# Reengineering approach to improve processes at CC4C

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# Executive Summary

Campus Crusade for Christ (CC4C) is an international organisation that focuses on Evangelism. CC4C has several ministries across South Africa which are controlled and monitored by their head offices situated in Pretoria. Each ministry has staff members and volunteers that need to be managed and maintained. There is a great need for structured processes to effectively control data flow and data management.

CC4C Tuks is a student lead movement which consist of staff, committee members and many students who are part of the organisation. They have weekly meetings and also regular outreaches and discipleship groups that meet throughout the year. At Tuks they requested a fully functional system to manage the outreach procedure. This involves the capturing of students' contact information, managing the Follow-up process and reporting of outreach statistics. The Follow-up process consists of leaders meeting with the students that were contacted and completing the follow-up material with them.

The report consists of the study and evaluation of different input mechanisms for the outreach procedure. The planning for the system using various Industrial Engineering techniques such as Business Process Reengineering (BPR) combined with Use case models, Data flow Diagrams (DFD's) are also included in the report.

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## Acronyms

BPR: Business Process Reengineering

USSD: Unstructured Supplementary Service Data

GMA: Global Measurement Application

CC4C: Campus Crusades for Christ

MCC: Mission Critical Components

UML: Unified Modelling Language

DFD: Data flow diagram

# Chapter 1 - Introduction

## 1.1 Introduction and Background

In 1951 Dr Bill Bright received a call from God to start a ministry of evangelism and discipleship among students at the University of California. He called the ministry Campus Crusade for Christ (CC4C). From those small beginnings there is now a worldwide movement operating in 191 countries in the world.

CC4C South Africa is a part of the Campus family with many national and international staff members leading the various ministries within the organization.
There are four main categories in the ministries which are known as MCC's (Mission critical components:

- Student Lead Movement(SLM)
- Church Lead Movement(CLM)
    - Family Life
    - CrossRoads
    - Mothers Who Care
    - The Jesus Film Project
    - GAin
    - Athletes In Action (AIA)
    - Macedonian Outreach
- Leader Lead Movement(LLM)
- Virtual Lead Movement(VLM)

For the purpose of this report the Student-Led Movement will be evaluated. On Tuks campuses the ministry's main activity comprises of an outreach procedure - reaching out to students (WIN) and taking them through a Follow-up process (BUILD) to enable them to reach out (SEND). Some of the events that CC4C Tuks offer include weekly meetings, prayer meetings, camps and training. Discipleship groups are also an integral part of the ministry.

Figure 1 is a simple diagram that illustrates the outreach procedure.

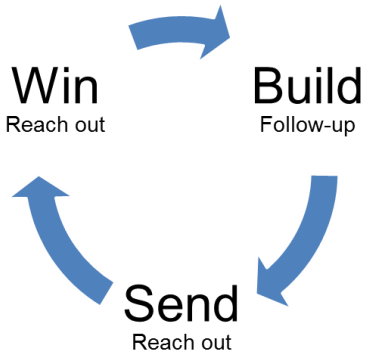



Figure 1 : Outreach strategy

## 1.2 Problem Statement

The capturing and managing of data was one of the main problems that were identified at the CC4C Tuks campuses and also Head Office.

At CC4C Tuks campuses the procedure for compiling outreach statistics and reporting back to head offices are not very effective.

In their current procedure they make use of a Monthly stats form to compile statistics. Students have to report back at the end of each month to one of the staff members to compile statistics for the outreaches taking place on all the campuses. The students fail to hand over their Monthly stats forms to the staff members. The global CC4C uses an internet database called GCX with a Global Measurement Application (GMA). Students do not have access to this database, therefore it is the staff's responsibility to load the monthly outreach statistics on GCX/GMA.

Another big problem on campus is that there is no functional database to manage and maintain members' information at ministry level. The current database that is being utilized is an excel spread sheet which is ineffective for the purposes of CC4C. This results in unsuccessful communication between the committee and the members.

No central database or structured mechanism exists at the Head Office for managing all the information of the various MCC's. Every Ministry has its own 'database' or Excel spread sheet where the personal information of the people involved with their ministry is managed. The problem with this is that most of the people are involved with more than one ministry, which can lead to various problems such as the case where one person receives multiple

identical emails.

## 1.3 Project Aim and Objectives

The aim of this project is to improve the data flow and management for CC4C by applying Industrial Engineering techniques.

### 1.3.1 CC4C Tuks

#### 1.3.1.1 Optimizing the capturing and maintaining of data

- A database should be developed that will create access for all leaders and staff members so that they can update and maintain personal information of every person involved in the organisation.
- The database must enable users to add people and track the progress of every person involved in the organisation.
- Users must be able to access the database from any internet based technology.

#### 1.3.1.2 System input mechanism for reporting on outreaches

- Effective technology system should be researched for the capturing of leaders' outreach statistics.
- This system should simplify the process and eliminate the forms and surveys currently being used during each outreach.
- Research on mobile and computer technology systems will be analysed.
- The system should capture all relevant outreach statistics required by Head Offices.

#### 1.3.1.3 Optimising outreach statistics control

- The system should enable staff members to analyse and finalise the statistics before loading the final statistics of the entire CC4C Campus on GCX/GMA.

#### 1.3.1.4 System to manage Follow-up process

- Allocation of students to leaders for Follow-up should be made possible by the system.
- The system should enable CC4C to track the progress of each student involved in the Follow-up process.

#### 1.3.1.5 Training for CC4C committee members on utilizing the new system

- To ensure the system and database will be utilized to its full functionality, the training of the users of the system/database is important.

- A user guide and training program will have to be developed which will explain all the functions of the system/database that the users will require.

#### 1.3.1.6 Effective reporting

- It is important that the information can be processed effectively to produce relevant reports after the implementation of a fully functional system. Reports should include outreach statistics and should also monitor the progress of the members in the organisation.
- The database should be updated regularly with all the current and new members' information.

### 1.3.2 CC4C Head office

#### 1.3.2.1 Optimizing the capturing and maintaining of data

The aim is to research various online database tools and the feasibility of implementing this in CC4C.

## 1.3 Project Scope

For the first part of the project various methods of capturing and maintaining data regarding all the people involved with the CC4C Campus ministry will be researched and analysed. This will be done whilst taking into consideration that communication is an important aspect in the Ministry.

The second requirement for the Campus ministry is a system and procedure to report all the outreach statistics of the students to the staff members. Different methods will be investigated to evaluate the feasibility of all different input mechanisms and technologies (Mobile/Computer).

The project does not include building a physical database but does include all planning and requirements to be able to create the database. Various Engineering techniques such as UML Diagrams and Dataflow diagrams will be created to assist in the planning of the database.

Conceptual designs will be included in the project to illustrate the reports that will be generated by the database if CC4C decides to implement the system.

## 1.4 Project Deliverables

- Research on different mobile/computer data input and capturing methods.
- Comprehensive summary of BPR and other Engineering techniques.
- Detailed study, mapping and analysis of the As-Is processes in CC4C.
- Detailed study, mapping and analysis of the To-Be processes in CC4C.
- Feasibility studies and Cost Analysis for mobile/computer technologies researched
- Planning for database
    - Use Case diagrams, DFD, Fish bone diagram
    - Conceptual design of reports required by CC4C
- Implementation plan for the Reengineered processes.

# Chapter 2 – Literature Review

## 2.1 Literature Review

### 2.1.1 Understanding the need for reporting

In any organisation or company it is imperative to have some or other way of evaluating if that company is busy fulfilling their mission and vision. Are they busy with what they planned? How effective are they? Making the same mistakes over and over again is also minimized by honest evaluation. (Mathews, 2011)

It is essential to understand the benefits and limitations of reporting before trying to implement a reporting system. Generally staff and committee members are uninformed about the remarkable potential of reporting. Staff growth, evaluating, progress tracking, communicating and ministry growth are a few areas that will benefit tremendously from weekly or monthly reporting. (Ellis, 2008)

According to Mark Sanders it is also important to realize the limitations of statistics (Sanders, 2008)

- It does not express the person's heart attitude
- It does not show if a person was truly filled with the Holy Spirit
- The worth of a person is not reflected. Each and every person is extremely important not only to the organisation- but to God.
- It does not take into account that there might have been an unusual situation that may have affected the results
- Must not be used to praise and applaud certain individuals
- Must not be used to compare people and campuses
- Must not be used to "commercialize" the soul

Then why measure? (Ellis, 2008)

- The values, prospects and also commitment of a society is communicated by measurements
- Evaluation and correction of the society's direction are made possible by measurements
- It acts as a shepherding tool for leaders where they can pray and trust together

- Measurements can also be a source of encouragement and celebration for what the Lord is doing

### 2.1.2 Optimizing data flow and management

The basic mechanisms of data management comprise of ownership, selection, gathering, capturing, evaluation, preservation, storage, distribution and destruction. (Julia, Anne .M, & Michael, 2010) Even though the gathering and capturing of data can become very difficult it is generally known that all data should be received and recorded. The optimal way of approaching this process should be investigated for each organisation.

To be able to find the best way CC4C Tuks can manage their data, other organisations on university campuses where investigated to find the methods they utilize.

After the investigation of various organisations on Tuks campus, the research showed that there is a great need for a more effective approach to the management of data in organisations. Tuks Missions, a Christian organisation on campus is busy implementing an MS Access database that will allow three users to access the database. The data will be stored on a single device which will be kept in their office. Access to the data base will only be from the office.

Every Nation Church which also has a campus ministry has recently implemented a database on the internet using Gododata.com. This website enabled Every Nation PTA to customize the database to their individual needs. They manage all their smallgroups, leaders, person information and event management through this database. The database also enables them to communicate to all the members and generate reports to evaluate the statistics.

### 2.1.3 System input mechanism for reporting outreach statistics and keeping track of members' details

The importance of having an effective mechanism to manage and maintain data is already explained in optimizing data flow and management. Now the task is to find an appropriate system input mechanism for reporting the outreach statistics of each student. Various techniques for system input mechanisms were researched.

Mobile and computer technology that can serve as an input mechanism for the reporting of outreach statistics are investigated below:

**USSD (Unstructured Supplementary Service Data)**

USSD is a service that enables a user to send short commands via a mobile device. The most common use for such services are where mobile users request information about their airtime balance by dialling a short number, for example CellC users dialling *100#. (ActiveXperts Software B.V., 2012)

Figure 1 is a flow diagram depicting the procedure of a personal mobile device for logging user information. (Amit & Guy, 2010)

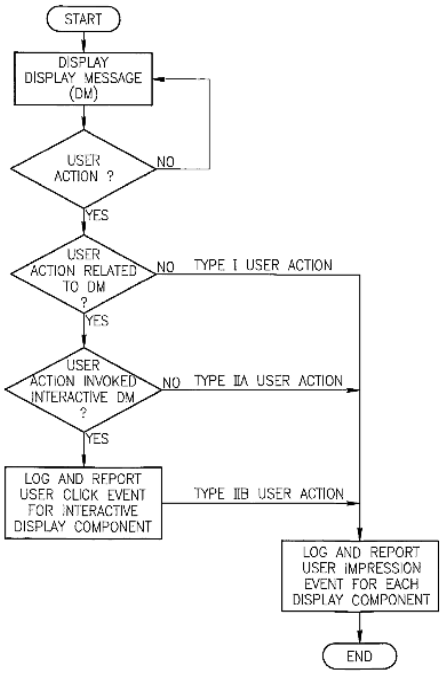



**Figure 2: Flow diagram of USSD**

A case study was conducted in rural areas in Mpumalanga to determine the effectiveness of a USSD system in home based health care. The system enables caregivers to report a patient's vital signs back to the clinic. Figure 2 illustrates the process a caregiver would follow by using her mobile device. (Wouters, Barjis, Maponya, Martiz, & Mashiri, 2009)

a. Calling the number | b. Request for patient number | c. Main menu for 'patient Fakes' | d. submenu 'temperature' | e. Main menu after entering all vital signs

**Figure 3: Example of the USSD interface on a mobile phone**

After the vital signs are reported by the caregiver to the clinic by using a mobile device the sister will be able to access the information through the internet application loaded on a desktop at the clinic. Figure 3 is an example of an application loaded on a desktop and illustrates how the sister can view the patients' information. (Wouters, Barjis, Maponya, Martiz, & Mashiri, 2009). The sister can easily search for specific patients and analyse their vital signs.

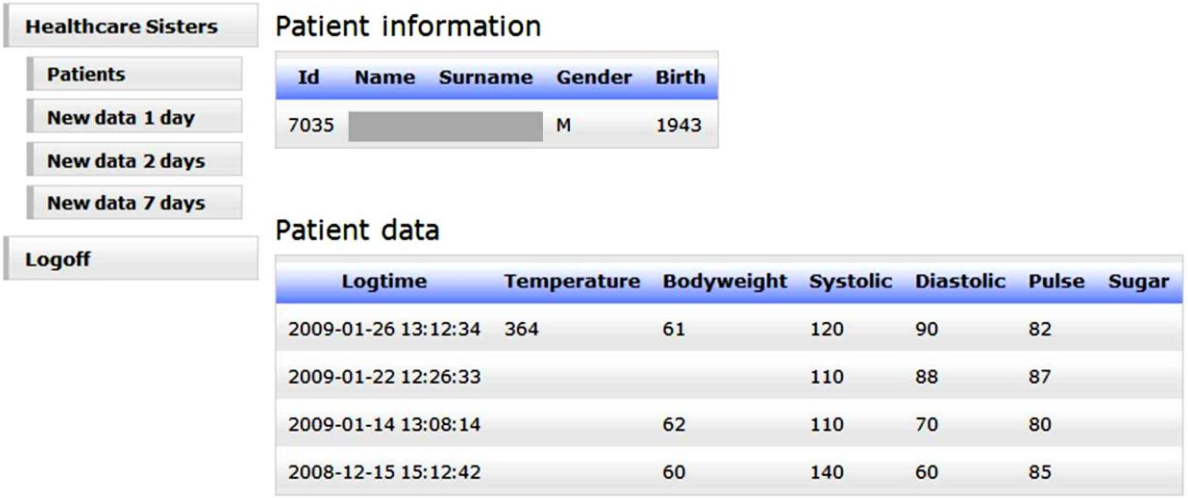



**Figure 4: Screenshot of a web based healthcare record**

**SMS (Short Message Service):**

This system was developed to collect data by utilizing one of the oldest and most generally used technologies. The system is designed in such a way that a server will send a question via SMS at fixed times specified by the user. Then the user must reply with a valid answer in order for the system to send the next question.

A study has been conducted to evaluate the feasibility of using the SMS system in collecting the diary data from Asthma patients through mobile phones. From 12 December 2003- 15 February 2004 the participants in the study received a sequence of text messages on their mobile devices each day at self-selected times. Figure 4 displays an example of a SMS received by a user from the system. (Anhøj & Møldrup, 2004)

**Figure 5: Example of a SMS received, the user should give relevant response, in this case 'yes' or 'no'**

Information about diary requests and inputs was received by the database system. Information such as user ID, date and time of request and input, question ID, and input value. They found that the SMS system is indeed feasible to collect data wirelessly from various locations.

**Dropbox:**

Dropbox is a Web-based service where multiple users registered for this free service are able to access files and documents from any mobile or computer devices with internet capability. Folders can be created in Dropbox and any user can upload files and documents. (Macworld, 2011) Dropbox also enables users to edit these documents. A new service has recently been launched called Dropbox for Teams allowing groups to store up to 1TB of data. (MEARIAN, 2012)

The limitation that Dropbox has is that it only has a capacity of 2 GB when utilizing the free service. Dropbox is not seen as a very secure way of managing data.

**Web-based Databases:**

A web-based database is an application developed to be managed and accessed through the Internet.Users are able to manage collection of information and displaying results online. (Kokemuller)

Five different database tools and applications follow:

**Microsoft Access:**

MS Access is a commonly used database application designed for Windows. Customized databases can be built in MS Access, users can then store data in an organized structure. One can search, browse and access this data stored in Access from other programs which include internet services. (Unknown, 2012)

Utilizing a website such as ZohoCreator one can convert a MS Access database in an effective web-based data base that can be accessed from various locations. **ZohoCreator** can also be used to develop a database online.

**GoDoData:**

GoDoData is a new website to help organizations and churches such as CC4C to develop a cheap customized database to suite the requirements of the specific organization. As previously mentioned Every Nation Church implemented this web-based system and is very impressed by the service they received thus far.

Gododata enables organisations to make use of the following features.

- Pastoral Reports
- Event Management
- Online Profiles
- Small Groups management
- Leadership Development
- Subscriptions: members can easily subscribe and unsubscribe to various forms of communication that they want to receive from your church or organization
- Subscription Lists: Subscription lists make it very easy to create a dynamic list of people that you want to communicate with on a regular basis.
- Search Engine
- SMS Messaging
- Easy Email
- Security Roles
- Sync Databases
- Customizable
- Excel Export
- Multiple Sign-In
- Mobile Access
- Cloud Computing
- Pay Online

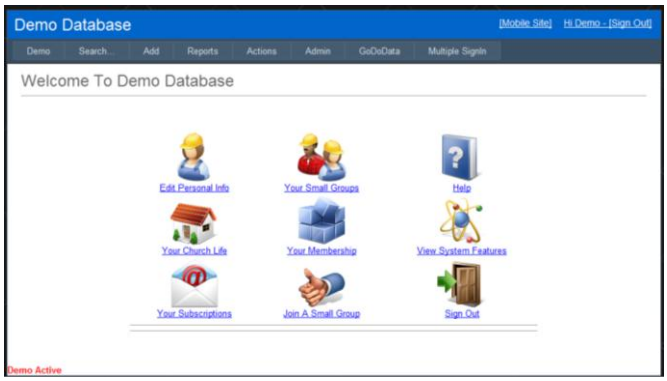



**Figure 6: Screenshot of a Demo Data base in GoDoData**

Gododata enables users to capture outreach details as well as maintaining the personal information of all the students they are evangelising and mentoring. Staff members can also keep track of all the students' activities and statistics and in addition they can also compile reports that need to be sent to Head offices.

**Team desk**

Team desk is an online database system designed to enable users to create their own business management system. They either use one of Team Desk's templates or design a new data system to fit to the organisations' spesific needs. (Teamdesk, 2005)

**Missionhub**

Missionhub is an online follow up system that focuses on organisations and churches with similar activities as CC4C. The campus ministry in New Zealand incorporated this system on all the university campuses. The campus ministries using Missionhub explained it as being the best solution for any ministry that focuses on reaching out to students, following up with the students and keeping track of their progress. (Cru, 2011)

Missionhub is designed to simplify the procedure to obtain students information by letting them complete a simple survey by means of an Ipad or mobile device. This automatically updates the database. It also allows leaders to manually add people to the database. From here it enables leaders to assign students to specific leaders and discipleship groups. Leaders can then track the progress of the students and control whether students have been contacted. This eliminates the problem of students being overlooked.

Another benefit mentioned by the New Zealand campus is that Missionhub allows them to collect students' information at mass meetings. For example if they have a worship event every student can access a customized survey by utilizing their smartphones. The database is automatically updated with the students' information.

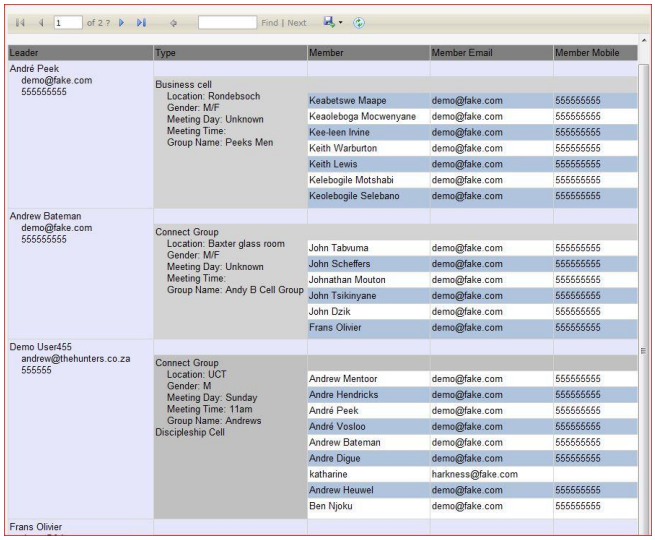
The different Ministries within the New Zealand organisations were also able to use Missionhub to keep their databases separate by changing the 'Organisation' of the home screen.

**In conclusion**. All the web-based applications will have to be evaluated to determine the optimal solution. The planning for the Database wil be completed and discussed in Section 5.3.5. The planning is a vital component in developing the database, whether it will be utilizing a specific Database website or creating a Database in MS Access and converting it to a web-based application through ZohoCreater.

### 2.1.4 Effective reporting

Non-profit organisations have an obligation to report to external agencies on their performance (Lee, 2004). Responsibility towards their stakeholders, customers, and funders are also an important aspect that has often been neglected by non-profit organisations.

Figure 7 displays an example of a report that can be generated by using Gododata.com. Various reports can be customized to fit the requirements of the external agencies or top management in an organisation. With regards to CC4C's situation the reports can be generated and sent through to Head offices and finally be viewed by the global director of CC4C.



| Leader | Type | Member | Member Email | Member Mobile |
|---|---|---|---|---|
| André Peek<br>demo@fake.com<br>555555555 | Business cell<br>Location: Rondebosch<br>Gender: M/F<br>Meeting Day: Unknown<br>Meeting Time:<br>Group Name: Peeks Men | Keabetswe Maape | demo@fake.com | 555555555 |
| | | Keaoleboga Mocwenyane | demo@fake.com | 555555555 |
| | | Kee-leen Irvine | demo@fake.com | 555555555 |
| | | Keith Warburton | demo@fake.com | 555555555 |
| | | Keith Lewis | demo@fake.com | 555555555 |
| | | Kelebogile Motshabi | demo@fake.com | 555555555 |
| | | Keolebogile Selebano | demo@fake.com | 555555555 |
| Andrew Bateman<br>demo@fake.com<br>555555555 | Connect Group<br>Location: Baxter glass room<br>Gender: M/F<br>Meeting Day: Unknown<br>Meeting Time:<br>Group Name: Andy B Cell Group | John Tabvuma | demo@fake.com | 555555555 |
| | | John Scheffers | demo@fake.com | 555555555 |
| | | Johnathan Mouton | demo@fake.com | 555555555 |
| | | John Tsikinyane | demo@fake.com | 555555555 |
| | | John Dzik | demo@fake.com | 555555555 |
| | | Frans Olivier | demo@fake.com | 555555555 |
| Demo User455<br>andrew@thehunters.co.za<br>555555 | Connect Group<br>Location: UCT<br>Gender: M<br>Meeting Day: Sunday<br>Meeting Time: 11am<br>Group Name: Andrews Discipleship Cell | Andrew Mentoor | demo@fake.com | 555555555 |
| | | Andre Hendricks | demo@fake.com | 555555555 |
| | | André Peek | demo@fake.com | 555555555 |
| | | André Vosloo | demo@fake.com | 555555555 |
| | | Andrew Bateman | demo@fake.com | 555555555 |
| | | Andre Digue | demo@fake.com | 555555555 |
| | | katharine | harkness@fake.com | |
| | | Andrew Heuwel | demo@fake.com | 555555555 |
| | | Ben Njoku | demo@fake.com | 555555555 |
| Frans Olivier | | | | |

**Figure 7: Screenshot of a report generated in GoDoData**

Reporting in any system is a very important function to be able to evaluate the performance of an organisation. Each of the technologies and web-based systems described above has the capability to customize the design of a report for CC4C.

## 2.2 Literature Review: Engineering techniques

### 2.2.2 Business Process Reengineering

Business Process Reengineering (BPR) is the process to achieve significant improvement by drastic restructure of any business process. This is accomplished by using modern evaluations of the way the process is performing with regards to cost, excellence and capability. (Hammer & Champy, 1993)

Business Process Reengineering includes five activities: (Subramanian, Larry, & Hossein Cheraghi, 1999)

1. Prepare for reengineering,

2. Map and Analyse As-Is process

3. Design To-be process

4. Implement reengineered process

5. Improve continuously.

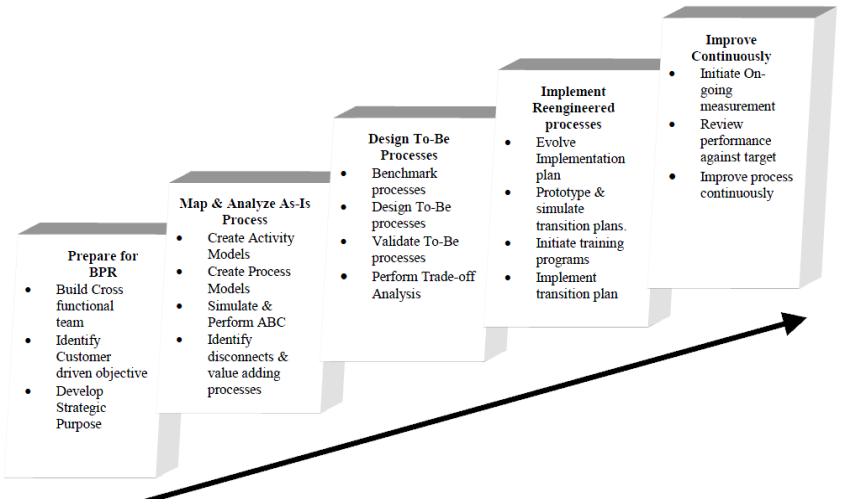



**Figure 8: BPR: The surest way to the Top!**

For a non-profit organisation it is challenging to find methodologies to evaluate the processes due to the fact that performance of an organisation is typically measured by their earnings and returns in investments. (Nutt, 1984) There is still a great need identified for restructuring and improvement in these non-profit sectors.

Many case studies exist in the literature on Business Process Reengineering (BPR):

- Rodger (1999, p9) conducted a study at Goodwill Industries of the Laurel Highland Incorporated to investigate how non-profit companies would approach reengineering and adopt the principles of BPR. According to Rodger usually people believed that management is not important for NPO's. In this era there has been a realisation of the importance of management, especially for NPO's. Due to the fact that management is so important for NPO's it is apparent that more attention should be given to redesign and process reengineering in this sector. (Rodger, 1999)
- Jansen (2005) intended to find a structured approach to implement BPR in the healthcare industry. The focus was on the reduction of throughput-, service times and costs. Many redesign techniques where exploited to ultimately have seven alternative redesigns. Their conclusion was that for the organisation being analysed the methodologies of BPR was indeed a feasible approach to increase the productivity. They also concluded that four out of the seven alternatives proved to have an increase in throughput. (Jansen, Monique, & Reijers, 2005)

### 2.2.3 ERD (Entity Relationship Diagrams)

An ERD is a method widely used to model data by graphical illustrations of entities and the various relationships between them. (TechTarget, 2006)

The three key components of an ERD are (Bentley & Whitten, 2007):

- Entity – a class of persons, places, objects, events, or concepts about which we need to capture and store data.
- Relationship – the reaction between the different entities depicted in your diagram
- Cardinality – the minimum and maximum number of occurrences of one entity that may be related to a single occurrence of the other entity.

The following steps should be followed when constructing an ERD:

1. Classify the entities.
2. Determine all important relations.
3. Evaluate the nature of the interactions.
4. Construct the ERD.

Within an organisation you find a group known as the DBA (Database Administration Group). Normally they are located in the IT department and they are responsible for the building and maintaining of an organisation's database. They are also responsible to transform a diagram into a physical database. One of the most effective ways to communicate with the DBA is with an ERD. (Jacek, 2006)

### 2.2.4 UML Diagrams

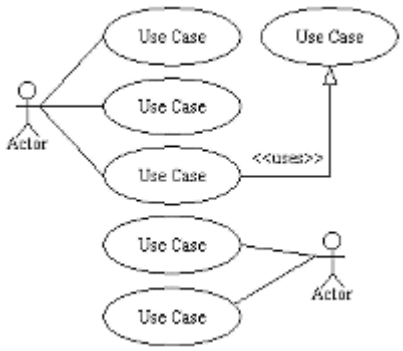
Unified Modelling Language is a standardised notation used to illustrate graphically the interactions between components of an organisation. UML diagrams can be separated in two groups: (SmartDraw, 2012)

**Structure diagrams**-To plan and draw relationships amongst physical components, code and data.

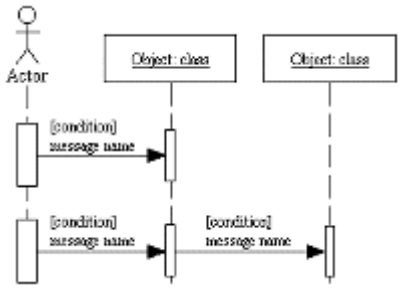
**Behaviour diagrams**-models the various actions taking place within the organisation.

We can further distinguish between thirteen diagrams but for the purpose of the study the focus will be only three namely (SmartDraw, 2012):

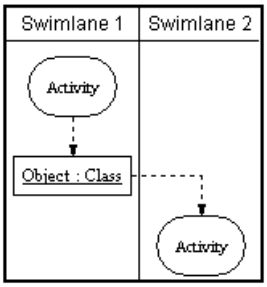
**Use Case Diagrams**- This can be used to model the functionality between the actors and the Information System within CC4C. A use case can be described as subset of the overall system functionality.




**Sequence Diagrams** –Graphically modelling the logical flow within an organisation. This enables the designer to document and evaluate the logic of the flows. (Ambler S. W., 2010)




**Activity Diagrams**- Also used to model the flow and processes internal to an organisation in a logical way.

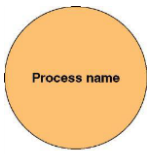



### 2.2.5 Data Flow Diagrams

DFD is used to model a process to illustrate the flow of data in an organisation or system and also the actions performed by the system. A DFD consists of three symbols and one connecter (Bentley & Whitten, 2007)

Gane and Sarson shape

External Agent- the limit of system, outside the system, can represent a person, system, organisation that cooperates with the system, similar to actors in a use

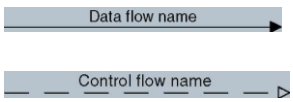



DeMarco/Yourdon shape

Process- action to be performed by the system or the transforming of incoming data in desired output.

Gane and Sarson shape

Data store- Incoming data being stored for later use, similar to entities in an ERD




Data flows- illustrates the flow of data between agents and processes

The following rules are important when creating a DFD: (Ambler & W., 2003)

1. All processes must have one or more data flows in and one or more data flows out.

2. All processes should transform the incoming data in desired output
3. Every data store must be involved with one or more data flow.
4. Every external actor must be involved with one or more data flow.
5. A data flow must be linked to one or more process.

All the Diagrams explained above will be valuable in the mapping and analysing of the As-Is processes and also designing the To-Be processes in CC4C.

### 2.2.6 Feasibility analysis tools

A Feasibility study is an activity that requires the documenting of each possible method or solution to some kind of problem, where after the best solution will be evaluated and selected. (Whittier, 2012)

The following Feasibility analysis tools currently being used most often:

**The Prioritization Matrix-** A method used to evaluate certain solutions prioritising them by weighted criteria. Edward D. Carpenter II designed an easy 5 Step plan together with an Excel spread sheet to select the best solution. (Edward, 2010)

1. Open the spread sheet and enter criteria to evaluate the different solutions

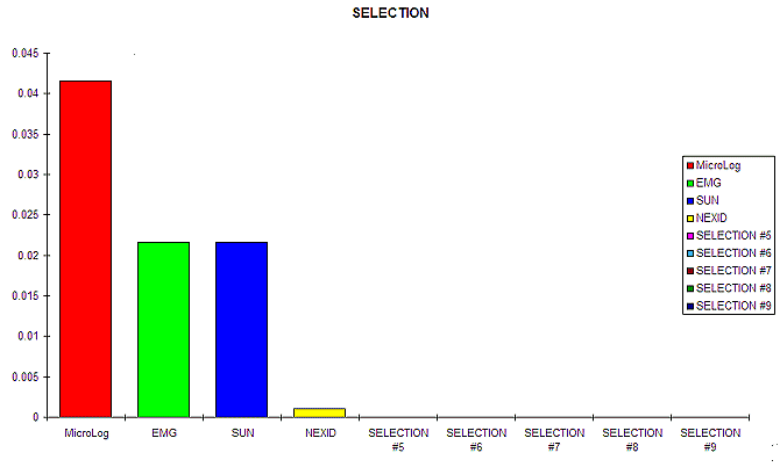
| | CRITERIA WEIGHT | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | TOTAL | DECIMAL VALUE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Little to no customization ne | X | 0.20 | 0.10 | 0.10 | 0.10 | 0.10 | 0.20 | | | 0.80 | 0.01 |
| 2 | Service costs | 5.00 | X | 0.20 | 0.20 | 0.10 | 0.20 | 5.00 | | | 10.70 | 0.08 |
| 3 | Ease of use: administration | 10.00 | 5.00 | X | 1.00 | 1.00 | 0.20 | 10.00 | | | 27.20 | 0.20 |
| 4 | Ease of use: user | 10.00 | 5.00 | 1.00 | X | 5.00 | 5.00 | 10.00 | | | 36.00 | 0.27 |
| 5 | Conforms to open web stand | 10.00 | 10.00 | 1.00 | 0.20 | X | 0.20 | 1.00 | | | 22.40 | 0.17 |
| 6 | Scalable | 10.00 | 5.00 | 5.00 | 0.20 | 5.00 | X | 5.00 | | | 30.20 | 0.23 |
| 7 | Directory-based access cont | 5.00 | 0.20 | 0.10 | 0.10 | 1.00 | 0.20 | X | | | 6.60 | 0.05 |
| 8 | CRITERIA #8 | | | | | | | | X | | 0.00 | 0.00 |
| 9 | CRITERIA #9 | | | | | | | | | X | 0.00 | 0.00 |
| | COLUMN TOTALS | 50.00 | 25.40 | 7.40 | 1.80 | 12.20 | 5.90 | 31.20 | 0.00 | 0.00 | 133.90 | 1.00 |

2. Compare the criteria in the first column with the criteria in the first row by selecting appropriate values
3. Enter all the possible solutions in the first column in the following figure.

| | Little to no customization | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | TOTAL | DECIMAL VALUE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | MicroLog | X | 10.00 | 5.00 | 5.00 | | | | | | 20.00 | 0.44 |
| 2 | EMG | 0.10 | X | 10.00 | 5.00 | | | | | | 15.10 | 0.33 |
| 3 | SUN | 0.20 | 0.10 | X | 10.00 | | | | | | 10.30 | 0.22 |
| 4 | NEXID | 0.20 | 0.20 | 0.10 | X | | | | | | 0.50 | 0.01 |
| 5 | SELECTION #5 | | | | | X | | | | | 0.00 | 0.00 |
| 6 | SELECTION #6 | | | | | | X | | | | 0.00 | 0.00 |
| 7 | SELECTION #7 | | | | | | | X | | | 0.00 | 0.00 |
| 8 | SELECTION #8 | | | | | | | | X | | 0.00 | 0.00 |
| 9 | SELECTION #9 | | | | | | | | | X | 0.00 | 0.00 |
| | COLUMN TOTALS | 0.50 | 0.50 | 15.10 | 20.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 45.90 | 1.00 |

4. Again evaluate the different options against each other by entering values as illustrated above.
5. Now results can be obtained by the Summary matrix also the Selection graph displayed on the next page

| SUMMARY MATF | MicroLog | EMG | SUN | NEXID | SELECTION #5 | SELECTION #6 | SELECTION #7 | SELECTION #8 | SELECTION #9 |
|---|---|---|---|---|---|---|---|---|---|
| Little to no customization | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Service costs | 0.04 | 0.02 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Ease of use: administratio | | | | | | | | | |
| Ease of use: user | | | | | | | | | |
| Conforms to open web sta | | | | | | | | | |
| Scalable | | | | | | | | | |
| Directory-based access co | | | | | | | | | |
| CRITERIA #8 | | | | | | | | | |
| CRITERIA #9 | | | | | | | | | |
| | MicroLog | EMG | SUN | NEXID | SELECTION #5 | SELECTION #6 | SELECTION #7 | SELECTION #8 | SELECTION #9 |
| COLUMN SUM | 0.041583989 | 0.021650743 | 0.021610657 | 0.0010396 | 0 | 0 | 0 | 0 | 0 |




**Cost-benefit analysis**- Is simply a process of adding all relevant costs of each possible solution and making a decision based on the solution with the lowest total cost or highest benefit. (Cost Benefit Analysis, 2009). Cost-benefit analysis can be a very effective tool to help managers understand the full extent of the results of each alternative. It will enable the manager to make a better informed decision.

Steps to follow when doing a cost-benefit analysis:

- Identify all possible solutions.
- Describe quantitatively the costs and benefits of the possible solutions
- Asses all the elements by assigning values to each
- Compare the different solutions according to the costs and benefits

**In conclusion**: There are multiple solutions and technologies to select from when reengineering processes and procedures in CC4C. It is important that the right tools will be utilized to eliminate unfeasible solutions to find the optimal solution. The feasibility tools and

Engineering techniques described above will be beneficial in selecting the optimal course of action in the redesign of processes and procedures in CC4C.

# Chapter 3 – As-Is Scenario

## 3.1 As-Is Scenario

### 3.1.1 Understanding the existing processes

When attempting to bring change in an organisation it is important to understand all the current existing processes and procedures. Currently CC4C follows the procedures explained:

1. A leader reaches out to students on campus
2. The student either completes a paper survey or his/her personal information are written down during the conversation by the leader
3. The information is then loaded on Gmail as well as BulkSMS
4. If indicated in the survey the student will be contacted to be assigned to a leader
5. The leader arranges weekly meetings to do the Follow-up process with the student and completes the Follow-up materials
6. Every leader completes a monthly stats form and keeps track of the progress of his/her disciples
7. The student leaders' stats forms are handed over to staff
8. The staff compiles all the statistics for the entire campus
9. The statistic are then loaded on GCX/GMA

It should be noted that all the other ministries within the greater CC4C are also responsible to reach out to people and lead discipleship groups. The groups and statistics are managed in the same way except that all staff members have direct access to GCX/GMA.

A cause and effect diagram was constructed to identify problems and possible areas of change of the above mentioned procedure. To the right of the diagram the problem is identified as the head of the fish. Then possible causes are identified as the 'bones' of the fish with further causes linked to the main causes.

According to Figure 9, the cause and effect diagram on the following page, it is evident that there are great opportunities for improvement at CC4C and many causes that can be addressed. On the contrary, there are other causes that are unavoidable such as time table clashes that can't be changed.

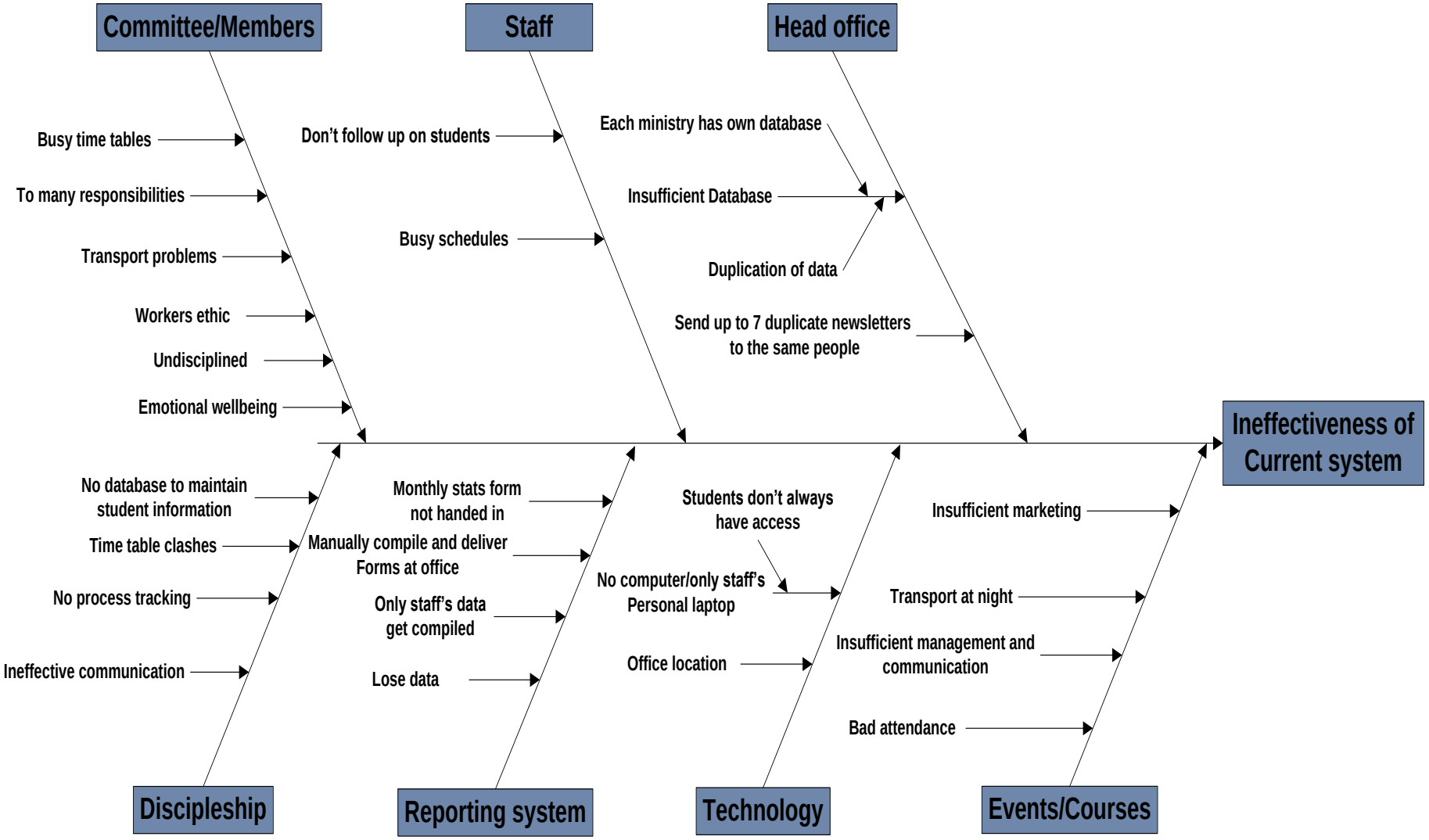



Figure 9 : Cause and effect diagram depicting problems with the current system

### 3.1.2 Modelling current procedures

Before modelling the current procedures in CC4C it is important to understand the model of the reporting structure within the greater organisation.

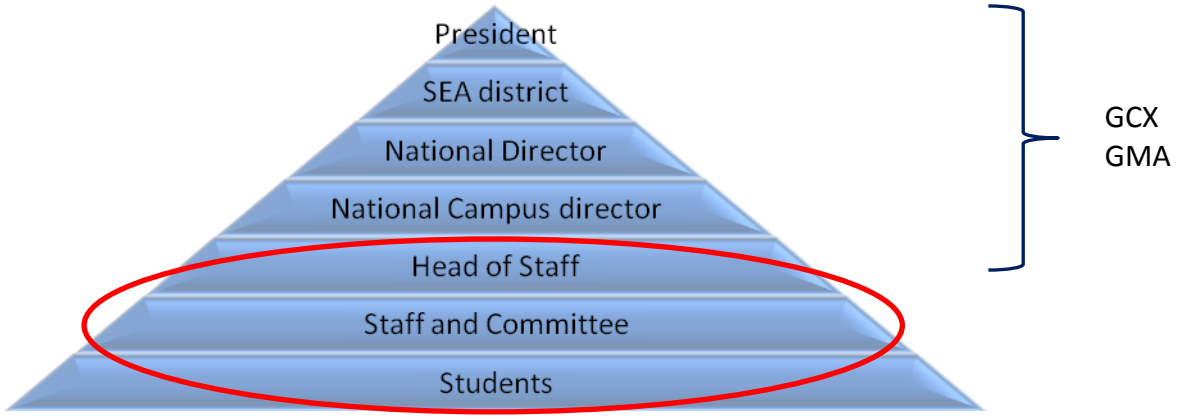



Figure 10 : The reporting structure of the global CC4C organisation

The model above illustrates how the statistics are reported from students up to the president of CC4C in America. The area indicated are the areas where problems were identified. In section 2.1.1 the need for statistics where highlighted and if the information being reported does not represent reality it defies the purpose of value added reporting.

To understand the procedure described in section 3.1.1 an activity diagram is used to illustrate the various actors and the roles they play in the current system.

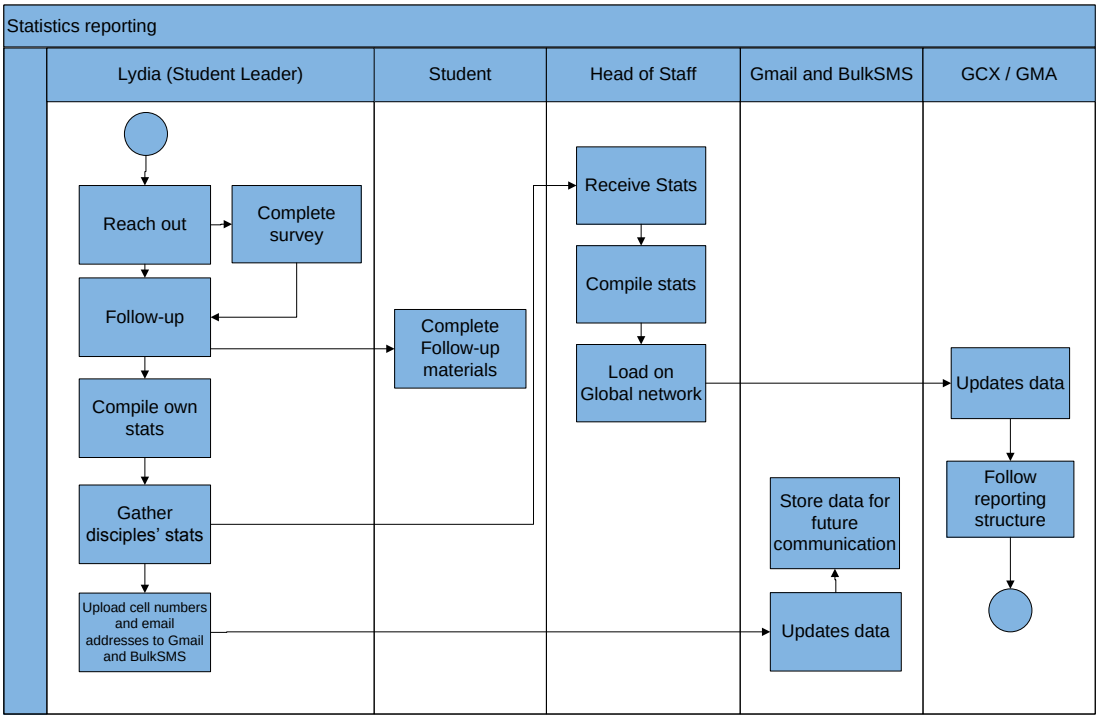



Figure 11 : Activity diagram of current system

From the activity many unnecessary tasks and paper work can be identified. Not included in the activity diagram are the staff members that are also responsible for reaching out and Follow-up. It is noted that both student leaders and staff members are currently performing various tedious tasks which tend to be ignored. They both complete paper based forms and surveys and then manually upload the information to multiple databases.

To further illustrate the current procedure a data flow diagram shows the flow of data throughout the system. Data flows between external actors, data stores and processes are shown.

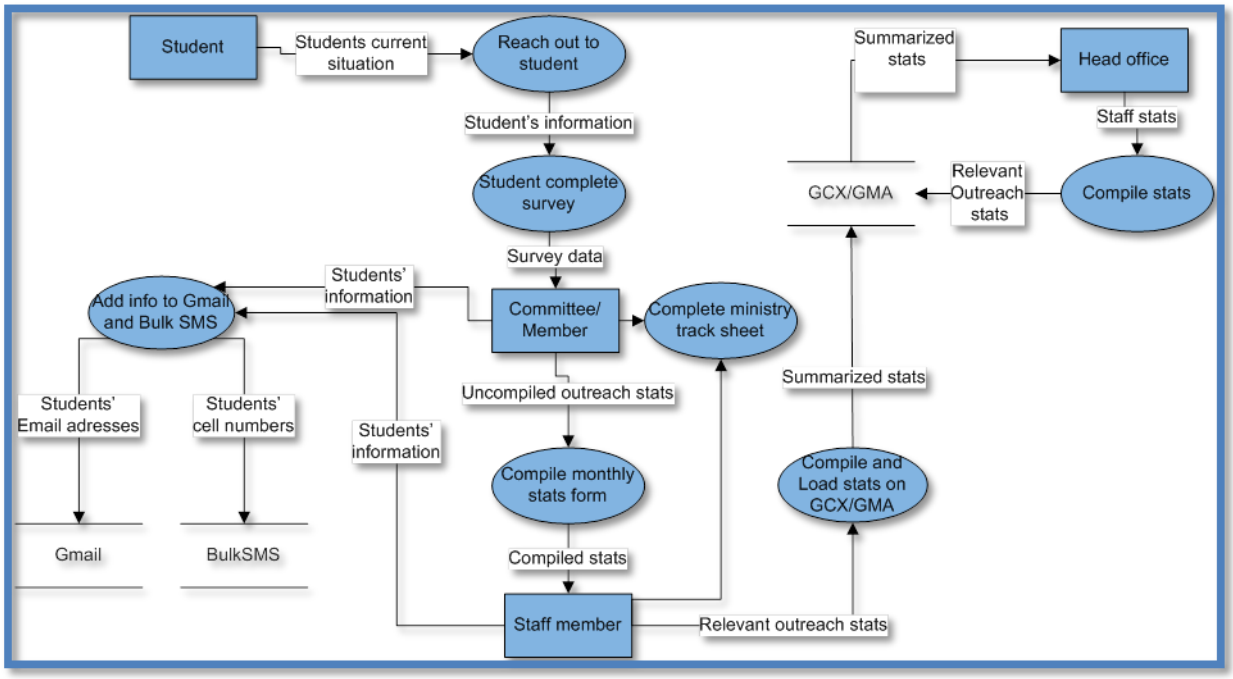



**Figure 12 : Data flow diagram of the current system**

The data that has to flow between student leaders and staff are currently done manually by completing forms and handing it over to be compiled and loaded on GCX/GMA.

Figure 13 on the following page is a Use-Case diagram that shows all the actors and use cases in the current system. Actors and use cases depicted in the Use-Case diagram summarizes how the current system functions.

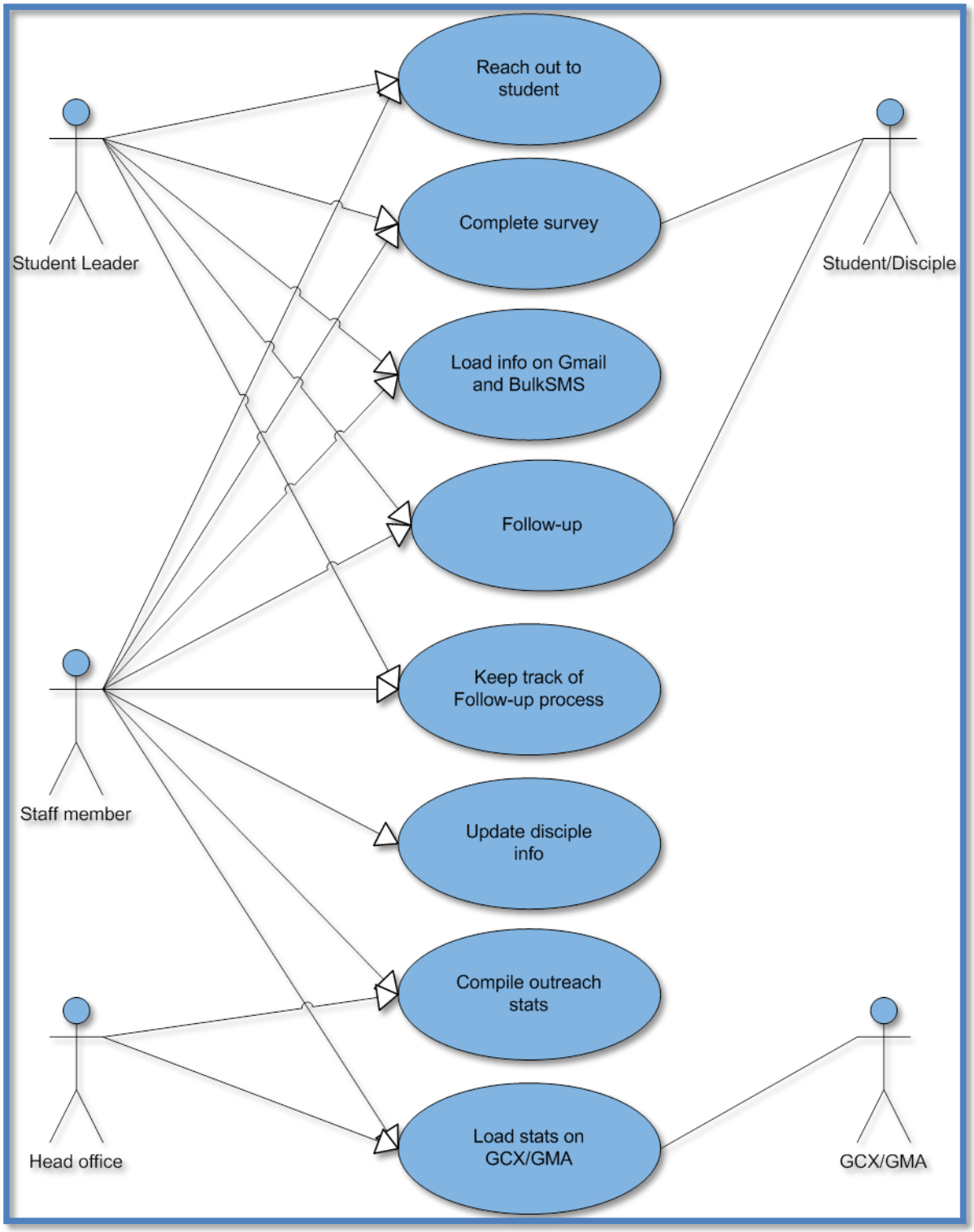



Figure 13 : Use-Case diagram of current system

### 3.1.3 Assessing current documents

An example of the current Monthly stats form (Figure 14) the Ministry Track sheet (Table 1) and an example of the stats loaded on GCX/GMA (Table 2) are displayed below:

| Name: Month: | STAFF | Students you work with: | ALL YOUR DISCIPLES | Students your disciples work with: |
|---|---|---|---|---|
| Pre-evangelism | 0 | | | |
| Exposures | 0 | | 0 | |
| Decisions | 0 | | 0 | |
| Assurance | 0 | | 0 | |
| Shared HSB/ Satisfied | 0 | | 0 | |
| Prayed to be filled | 0 | | 0 | |
| # of students in Follow-up - Growth Group Members | 0 | | 0 | |
| # of Discipleship Groups | 0 | | 0 | |
| # of students in Discipleship groups - Movement Group Members | 0 | | 0 | |
| # of disciples **leading** groups - Movement Group Leaders | 0 | | | |
| # of disciples sharing their faith | 0 | | | |
| # of disciples doing Follow-up | 0 | | | |

Figure 14 : Monthly stats form

# Ministry tracking Sheet

Campus Crusade *for* Christ South Africa

| Name | Surname | Tel Number | Email | Gospel/ date | PRC | ASS | Follow up 1/ Date | Follow up 2/ Date | Follow up 3/ Date | Follow up 4/ Date | Holy Spirit | PFHS | Disc 1 | Disc 2 | Disc 3 | Disc 4 | Disc 5 | Disc 6 | Train | Train |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | | |
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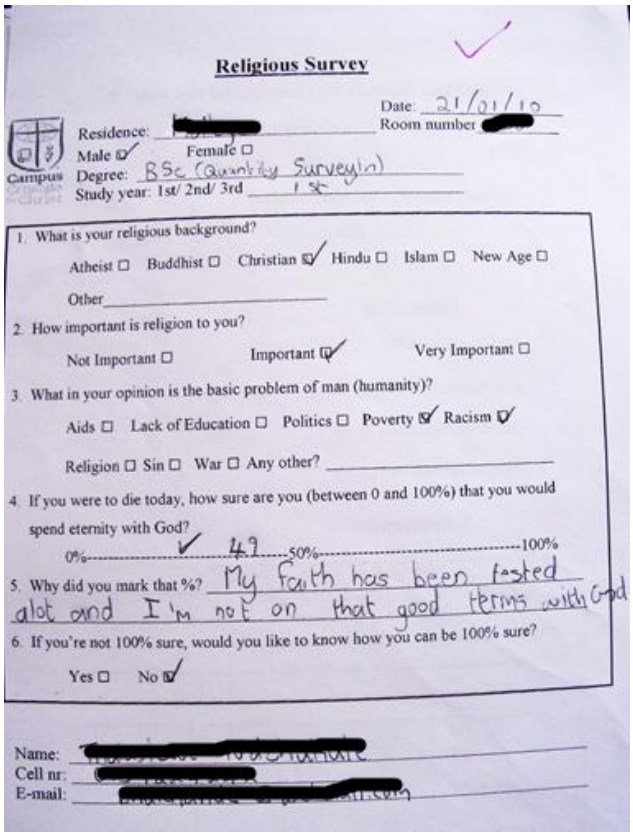
**Table 1 : Ministry track sheet**

| | Apr | May | Jun | Jul | Aug |
|---|---|---|---|---|---|
| | Edit | Edit | Edit | Edit | |
| **Student Led Movements** | | | | | |
| Mass Exposure | 0 | 0 | 0 | 0 | 0 |
| Gospel Conversations | 0 | 0 | 0 | 0 | 0 |
| Gospel Presentations | 0 | 0 | 0 | 0 | 0 |
| Following Up | 0 | 0 | 0 | 0 | 0 |
| HS Presentaions | 0 | 0 | 0 | 0 | 0 |
| Train for Action | 0 | 0 | 0 | 0 | 0 |
| Challenging Lifetime Laborers | 0 | 0 | 0 | 0 | 0 |
| Challenged to Develop Local Resources | 0 | 0 | 0 | 0 | 0 |
| Mass Decisions | 0 | 0 | 0 | 0 | 0 |
| Presentation Decisions | 0 | 0 | 0 | 0 | 0 |
| Engaged Disciples | 0 | 0 | 0 | 0 | 0 |
| Multiplying Disciple | 0 | 0 | 0 | 0 | 0 |
| New Staff | 0 | 0 | 0 | 0 | 0 |
| New Lifetime Laborers | 0 | 0 | 0 | 0 | 0 |
| People Giving Resources | 0 | 0 | 0 | 0 | 0 |
| Number of Movements | 0 | 0 | 0 | 0 | 0 |
| **DMPD** | | | | | |
| No. of PL Sent | 0 | 0 | 0 | 0 | 0 |
| No. of New Contacts | 0 | 0 | 0 | 0 | 0 |
| No. of New Min Partners | 0 | 0 | 0 | 0 | 0 |

Table 2 : Monthly stats form on GCX/GMA



**Religious Survey**

Date: 21/01/10
Residence: [redacted] Room number [redacted]
Male ☑ Female ☐
Degree: BSc (Quantity Surveying)
Study year: 1st/ 2nd/ 3rd 1st

1. What is your religious background?
   Atheist ☐ Buddhist ☐ Christian ☑ Hindu ☐ Islam ☐ New Age ☐
   Other
2. How important is religion to you?
   Not Important ☐ Important ☑ Very Important ☐
3. What in your opinion is the basic problem of man (humanity)?
   Aids ☐ Lack of Education ☐ Politics ☐ Poverty ☑ Racism ☑
   Religion ☐ Sin ☐ War ☐ Any other?
4. If you were to die today, how sure are you (between 0 and 100%) that you would spend eternity with God?
   0%----✓ 47----50%----100%
5. Why did you mark that %? My faith has been tested alot and I'm not on that good terms with God
6. If you're not 100% sure, would you like to know how you can be 100% sure?
   Yes ☐ No ☑

Name: [redacted]
Cell nr: [redacted]
E-mail: [redacted]

Figure 15 : Example of paper survey

**Observations on the forms:**

The ministry tracking sheet is out dated to a great extent. CC4C is currently using other follow-up and discipleship material than what is listed on the form.

CC4C is also busy enabling and training the students to do presentations and teachings at mass meetings. In this case it would be necessary to reconsider the monthly stats form to also accommodate aspects such as Holy Spirit presentations also included in the Monthly stats table on the GCX/GMA network.

The current Monthly stats form requires of student leaders to complete a section for both their disciples and themselves. This duplicates work due to the fact that disciples should also complete a Monthly stats form.

### 3.1.4 Cost analysis of current system

Number of students and staff on campus = 5 staff + 116 students= 121

In the current system the only yearly costs applicable to this project is listed in the table below:

| Description | Price | Amount | Total |
|---|---|---|---|
| Printing of Monthly stats forms and Ministry track sheet for 121 people | 25 cents per page | 2500 | R625 |
| BulkSMS costs (1000SMS'e @ R399) | 40 cents per sms | 8000 | R3200 |
| Internet costs (R99 for 500mb per month) | R99 | 12 months | R1188 |
| **Total** | | | R5013 |

Table 3 : Cost analysis of current system

The price for BulkSMS is investigated and the following was found:

- Currently CC4C purchases 1000 SMS's at R399, 8 times per year (5.4% discount bracket)
- This totals R3200
- They say that they send SMS's sparingly to 'save' money and still run out of SMS's
- The yearly demand is now moved up to 10000 SMS's

The new demand then puts CC4C in the 21.6% discount bracket and allows CC4C to purchase 10000 SMS's at R3306.

# Chapter 4 – Analyses of database tools

## 4.1 Analyses of mobile and computer technologies

Before doing a feasibility analysis the mobile technologies will be discussed at the hand of the following three components (Loudon, 2009)

- The customer interface for data collection that achieves data collection and communication by user interface
- The manner how data input on the mobile device is communicated to a central server for storing and retrieval: the data transfer method
- Server-side components responsible for receiving and managing information by the users

Figure 16 illustrates how the three components relate to each other (Loudon, 2009)

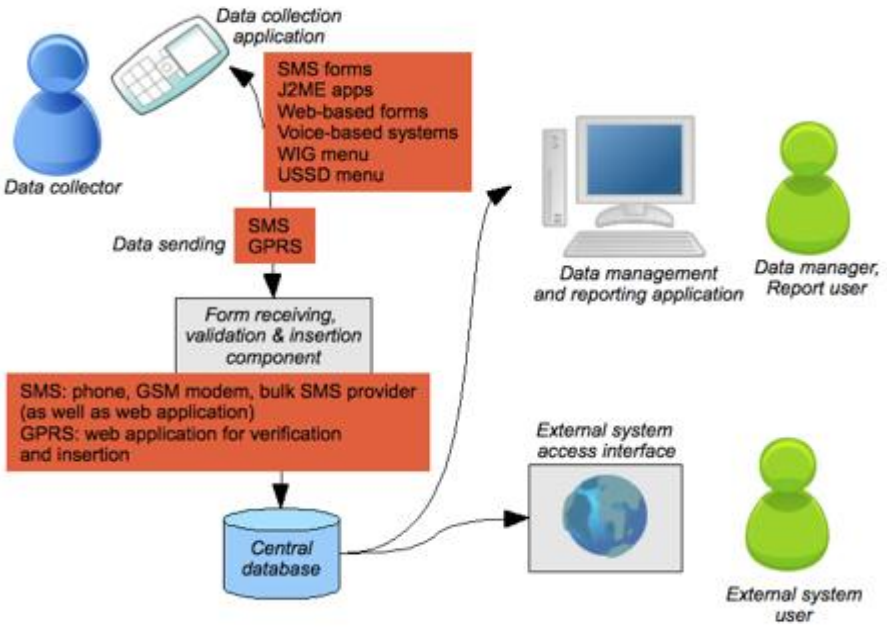



Figure 16 : Data collection via mobile phones

As illustrated in figure 16 the implementation of the USSD or SMS system will require expensive set-up and running costs. There are End-to-End packages such as RapidSMS, FrontlineSMS or Mobile researcher available. This means that everything is included from the client application to the data management interface. There are many other tools that only include client application components such as Java Rosa. In either of the cases a developer is required for the system configuration, data capturing and management interface where the organisation can retrieve the data.

The setup of such a mobile system for CC4C will require a Wireless Application Service Provider (WASP) as well as an organisation that will host the server. Mobi4d is a mobile platform that is able to host the server and also design and manage the SMS/USSD application. A team will be required to design the system.

Considering the cost of only designing the system can be estimated at R 30000:

- Application Design team consisting of two members @ R320/day for 30 days = R19200
- Technician team consisting of two members @ R180/day for 30 days = R10800

Back-end processing, Pilot testing and also monthly running costs will have to be added to the equation. Before adding these additional costs the mobile technologies are already infeasible for CC4C.

Considering the costs and other criteria listed in the table below a feasibility study is conducted to identify the most viable options to be implemented at CC4C. The management of CC4C rated the criteria according to weight of importance. Every option is then rated against each criteria and a total score is calculated.

| Criteria | Weight | USSD | SMS | Dropbox | Zohocreater | GoDoData | Teamdesk | MinistryHub |
|---|---|---|---|---|---|---|---|---|
| **Set up cost** | 10% | 10% Very expensive | 10% Very expensive | 100% Inexpensive | 10% Very expensive | 100% Free | 80% Inexpensive | 100% Free |
| **Running cost** | 30% | 10% Very expensive | 30% Expensive | 50% Moderately | 10% Very expensive | 70% Affordable | 10% Very expensive | 90% Affordable |
| **Infrastructure needed** | 20% | 40% | 30% | 50% | 50% | 60% | 40% | 50% |
| **Ability to satisfy all system requirements** | 20% | 10% Only reporting | 10% Only reporting | 10% Only reporting | 10% Only reporting | 80% Reporting as well as management | 10% Reporting as well as management | 80% Reporting as well as management |
| **Effort to use** | 10% | 40% Not too difficult | 50% Fairly easy | 50% Fairly easy | 30% Complicated system | 50% Fairly easy | 30% Complicated system | 50% Fairly easy |
| **Need for service provider** | 10% | 20% Yes | 20% Yes | 80% No | 80% No | 80% No | 80% No | 80% No |
| **Total** | 100% | 20% | 25% | 50% | 27% | 75% | 32% | 76% |

According to the feasibility study GoDoData and MinistryHub are the most feasible tools for reporting, managing and communication in CC4C.

### 4.1.1 GoDoData as reporting and management system

GoDoData is a fairly new development that is busy expanding their online database application as they expand their client base. They focus on helping non-profit organisations and churches. As they develop a customized database according to the requirements of the organisation they incorporate new techniques and functions into GoDoData. These functions are then available to all the other churches and organisations registered on the GoDoData website.

As seen in the literature study and a meeting held with the GoDoData team it is evident that some new features will have to be incorporated into GoDoData. If this system will be implemented all the requirements will be sent through to the GoDoData development team. Once the expectations are clear they will design a database and CC4C will have a trial period of six months. During the six months students and staff will have full functionality of the system. Students and staff will have to access GoDoData via a mobile device when they are busy doing an outreach and simply add students to the database. The database is linked to BulkSMS for easy communication. The system is not currently linked to an email provider.

Leaders can simply search for the group they want to email, copy and paste the list of email addresses in the 'To' tab in whichever email provider they use.

Advantages:

- There is only a single place where data input is required
- Discipleship tracking is made easy with only updating the personal ministry tracking on the mobile application while meeting with the students
- Monthly statistics reporting sheets will be eliminated. Staff will merely have to generate a report customized for CC4C needs. The stats can be exported to be loaded on GCX/GMA
- Ministry tracking sheets will be eliminated. Student leaders can track the discipleship through GoDoData
- GoDoData develops and manages the entire system at very low costs

Disadvantages:

- The Mobile website currently used is very basic with basic features. It is the process of further development
- The mobile app for smartphones is only being launched next year.
- They do not have a feature for completing online surveys. This means that all surveys being completed on outreaches will still have to be manually added to the database.
- From 0-50 users it is free to use GoDoData. At Tuks alone there are currently 116 students registered at CC4C Tuks. It will also have to be considered that the ministries will be included in the database. Approximately 8000 people are involved with CC4C. The price increases with the size of the organisation.

### 4.1.2 MissionHub as a reporting and management system

As discussed in the literature study, MissionHub is indeed a feasible solution for CC4C. It simplifies the process of collecting data and organising data into a single database. Data collection is done through multiple techniques:

- At mass meetings students can send an SMS to a unique number and receive a link to take surveys through their mobile devices. They log into the survey through their Facebook accounts.
- Students can log in through the survey application loaded on leaders' mobile phones, Ipads or Tablets.

- The database is automatically updated with the contact details. The contact's status is automatically set as 'unassigned'.
- Leaders can also manually add contact details to the database

The contacts that were collected are then distributed amongst the leaders to be followed up. Communication is made easy by being able to SMS or Email selected contacts directly through MissionHub.

Advantages:

- MissionHub is easy to access and easy to use.
- Surveys are easy to use and minimises data input from the leaders
- Information is linked with the contacts Facebook profile and automatically updates personal information
- It is free to use MissionHub no matter how much contacts and users are added to the database. The only costs are the SMS sent via SMS providers such as BulkSMS

Disadvantages:

- The only way to login to MissionHub is with Facebook. There might be students that don't use Facebook.
- Not all Facebook users enter all their personal details on Facebook. In this case leaders will have to manually upload any information that is not in the system.
- Airtime or internet data is required to access the mobile application

# Chapter 5 – Business Process Reengineering

In this chapter BPR will be used as described in section 2.2.2 in the literature review. The following five steps will be followed to identify the most feasible solution and developing an implementation plan for CC4C:

1. Prepare for reengineering,

2. Map and Analyse As-Is process

3. Design To-be process

4. Implement reengineered process

5. Improve continuously.

## 5.1. Prepare for reengineering

### 5.1.1 The need for change

It is important to identify the reasons for change to be implemented at CC4C before commencing with the reengineering process. The following reasons were identified:

- Student-leader outreaches are not being reported on
- The current ‘database’ is not updated
- Reporting to management is not complete
- Students being reached out to, fall through the cracks and are not followed up.
- Communication within the organisation is not very effective

As discussed in section 2.1.1 the importance of reporting is highlighted. If reporting is approached properly and with the right attitude it can be of great benefit for the organisation.

### 5.1.2 Customer expectations

Another aspect to consider is the students' (being reached out to) expectations with regards to the system. From the students' perspective the following problems are experienced:

- The duration of the outreaches are to long/short
- Time table clashes with student leaders meeting with them
- Leaders not making contact with them after an outreach
- Leaders not being God focussed but more task- and statistics-orientated

## 5.2 Map and Analysis As-Is

Chapter 3 is a detailed analysis of this aspect of BPR

## 5.3 Design to-Be process

### 5.3.1 Monthly stats and ministry tracking forms

One of the benefits of implementing either of the tools will be the elimination of the Monthly stats form as well as the Ministry tracking sheet. It is necessary to re-evaluate the contents of each form.

For tracking the Follow-up process the following materials will have to be incorporated in the system:

- Spiritual 4 Laws
- Spirit Filled life
- Satisfied
- Do you want to know God personally?
- Follow 1 – Confidence
- Follow 2 – Acceptance
- Follow 3 – Empowerment
- Follow 4 – Development
- Discovery booklet
- Discipleship booklet
- Action booklet

For the Monthly stats the following criteria should be addressed in the Database:

- Mass exposure
- Gospel presentation
- Gospel conversation
- Following-up
- HS Presentations
- Train for action
- Mass decisions
- Presentation decisions
- Engaged disciples
- Multiplying disciples

### 5.3.2 Modelling To-Be Process

Different modelling techniques are used to get a better understanding of the To-Be Process. This ensures that all the requirements for the system are met.

Activity diagrams for both proposed systems are shown below in Figure 17 and Figure 18:

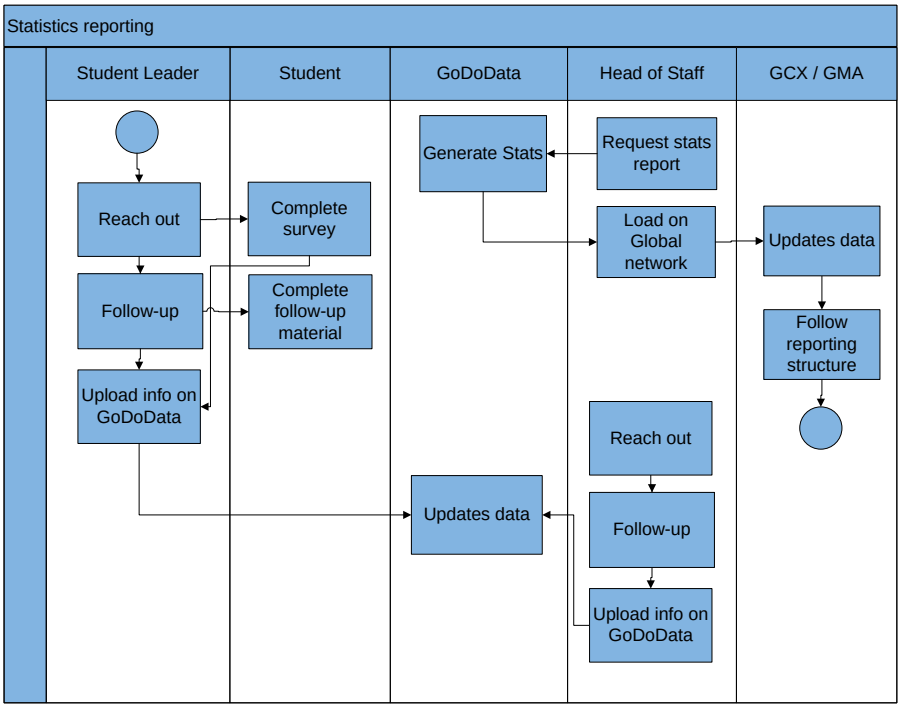



**Figure 17 : Activity diagram of proposed GoDoData system**

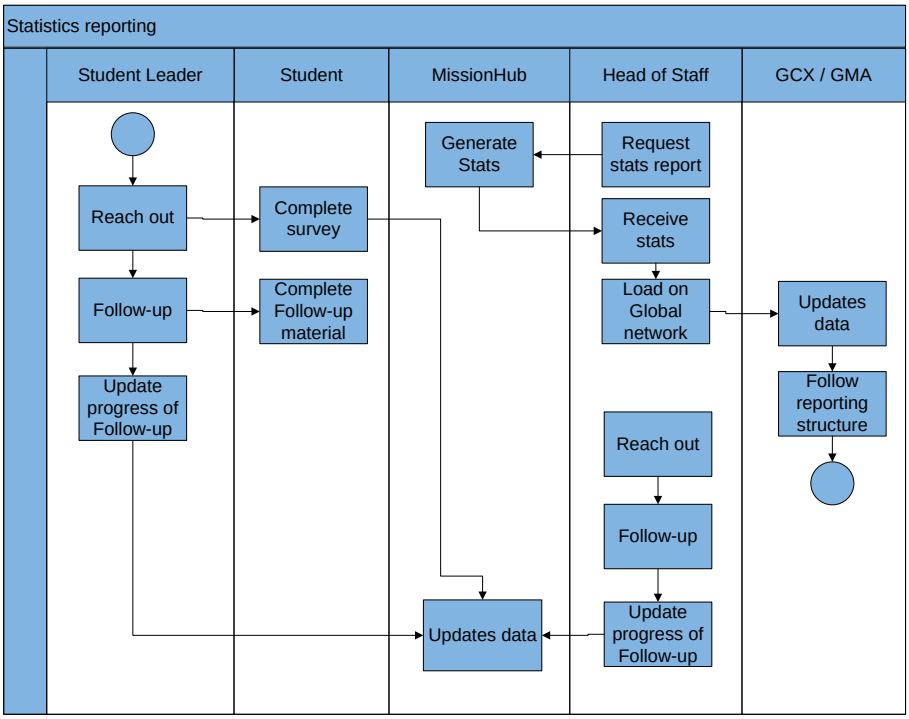



**Figure 18 : Activity diagram of proposed MissionHub System**

To further understand the proposed systems Data flow diagrams are used to illustrate the data flows between external actors, data stores and processes for both systems.

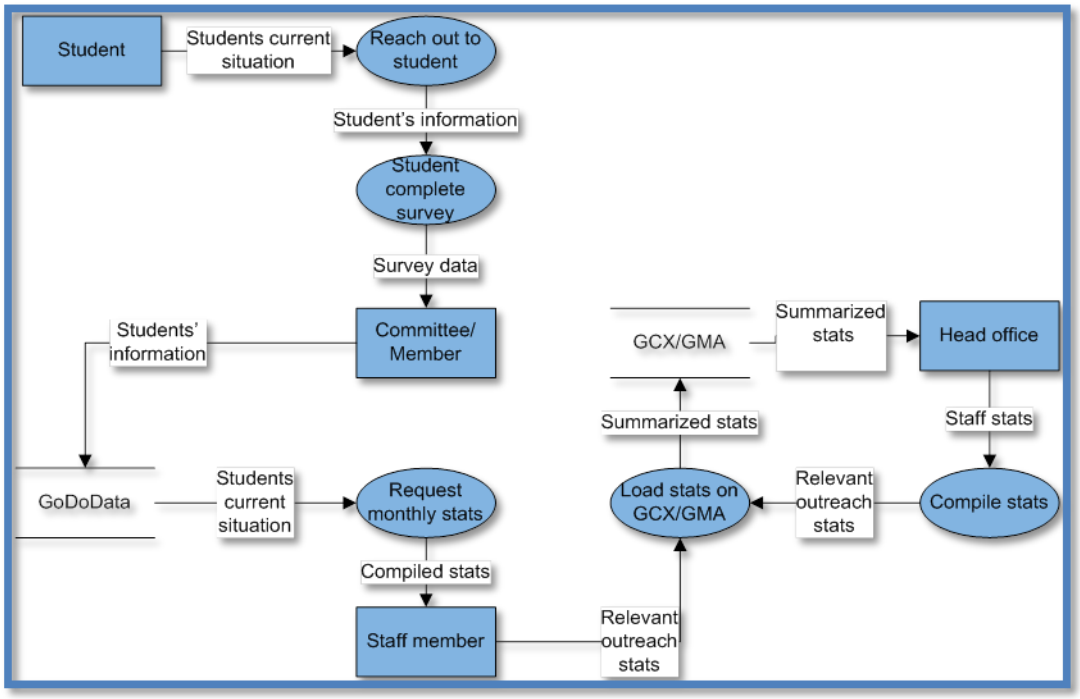



Figure 19 : Data flow diagram of proposed GoDoData system

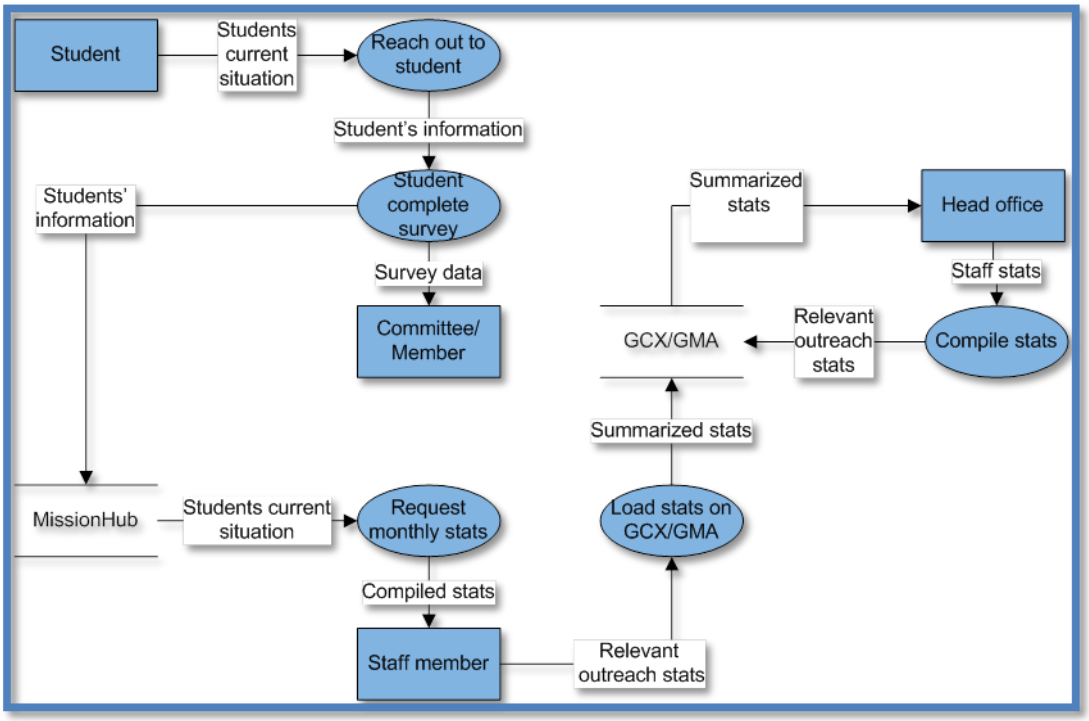



Figure 20 : Data flow diagram of proposed MissionHub system

The following Use-case diagrams show the actors involved with the proposed systems as well as the tasks to be performed.

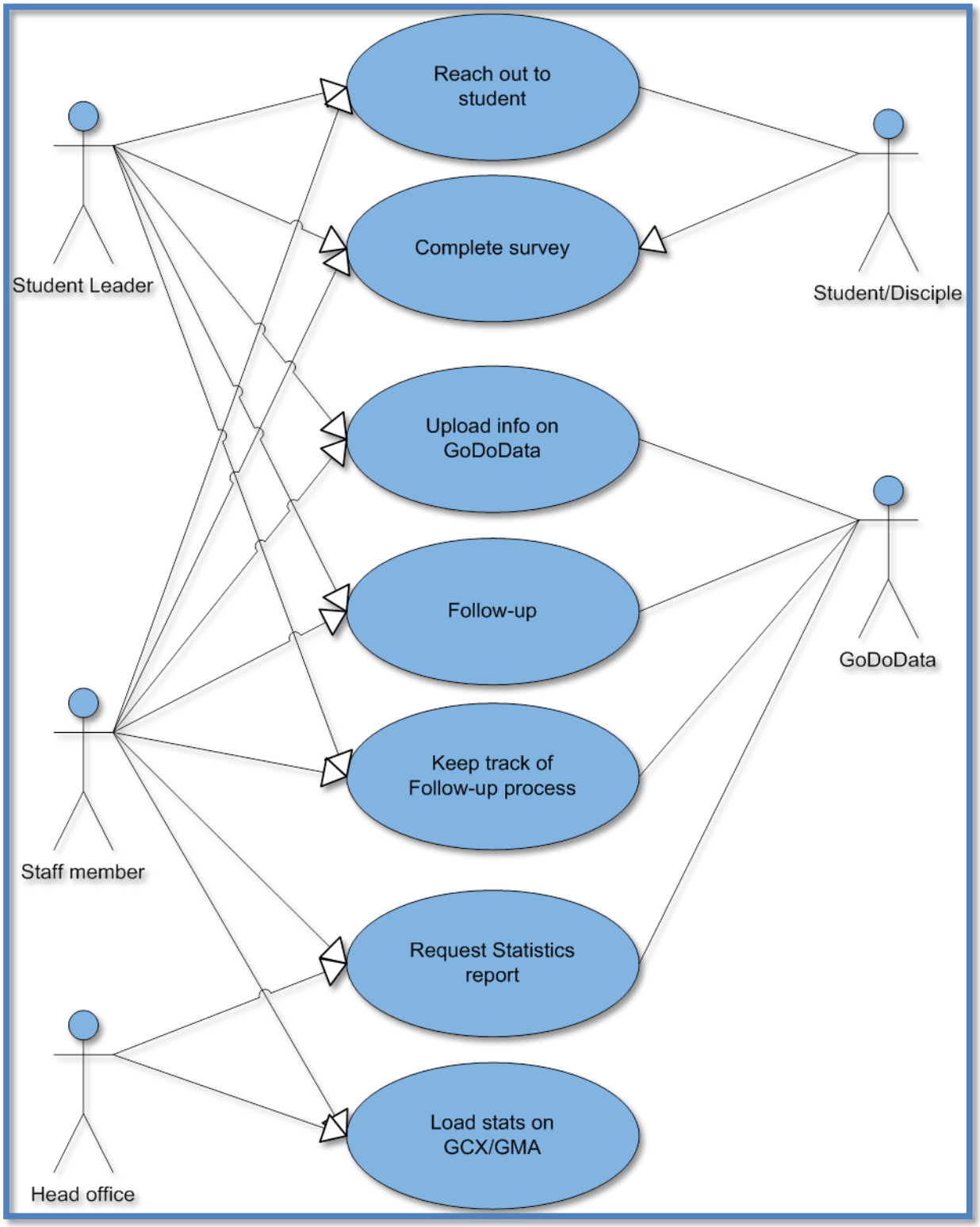



**Figure 21 : Use-case diagram of proposed GoDoData system**

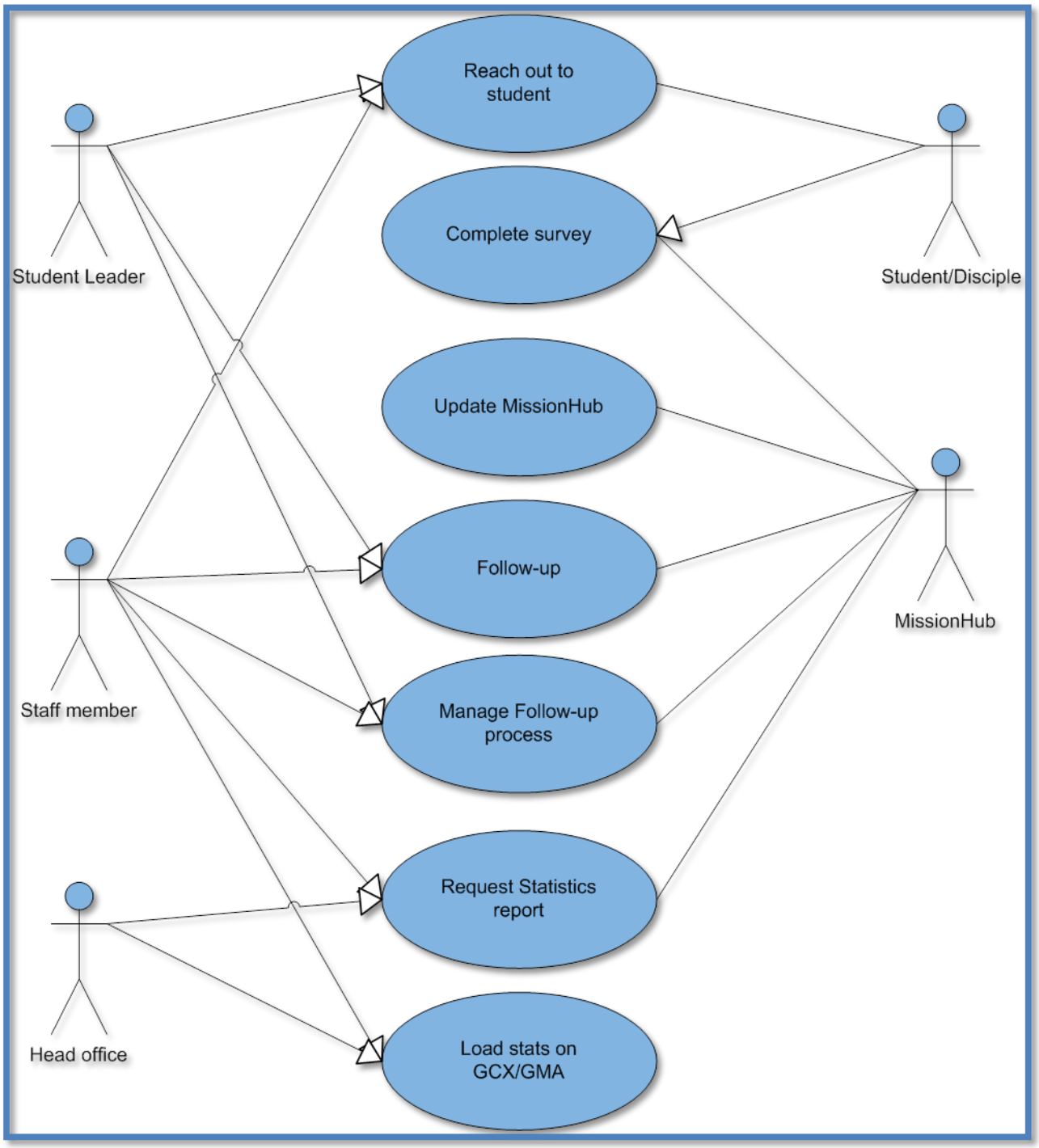



Figure 22 : Use-case diagram of proposed MissionHub system

### 5.3.3 Cost Analysis of alternatives

Before evaluating the alternatives at the hand of the costs it is important to know how many people will be involved with the new database. Fanie at CC4C head offices is responsible to find a database solution that will satisfy the needs of the organisation. According to Fanie the total amount of people involved in the organisation is approximately 8000.

A cost analysis for both proposed systems follow:

**GoDoData:**

As mentioned before GoDoData develops and maintains the entire system. They also incorporate new functions as the needs of an organisation changes. The only costs applicable are monthly running costs and monthly cost of an Ipad or Tablet with Internet. A list of prices for GoDoData follows:

| Size of database | Price |
|---|---|
| 0-50 | Free |
| 50-150 | R300 |
| 150-400 | R500 |
| 400-1000 | R750 |
| 1000-3000 | R1000 |
| >3000 | Contact GoDoData |

A meeting with the GoDoData team explaining the requirements of CC4C was held. GoDoData offered to deliver this system to CC4C at a price of R1000 per month regardless of the size.

A cost analysis of GoDoData:

| Description | Price | Amount | Total |
|---|---|---|---|
| Running cost per year | R1000 per month | 12 | R12000 |
| BulkSMS costs (10000SMS'e @ R3306) | 33 cents per sms | 10000 | R3306 |
| Tablet with 1 GB internet | R249 | 12 months | R2988 |
| | | **Total** | R18294 |

Table 4 : Cost analysis of GoDoData system

**MissionHub:**

MissionHub is a fully functional outreach and follow-up system. They incorporate new features as the development continues. Each organisation customises their fields and features they want to use. After enquiring about the cost to implement this system it was established that there are no monthly running or setup costs. The only cost associated with the system is the use of BulkSMS. It is also suggested that CC4C must utilise an Ipad or Tablet with an internet data bundle. A cost analysis of MissionHub Follows:

| Description | Price | Amount | Total |
|---|---|---|---|
| Running cost per year | R0 per month | 12 | - |
| BulkSMS costs (10000SMS'e @ R3306) | 33 cents per sms | 10000 | R3306 |
| Tablet with 1GB internet | R249 | 12 months | R2988 |
| | | **Total** | R6294 |

Table 5 : Cost analysis of MissionHub

### 5.3.4 Feasibility analysis

Figure 23 illustrates the basic functions of CC4C. In the figure the red represents the functions GoDoData will be able to satisfy and the blue represents MissionHub. The functions not included by GoDoData will have to be accomplished manually by completing forms or surveys and updating the database. It can also be accomplished by using the CC4C tablet and adding each contact one at a time.

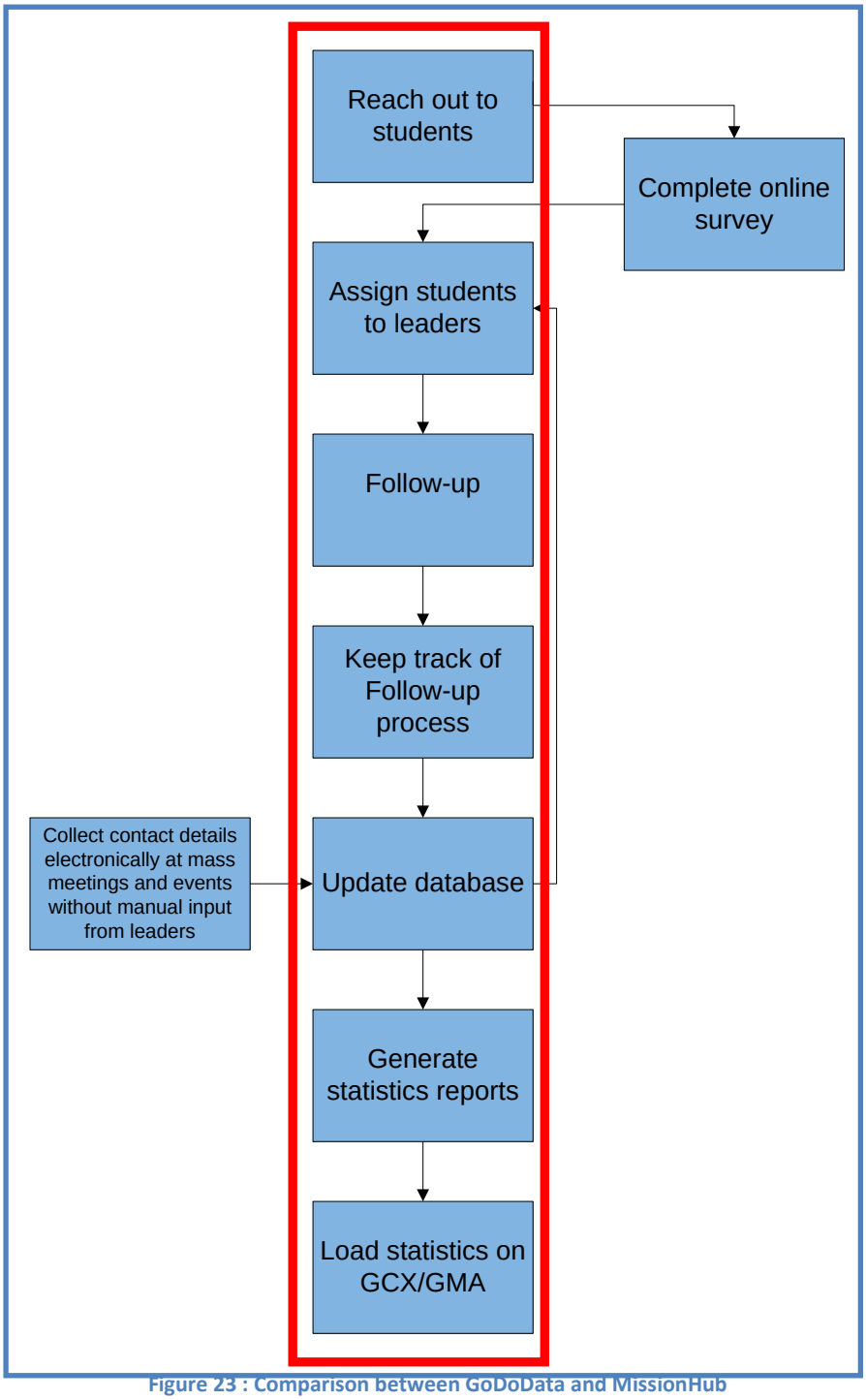



Figure 23 : Comparison between GoDoData and MissionHub

After evaluating both systems a final feasibility analysis selects the most suitable solution for CC4C. The criteria in Table 6 were rated by management of CC4C. The different criteria were then rated for GoDoData and MissionHub and the final score was calculated.

| Criteria | Weight | GoDoData | MissionHub |
|---|---|---|---|
| **Economic feasibility – Running cost/year** | **30%** | **30%<br>R18294** | **70%<br>R6294** |
| **Technical feasibility – Degree of difficulty to implement the system** | **20%** | **40%<br>-Each database will have to be customized for each separate ministry** | **80%<br>-The fields within the database will have to be customized for the separate ministries. (The structure of the database is already in place)** |
| **Operational feasibility<br>Degree of difficulty for leaders to use the system** | **25%** | **80%<br>Fairly easy** | **60%<br>Fairly easy, more training is needed** |
| **Degree of satisfying all ministries needs** | **25%** | **80%<br>Every database will be customized to satisfy each ministry's requirements** | **60%<br>MissionHub has customizability to some extent** |
| **Total** | **100%** | **57%** | **67%** |

Table 6 : Feasibility Analysis Matrix

MissionHub is selected as the final option to be implemented at CC4C. In the following section MissionHub will be explained in further detail. The system will be developed and implementation plan will be devised keeping in mind that training will be required.

### 5.3.5 MissionHub system design

A possible design for the MissionHub system is explained at the hand of the Figures 16, 18 and 20 on pages 40, 41 and 43. This design takes into account the outreach process, the capture and managing of contact information as well as generating several reports. Figure 23 and 24 are step by step guides that explain how leaders will use the Survey and Contacts tool to connect with students and also upload their information on the data base.

Firstly it is important to understand and select the right organisation after accessing the mobile/PC application:

**Figure 24 : Selecting the right organisation in MissionHub**

When logged into the right organisation the system will enable leaders to navigate between the ‘Contacts’ and ‘Surveys’ tool. Figure 25 is a step by step guide to utilize the Survey tool for new contacts to input information.

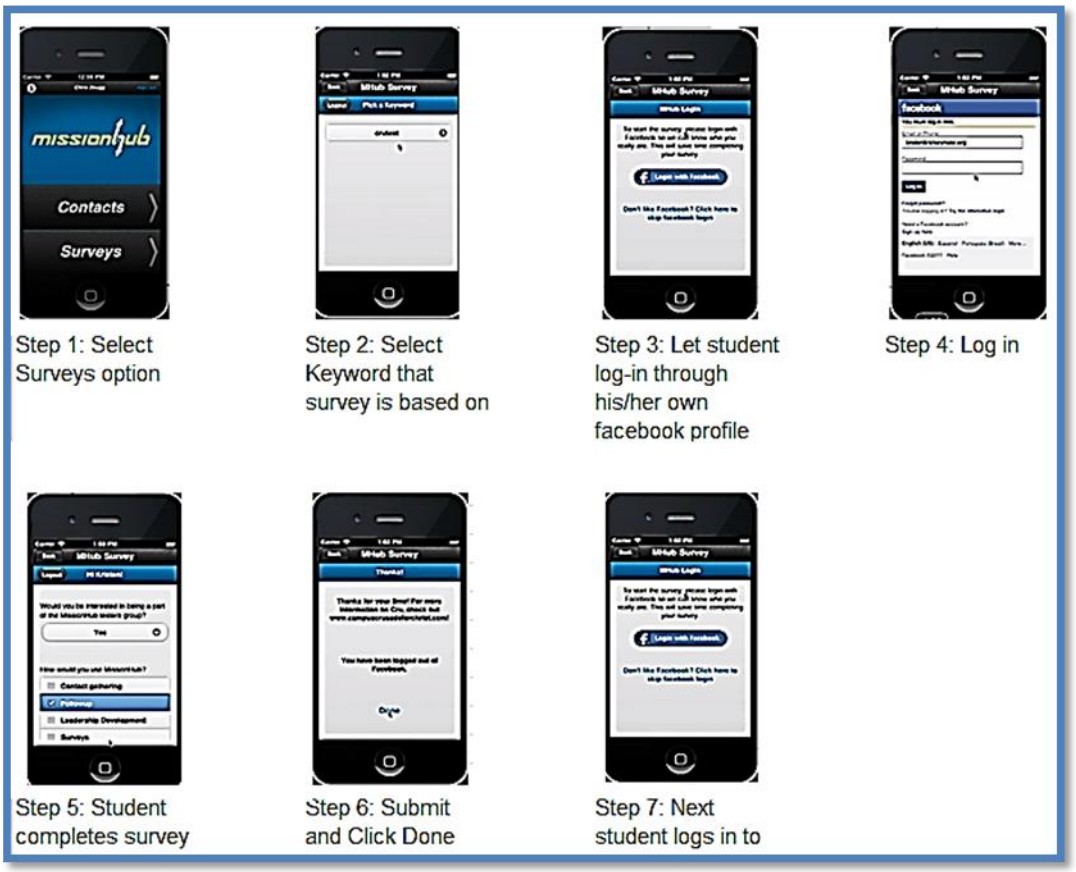



**Figure 25 : Step by step guide for completing surveys**

After a survey is completed the database is automatically updated and refreshes the contact list. Figure 26 is a step by step guide to managing contacts within MissionHub:

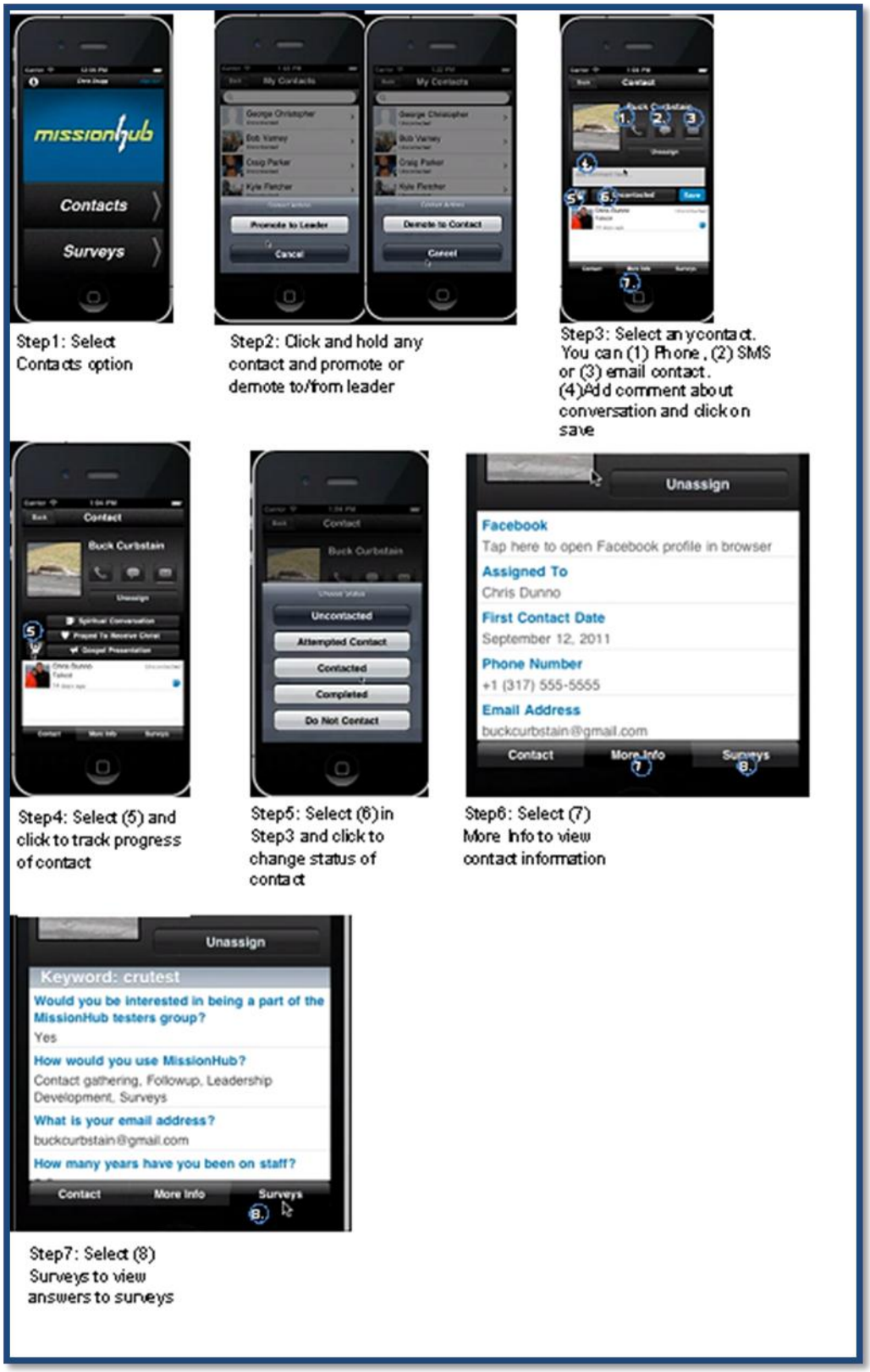



Figure 26 : Step by step guide to manage contacts

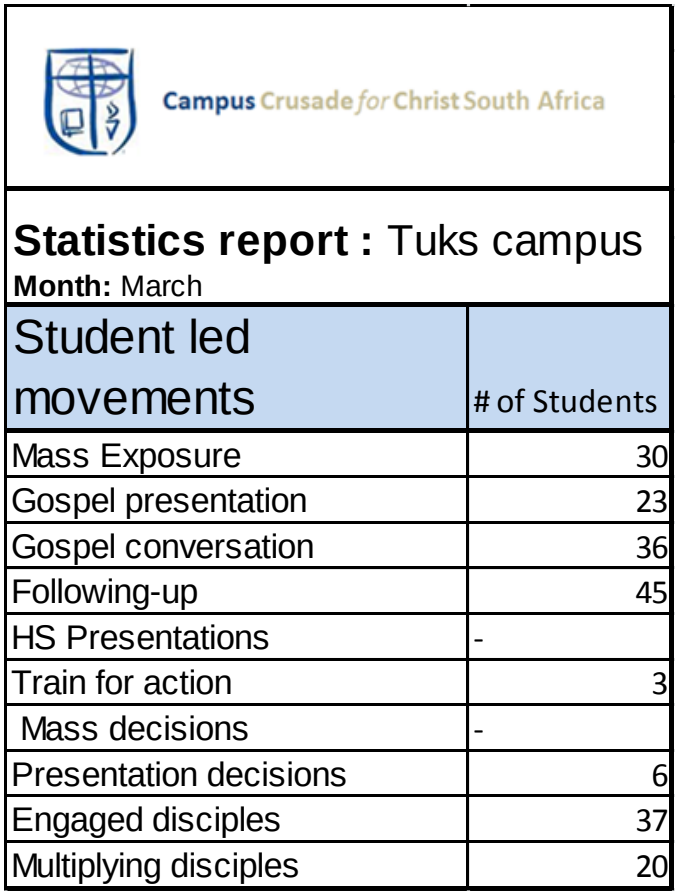
### 5.3.6 Designing reports from the system

**Types of reports to be generated:**

- A ‘Statistics Report’ that the staff members can generate each month to upload monthly stats on GCX/GMA
- A ‘Leader Ministry Tracking Report’ that enables leaders to track all the disciples they are currently meeting with. This will aid in planning and preparing for the next meeting the leader has with a disciple
- ‘Discipleship Tree’ Reports that enables leaders to get a better understanding of the campus movement. It displays ‘generations’ of disciples.
- ‘Events lists’ to control who indicated that they will attend.

**Possible report designs:**

The following figures are only examples of possible reports that can be incorporated in the MissionHub system.



Campus Crusade for Christ South Africa

**Statistics report :** Tuks campus
**Month:** March

| Student led movements | # of Students |
|---|---|
| Mass Exposure | 30 |
| Gospel presentation | 23 |
| Gospel conversation | 36 |
| Following-up | 45 |
| HS Presentations | - |
| Train for action | 3 |
| Mass decisions | - |
| Presentation decisions | 6 |
| Engaged disciples | 37 |
| Multiplying disciples | 20 |

Figure 27 : Example of a Statistics report

## Ministry tracking Report

**Leader**: Jolanthe Klingenberg

Campus Crusade for Christ South Africa

| Name | Surname | Tel Number | Email | Gospel/ date | Prayed to receive Christ | Spiritual 4 laws | Satisfied | Know God personally? | Follow up 1/ Date | Follow up 2/ Date | Follow up 3/ Date | Follow up 4/ Date | Prayed FHS | Disc booklet | Discipleship booklet | Action booklet |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Anke | Olivier | 0734312344 | ank@gmail.com | 16-02-2012 | X | X | X | X | 15-04-2012 | 22-04-2012 | 29-04-2012 | | | | | |
| Su-anrie | Marais | 0823452345 | suzi@vodamail.com | 16-02-2012 | X | X | X | | 15-04-2012 | 22-04-2012 | 29-04-2012 | 06-05-2012 | | | | |
| Alida | Theron | 0822438484 | liditheron@gmail.com | 18-02-2012 | X | X | X | X | 15-04-2012 | 22-04-2012 | 29-04-2012 | 06-05-2012 | | | | |
| Erica | Theron | 0724893412 | erg@yahoo.co.za | 25-02-2012 | X | X | X | | 14-03-2012 | 20-03-2012 | 27-03-2012 | 31-03-2012 | X | X | X | X |

Figure 28 : Example of a Ministry Tracking Report

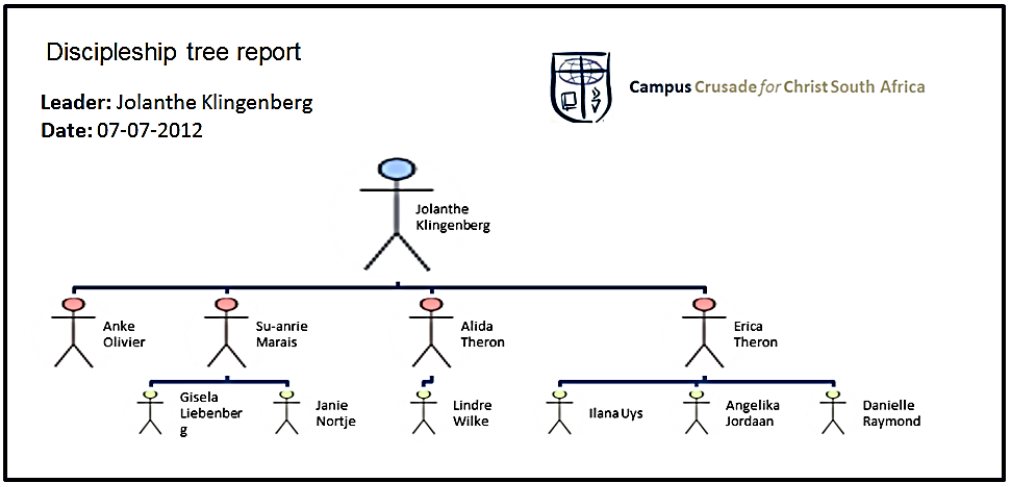



Figure 29 : Example of a Discipleship tree report

## Events List : Upper Room

Date: 16-05-2012

**Total Attending: 10**

Campus Crusade for Christ South Africa

| Surname | Name | Attendance | Comments |
|---|---|---|---|
| Klingenberg | Jolanthe | | |
| Marais | Su-anrie | | |
| Theron | Alida | | |
| Fourie | Jacques | | |
| Mbasa | Nkosi | | |
| Mathis | Judy | | |
| Van Rensburg | Charl | | |
| Van Rensburg | Jeanine | | |
| Van Vuuren | Lucas | | |
| Klingenberg | Gisela | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Figure 30 : Example of an Events List

## 5.4 Implement Reengineered system

### 5.4.1 Evolve an implementation plan

To successfully transition between the As-Is and the To-Be processes an implementation plan is used. The plan consists of various tasks to be performed and the people responsible to complete the tasks. Completion dates were allocated to each task to ensure the system will be fully functional in January 2013.

The proposed system is currently being implemented in CC4C on all the university campuses in South Africa. They require that the system must be fully functional before the beginning of the 2013 academic year.

| Task (what?) | Responsible (who?) | Deliverable | Completion date (when?) |
|---|---|---|---|
| **Register as organisation on MissionHub** | National Director | Permission to continue development | 1 September 2012 |
| **Register as sub-organisations** | Head of each ministry | Permission to continue development | 2 September 2012 |
| **Use follow-up material and statistic reporting criteria to customize system** | Design team (MissionHub) | A functional system | 25 September 2012 |
| **Test system and surveys** | Design team (MissionHub) | Surveys can be used to update data | 5 November 2012 |
| **Register all Leaders** | Jolanthe and Head of staff | All leaders able to use MissionHub | 7 November 2012 |
| **Import existing contact information** | Jolanthe and Chair person | Updated database | 9 November 2012 |
| **Train Leaders** | Jolanthe | Leaders are able to use system | 10 November 2012 |
| **Pilot testing** | Design team and CC4C leaders | An operational system | 15 November 2012 |
| **Refine the system** | Design team | A fully functional system | 20 November 2012 |
| **Train all users** | Leaders | All users able to use the system | 25 November – 5 December 2012 |
| **Start using the system** | CC4C | A fully functional system | January 2013 |

Table 7 : Implementation plan

### 5.4.2 Testing the system

The system is already fully functional on the New Zealand campuses. For this system the testing will be done in two phases to ensure that MissionHub is customised according to CC4C's requirements.

The first test will happen after the MissionHub Design Team customised the database correctly. The survey tool will be tested to evaluate the functionality with the technologies used in CC4C South Africa and also to see whether the information from the survey updates the database.

Finally the system will be tested as a whole. With the leaders already being trained they will help to test the functions of managing contacts and creating surveys. All the current contact information will be imported in the system. This will enable the generation of reports. After this testing phase the system will be refined.

### 5.4.3 Training for MissionHub

Training will be required for users to be able to utilise all functions in MissionHub. The figures in section 5.3.1 can be used as training manuals. These figures can also be printed and be put up at the offices. More detailed User guides will be developed together with management. Dates are allocated for training in the implementation plan. In October the leaders will be trained by the Campus Director and me. The system will be modelled and the leaders will be able to test the system by using CC4C's Tablet and their mobile devices.

The next training will be done by all leaders. Involving the leaders will help them to understand the system better and also give them a sense of responsibility towards the system.

## 5.5 Improve continuously

In order to ensure that the system will satisfy the ever changing needs of an organisation, continuous improvement and development is extremely important. Not only do the needs of an organisation change but also new technologies are developed. The CC4C MissionHub system will have to be monitored and updated when needed.

New functions may be incorporated to keep on simplifying all the admin to enable CC4C to focus more on the mission and vision God gave them.

There are different aspects that can be considered:

- The system will be monitored according to how satisfied all the users are
- Does the outputs of the system still satisfy the needs of the organisation
- The system has to be moulded to fit the cultural aspect of new students coming and old students graduating
- The data must stay updated as old students graduate and gets involved with other ministries

## Conclusion

In conclusion the project focussed on exploring the feasibility of implementing a reporting system by means of different data collection technologies. Tools for data management and discipleship tracking were also explored. Using various modelling techniques and feasibility analysis tools different possible solutions were evaluated and compared. GoDoData and MissionHub were found to be the most feasible solutions. Further in depth studies were done on both solutions to finally establish that MinistryHub will satisfy most of the system requirements at lowest cost. MissionHub enables CC4C to input data by using an online survey tool and then following the contact up. Tracking the progress of the contact is also possible through MissionHub. Finally MissionHub enables CC4C to do effective reporting on statistics and helps with better decision making in the future.

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