available on the windows operating system so an organization would have to use machines that run on windows only.

CHAPTER 3: Methodology

3.1 Research Methodology

3.1.1 Introduction

I shall use various tools and methods to undertake this research. I will undertake a Qualitative approach which entails using Survey as a research design. I chose to use this approach due to the nature of the project. It is flexible, it focuses on a natural setting, it entails an interest in meaning and understanding and it puts emphasis on processes.

The use of rigorous qualitative research methods can enhance the development of quality measures the development and dissemination of comparative quality reports as well as quality improvement efforts. (Sofaer, 2012)

The focus of a qualitative research is mainly to understand and interpret social interactions in a small -group setting.

3.1.2 Research Design

Survey as a research methodology involves direct contact with affected parties and professionals by practically asking them questions which can use either verbal conversations (interviews) or using questionnaires distributed to the clients or users.

The survey method will be used to investigate what would be used to establish the data that is usually collected. From the method a questionnaire will be developed to so as to get the information in a structured manner. A detailed questionnaire for the grant giving organizations and the grantees will also be provided.

This design suits the research best because questionnaires are effective in reaching for large numbers and the data collected using them can be represented digitally for faster and accurate analysis. This ensures that the data required for the analysis process is collected fast, from many people involved and in a way that can be automated for quick analysis which is effective for fast decision making.

3.1.3 Target Population

Grant giving organizations and grantees are the targets. These are the two main parties that shall be focused on however the granting process also involves legal and accounting officers so they may be put under consideration.

3.1.4 Sampling Technique & Instruments

Data collection on the subject of grants is very important since it has to be done right for the research to be correct and provide the best possible outcome and expected results, it is expected that the data collected will be analyzed and visualized on the system as per the objectives of the

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system. Thus a method that allows effective collection from all possible users is important as well as the ability to avoid false data. This is why I shall approach this subject with the qualitative method of data collection.

The grant processes and activities require feedback from different sources; stratified sampling is a most suitable mode of selection. The mode is best effective since it ensures effective collection of data from all the possible combinations without being biased to any of them. This becomes effective in that it ensures the data collected is a complete reflection of an interviewee's opinion and not an opinion of a certain group of the people who are part of the dataset.

The main instrument I may need to collect the data is writing material and use of voice recorders if necessary.

3.1.5 Data Collection

This involves the methods that are going to be used to get information from the parties involved.

The possible methods include:

1. Structured Interviews
2. Face to face interviews.
3. Observation.

Structured questionnaires

This will be used to get information from the organizations as explained earlier as well as the other stake holders in this sector. This will be used for official purposes and the need to automate the systems analysis process for faster development of hypothesis from the data as well as visualize the data. They become effective since they are more likely to provide similar answers which become effective when performing the analysis.

Face to face interviews

This includes meeting with people who represent the grant-giving organizations as well as those who have received grants. They are effective since they provide a platform for the interviewee to get the best of the person being interviewed since they have a chance to change and ask more than planned and clarify things that are not clear.

Observation

Because the grantees are usually known to the public and transparency is usually ensured, I shall take to the field to take a look at the various projects. I shall do this so as to come up with the most suitable means of tackling the prevalent problem rather than introducing a new platform that has a higher chance of failing due to previous likes and preferences.

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3.1.6 Data Analysis

The data collected will be analyzed to facilitate the formulation of answers within the research area. From the different classes of audiences of the system, a most suitable mode that suits all involved parties will be used. This prevents inconveniences from any of the audiences which includes:

1. Primary audience.
2. Secondary audience.

Primary audience

They include the end users of the system, the grantees. They will have limited access to the platform through which they will use to interact with the granter. Thus the system will provide a module that will handle the registration of the grantees.

Secondary audience

This includes the grants officer from the specific grant giving organization who will be providing information. The main challenge will be fusing and summarizing the data collected as each organization has different processes they follow.

3.1.7 Limitations

The development of the system is most likely going to experience a number of setbacks, these include;

- Financial constraints
- Getting the right amount of data for the study
- Getting an interview with a certain organization.
- Time constraints
- Coming up with a fully functional system within the specified time

3.2 System Methodology

3.2.1 Rational Unified Process

I have chosen to use this particular system methodology for a number of reasons which shall be explained below.

RUP is a comprehensively software engineering tool that combines the procedural aspects of development (such as defined stages, techniques, and practices) with other components of development (such as documents, models, manuals, code, etc.) within a unifying framework. the Rational Unified Process as a mechanism of unifying the entire software development team by providing a customizable framework of best practices from many disciplines such as project management, business modeling, requirements management, analysis and design, testing, and change control for the full life cycle process.

This methodology is therefore an ideal approach to develop the system proposed.

RUP as a software engineering tool is built on the "Six Best Practices":

- *Develop iteratively*
It is best to know all requirements in advance; however, often this is not the case. Several software development processes exist that deal with providing solution on how to minimize cost in terms of development phases.
- *Manage requirements*
Always keep in mind the requirements set by users.
- *Use components*
Breaking down an advanced project is not only suggested but in fact unavoidable. This promotes ability to test individual components before they are integrated into a larger system. Also, code reuse is a big plus and can be accomplished more easily through the use of object-oriented programming.
- *Model visually*
Use diagrams to represent all major components, users, and their interaction. "UML", short for Unified Modeling Language, is one tool that can be used to make this task more feasible.
- *Verify quality*
Always make testing a major part of the project at any point of time. Testing becomes heavier as the project progresses but should be a constant factor in any software product creation.
- *Control changes*
Many projects are created by many teams, sometimes in various locations, different platforms may be used, etc. As a result it is essential to make sure that changes made to a system are synchronized and verified constantly.

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Develop Iteratively

Here, system development is broken into cycles while using RUP, with each cycle working on a new generation of the product. I shall approach the system development in modules and follow the steps and phases required. RUP divides one development cycle in four consecutive phases:

- Inception phase
- Elaboration phase
- Construction phase
- Transition phase

Each phase is concluded with a well-defined milestone and its iteration is a complete development loop resulting in release of a usable system in the organization that is subset of the final product under development.

Manage Requirement

Requirements change during the development of the system as well as the modules and they may be mainly concerned with the type of services the system should provide. My aim is to come up with a flexible and easy to use system. I will therefore take into consideration the user requirements. This is a continuous process to identify requirements together with the end-use and helps priorities and track requirement.

Use Component Architecture

This part focuses on early development and base lining of a robust executable architecture, prior to committing resources for full-scale development.

Model visually

In the case of RUP and the system there was need to capture the system design by the use of notation such as UML to provide higher level of abstraction and it is in the form of use cases, activity diagrams or sequence diagrams.

Visual abstractions help to:

- Communicate different aspects of the system
- See how the elements of the system fit together
- Maintain consistency between a design and its implementation

Verify Quality

The system resulting from the development should satisfies or exceeds an agreed upon set of requirements, and assessed using agreed upon measures and criteria, and produced using an agreed upon process. The system from each release (every iteration) is tested and verified and decisions are made on real test results.

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Control changes

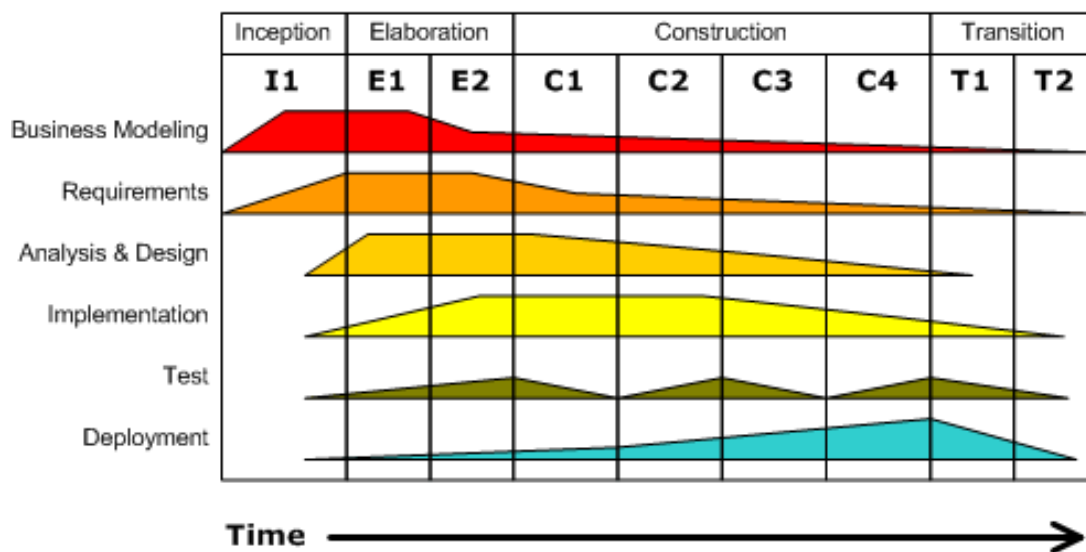
It includes management of workspaces, parallel development and integration. All change control should go through Configuration and Change Management (CM), who should be able to foresee effects of changes and could be able to plan for them, and manage all artifacts

3.2.2 System Design

Phases

The Inception and the Elaboration phases are the two most creative parts. Function and design established all requirements are elicited.

The Construction and the Transition phases are the building parts. Most of the programming and testing is done. The deployment and delivery are also included.



Inception

During the inception phase the core idea is developed into a product vision. In this phase, I shall review, discuss, and understand the business case of the grants process. I shall then establish the product feasibility and determine the project scope.

Involves identify all external entities with which the system will interact (actors) and define the nature of the interaction on a high-level.

Activities are:

- The project is proposed.
- The business case is established
- The scope of the project is delimited.

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Elaboration

The purpose of the elaboration phase is to:

- Analyze the problem domain,
- Establish a sound architectural foundation
- Develop the project plan
- Eliminate the highest risk elements of the project.

Construction

During the construction phase all remaining components and application features shall be developed and integrated into the product, and all features will be thoroughly tested. The outcome of the construction phase will be a product ready to use. The fully functional Grants Management System will be up and ready for the users.

Transition phase

The primary objective is to 'transit' the system from development into production, making it available to and understood by the end user. The activities of this phase include training the end users and maintainers and beta testing the system to validate it against the end users' expectations. The product is also checked against the quality level set in the Inception phase.

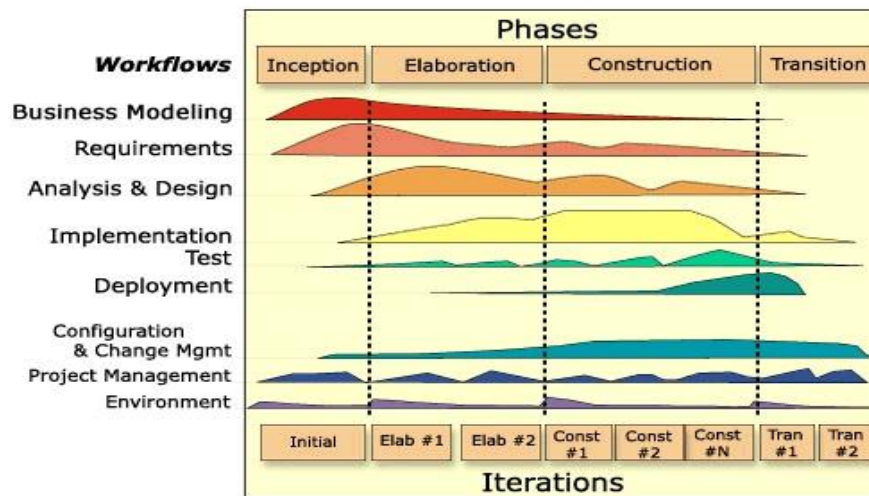
Issues that usually arise:

- New releases
- Correct some problems
- Finish the features that were postponed
- "beta-testing" to validate new system against user expectations

Workflows

RUP is made up of six engineering workflows that represent partitioning of activities into groups. And these are the activities I intend undertake during the project. This involves the system implementation.

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Business modeling

Business modeling will be conducted during the inception and the elaboration phases; it assures a common understanding among all stakeholders of the business process to be supported. This may include partnerships and collaborations so as to understand the business process. I will document the business process i.e. showing how the users interact with the system.

Requirements

This will be done to describe what the system should do and allows the developers/installers of the system and the user to agree on that description. From this we have to find out, organize and document the functionalities and the constraints of implementation of the system.

Analysis and Design

Shows how the system will be realized in the implementation phase. We do this by coming up with specific use cases and other diagrams showing how the final system would look like.

Implementation

The structure of the system is defined as the implementation of the subsystems the object will be implemented as components of the system and are tested and the results are integrated into the existing executable system. Each module is developed here as the full system comes into realization.

Test

Testing will be done iteratively throughout the project. This allows the detection of defects as early as possible, which radically reduces the cost of fixing the defect. Tests will be carried out along four quality dimensions: Reliability, Functionality, Application Performance, and System Performance.

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Deployment

I intend to successfully produce product releases, and to deliver it to its end users. It covers a wide range of activities hosting the system, as well as providing help and assistance to users who interact with the system.

Use cases

Image below shows how the grantee interacts with the system

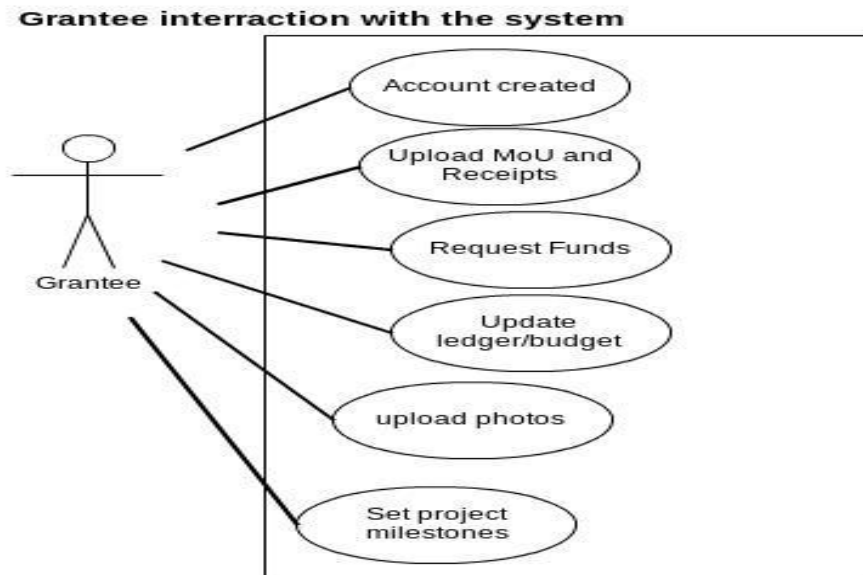
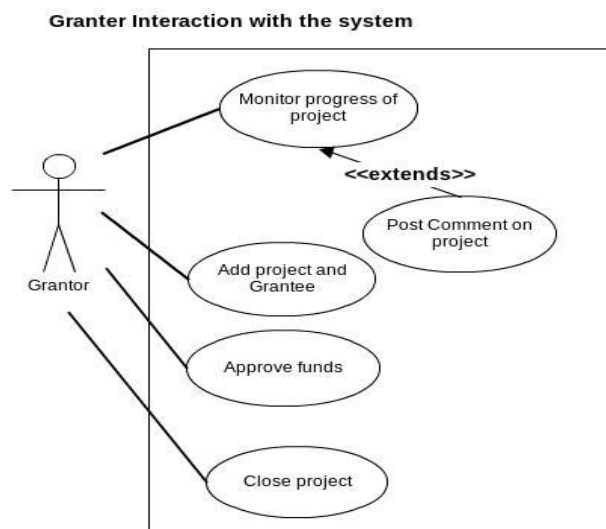


Image below shows how the administrator interacts with the system.



create and share your own diagrams at gliffy.com



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3.3 Construction Methods

3.3.1 Programming Languages

Ruby on Rails

RoR is an open source web framework that's optimized for programmer happiness and sustainable productivity. It lets you write beautiful code by favoring convention over configuration. This is a powerful language that is secure and is fool proof. The system will require a strong platform as it will contain important information.

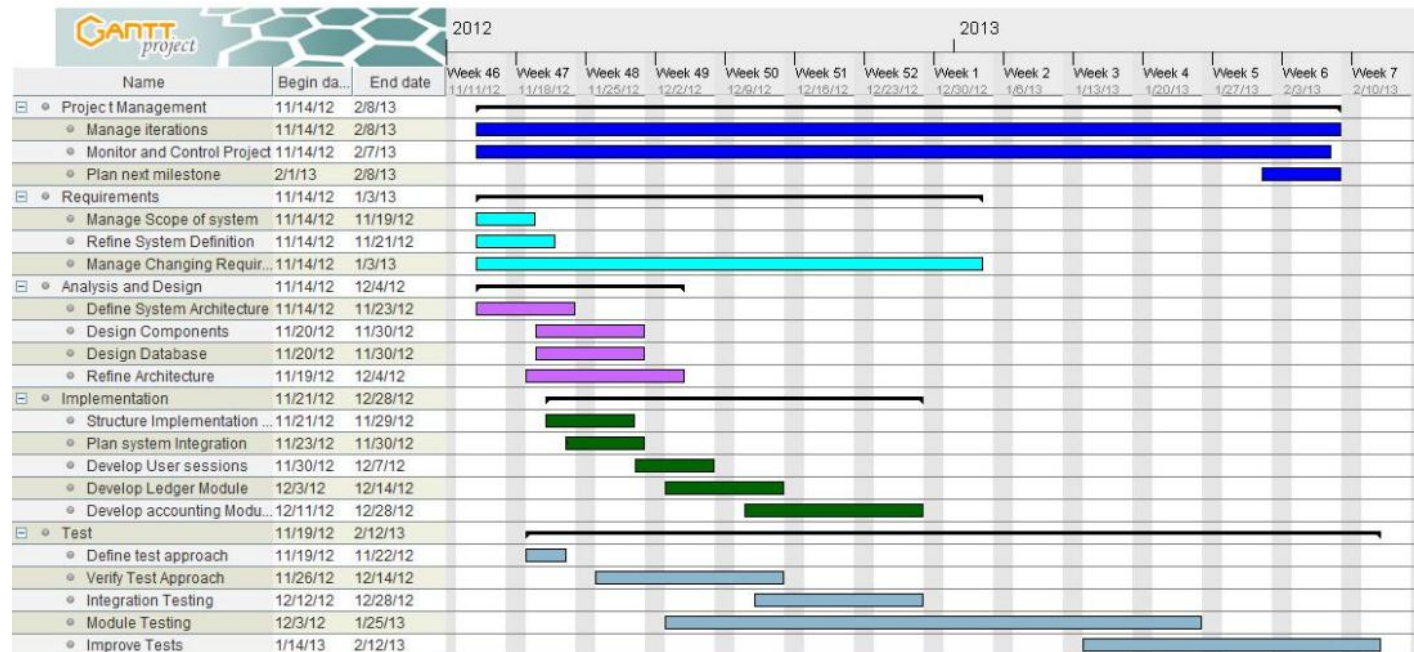
3.3.2 Database Languages

PostgreSQL

PostgreSQL is a powerful, open source object-relational database system. It can perform various tasks such as creating, modifying or deleting **databases**, **tables**, **fields** or **rows**; executing **SQL** statements; or managing users and permissions.

3.4 Project Schedule

Gantt chart and work plan



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- 14.

Appendix

Below are the questions used to conduct a field study of the project.

Questionnaire

1. Who are your donors?
2. What is the process your office follows during the grant exercise?
3. Who is involved in the process?
4. Who monitors the grants you have given out?
5. How do you monitor them?
6. Are there any laws governing grants in the country?
7. Do you use any grant management software?
8. If yes. Who has access to the software?