TDT4900

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March 31, 2014

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Abstract

Chapter 1

Introduction

1.1 Philosophy

I will try to take on both an interpretive and a positivist view of my research. The reason I do this is that I believe that one does not exists without the other. No one really have a shared reality, and is never completely different. The positive researcher will concentrate on the shared knowledge in a community, while the interpretive will try to harmonize the different realities. The users of the knowledge I am trying to create are the academics, focused in the field of Information Systems and Computer Science. The quality of this research is of course, only evaluated by the reader.

1.2 Purpose

My reason for doing this is divided. Firstly, I am a student using research to add to my own knowledge in the field of computers in order to being able to offer a better service in the computer industry. Secondly, I am trying to add to the body of knowledge in the academic literature. Starting this research project, I have privilege to know the organization HISP. Through HISP I've been participating in the configuration and implementation of a open source software called DHIS2 in Rwanda. After a quick analysis of the requirements I took notice that the software in question should indeed be able to offer solutions to each one of them. So why is it that it is not currently doing so? So this is my purpose, to find out why a software that to me seems to support all the necessary requirements is not doing so.

1.3 Products of this research

By participating in the configuration and implementation of DHIS2 as an intern at the MSH, one of the products of this research will be a working computer application. The other part is an in-depth study of this process. Hopefully contributing to the collection of data existing on the topic of ICT's in developing countries.

1.4 Research Questions

Suggestions

1. Hva gjør det vanskelig for en bruker å benytte seg av IKT som verktøy?

2. Hva er grunnen til at en bruker, i ett land med begrensede ressurser, ikke får utnyttet IKT verktøy maksimalt?

3. Hvilke hinder er det som står imellom bruker og IKT som verktøy i et land med begrensede ressurser og i en helse-setting?

4. Hva karakteriserer utfordringen, "å ta ibruk IKT-verktøy" i helse-sektoren i et land med begrensede ressurser?

5. I denne oppgaven, hvordan skal jeg vinkle målet med IT (Tar gjerne imot forslag)?

   (a) Få slutt på fattigdom?

   (b) Øke livskvaliteten til folket?

   (c) Mer kontroll til staten?

   (d) Øke kunnskapsbasen om informasjons systemer?

   (e) Ved bruk av IT, kan en bruke begrensede ressurser mer effektivt?

Part I

Literature Review

Chapter 2

Information and Communication Technologies for Developing Countries

2.1 In General

No correlation with productivity [4]

2.1.1 Objective

Productivity

Allocation of resources

Decision making

> Lack of literature in general: Until very recently, the entire literature on IS and developing countries would struggle to ll a single bookshelf. The attention of writers—from researchers to consultants to journalists—has been focused elsewhere.[4]

> Lack of evaluation: Those who have the will to evaluate—such as academics—often lack the resources and capacity. Those who have the resources—such as aid donor agencies—often lack the will to evaluate.[4]

Focus on case studies: The literature on IS in DCs has grown, but it is a literature dominated by case studies of individual IS projects. Taken alone, these provide no basis for estimation of overall failure/success rates.[4]

2.2 Discourses

Chrisanthi [2] points out three main branches that characterizes implementation of information systems in developing countries.

2.2.1 Diffusion

Just move the technology and understanding to a new place. Usually from I-countries to D-countries.Usually a mismatch between actuality and design.

2.2.2 Transformative

Transforming the organization to operate in a new way with the technology. (My understanding should be confirmed.) Working towards a design while facilitating the design-actuality gap. The whole is seen as a process with a starting point and an end point.

2.2.3 Socially Embedded

Building the competence and technology from the ground up by including locals. User participation. Making the design and actuality gap smaller.

Diffusion and transformative development does not facilitate the already existing structures of the context the technology will be placed within. The implementation of information systems from this perspective requires the environment and the people in it to adapt to the new technology. This will in turn increase

the risk of the information system being rejected by the users. On the other hand, the socially embedded path will to some extent safeguard the underlying social structures by building upon what is already there. This might lead to unexpected results and be time consuming. Although, probably avoiding the sustainability pitfall.

2.3 Pitfalls in introducing IS in Developing Countries

2.3.1 Scalability

The problem of moving expertise and system to new locations with the lessons learned. By conceptualize the use of ICT's one can make it easier to transfer ICT's to other locations, making it scalable.[5].

2.3.2 Sustainability

What happens when the AID funded projects stops being funded? The donors are interested in sustainable solutions that keep existing after the investment. How does one maintain a project that is built on temporary donors. Unfortunately many IS projects are drained from resources [2]. Here should it be mentioned something about political commitment [5].

2.3.3 Assimilation In Dysfunctional Organizational Processes

One has to take into account that an already broken system can't be fixed by speeding it up. Automating a process that already does not produce the right result would only give us more of the result we are trying to change [3].
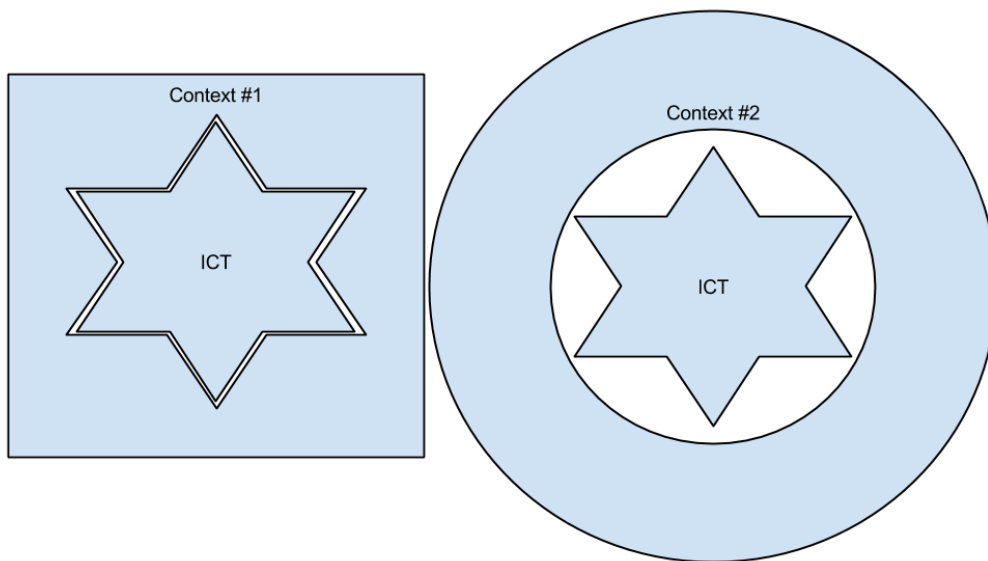
Figure 2.1: If it works for us it will work for you!

2.3.4 Lack of persistence on key areas

2.4 Updated Information

2.5 The design and actuality gap

2.6 Success or Failure

2.7 Success stories

2.7.1 short examples

2.8 Failure stories

2.8.1 short examples

2.9 Evidence base

Health information systems in South Africa: Braa and Hedberg (2002) reported widespread partial fail-
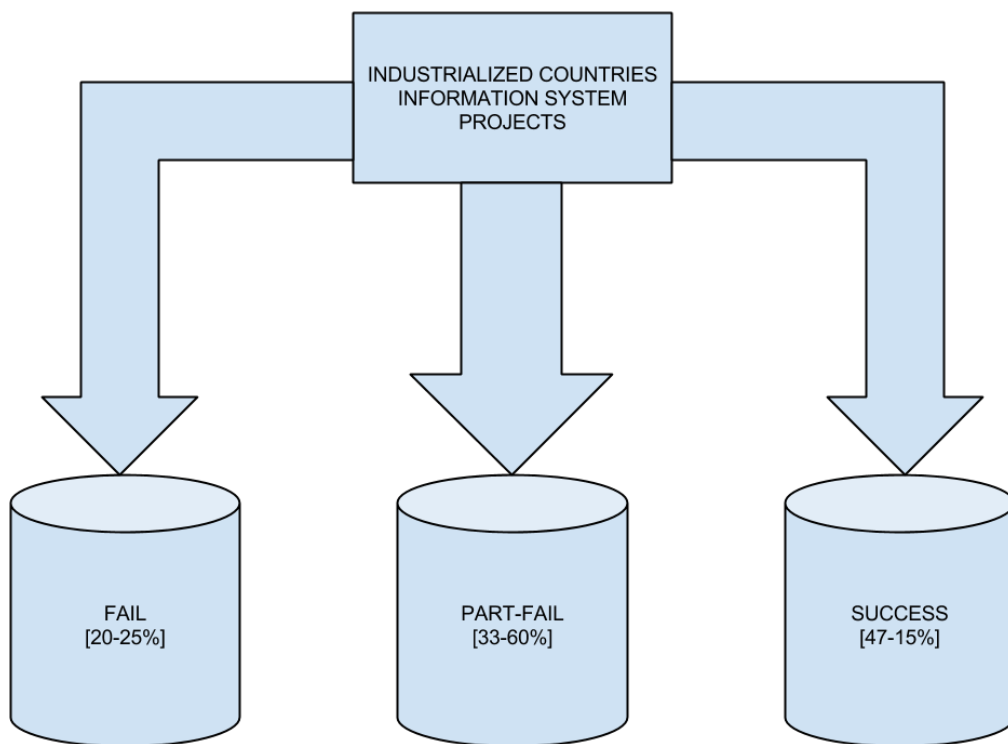
Figure 2.2: IS projects in Industrialized Countries. Year: 1995-2000 [4]

ure of high cost systems with little use of data.[4]

IS in the Thai public sector: Kitiyadisai (2000) reported "failure cases seem to be the norm in Thailand at all governmental levels."[4]

Donor-funded IT projects in China: Baark and Heeks (1999) reported that all were found to be partial failures.[4]

World Bank-funded IT projects in Africa: Moussa and Schware (1992) reported almost all as partial— often sustainability—failures.[4]

2.10   Digital Divide

2.11   Implicit and explicit components of Design

The explicit components of a computer application is the physical components the user would need in order to use the application. Examples include cost, computer hardware, operating system, monitor and such. The implicit ones are a little harder to quantify. These include knowledge, expectations and skill. When addressing the implicit, how would one go about evaluating if the user is qualified to use the application as intended and ensure that it is used for the proper intentions?

2.12   Outsourcing

IS has the potential of being more than just a tool for making processes better, more efficient etc. With enough knowledge a country may provide a service in the form of providing ICT solutions and support. Rwanda being a good example. Knowledge

is key, it requires little more than effort and some hardware, making it possible for countries with little natural resources to have the opportunity to contribute to the global market. India is currently being a great example of this.

2.13   Education and IS development

2.14   Untapped Marked

From a certain perspective one can see the developing countries as an untapped marked. By building up the countries infrastructure one has the opportunity to offer services that previously was not possible. Take Telenor and their agenda to offer insurance and banking services in the east. By building up the infrastructure they can now offer their services as "mobile providers" and even expand their services to banking with a fresh market and less competition.

2.15   IT and Economic Growth

With IT comes the assumption that it will in some way enable economic growth [1]. Although it can be said that highly successful businesses is using IT it would be wrong to say that more IT equals more money. For an example. The simple view of IT being able to enable economic growth is not enough. It can however increase productivity in several ways by automating existing processes, but the potential of IT lies in new ways of structuring organizations. Time and space can be compromised significantly.

In the 1980's there was invested 750 billion $ in IT [1], but this only lead to 0.7% increase in productivity. This was a decrease from the previous decade. There is findings that suggests that

ICT has a positive correlation with productivity. Data from 1983 to 1990 shows this for eleven Asia pacific countries [1]. May be a necessity in order to take part in the global economy and making it possible to trade. IT can also directly affect how organizations structure themselves by introducing new ways of working and increasing productivity. ICT should be used is withing the organization to enable better work processes, not automatize existing processes [3].

2.16   Sustainability[5]

Building networks running on the same concept will make the ICT initiative more sustainable.

User participation is another tool one can use in order to make ICT initiative more sustainable. When the concept is accepted and made by the users they understand how and why it works and are more likely to accept it.

Chapter 3

Electronic Health

3.1 In General

3.2 Updated Information

3.3 Time and space barriers

3.4 Mapping of user needs

3.5 The technology is there, why is it not used?

3.6 How can ICT's help us in the health sector?

3.7 Health personell interviews

3.8 Mobile

Chapter 4

Implementation

4.1 In General

4.2 Updated Information

4.3 Changing Processes

With information technology comes the great advantage of cutting processes to more effective ones. In Michael Hammers article [3] he discusses how information technology can change how people execute their work. The idea is that computers should not automate existing processes, but rather make room for new and more effective ones to rise. Hammer's ideas are of some age, but it still highly relevant. **Some examples here**. Information passed by paper has the disadvantage of being bound by geography making an organization or system slower due to delivery. Information technology can bring an organization together and simulate being on the same place, but still being spread out. This allows for old work processes to be replaced by new ones making the turn-around for each task possibly much faster.

In big organizations the process of swap out old processes can be of very high risk. Change in work processes takes the personnel out of their comfort zones and they have to readjust

to the new environment. The new way of doing things may in a short term perspective seem unproductive.

This calls for leadership with strong vision and determination in order to implement the new processes and reap of the benefits.

4.4 Facilitate the transition

4.5 Over complicating

Chapter 5

Testing

5.1   In General

5.2   Updated Information

5.3   Defining success and failure

5.3.1   Categories

As mentioned by Richard Heeks [4], there are some ways of categorizing success and failure of information systems that I will use.

Total Failure These system is either not implemented at all or implemented and abandoned shortly after.

Partial Failure
- Significant undesirable outcomes.
- Major objectives unattained.
- Sustainability failure.
- Subjective goals unattained.

Success Obtains objectives and no significant undesirable outcomes.

Chapter 6

Use

6.1 In General

6.2 Updated Information

Part II

Empirical

Chapter 7

Method
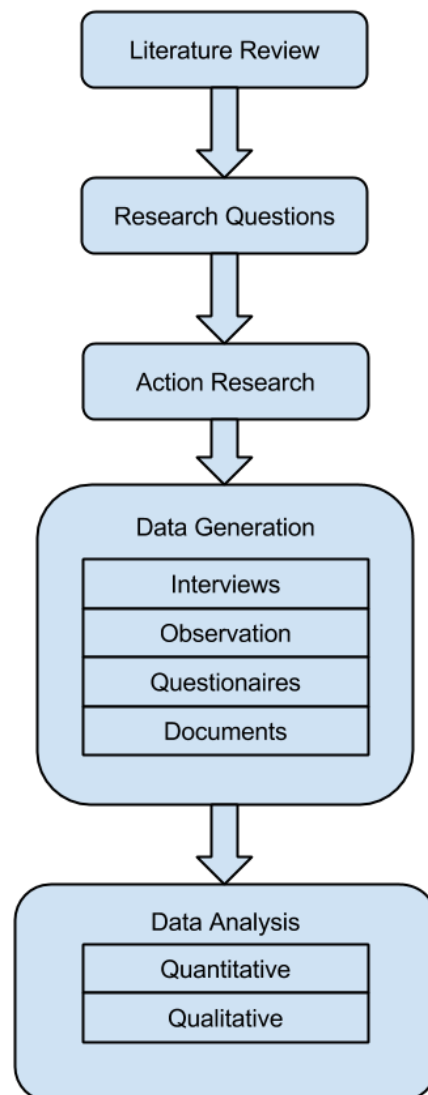
Figure 7.1: Overview of the research process
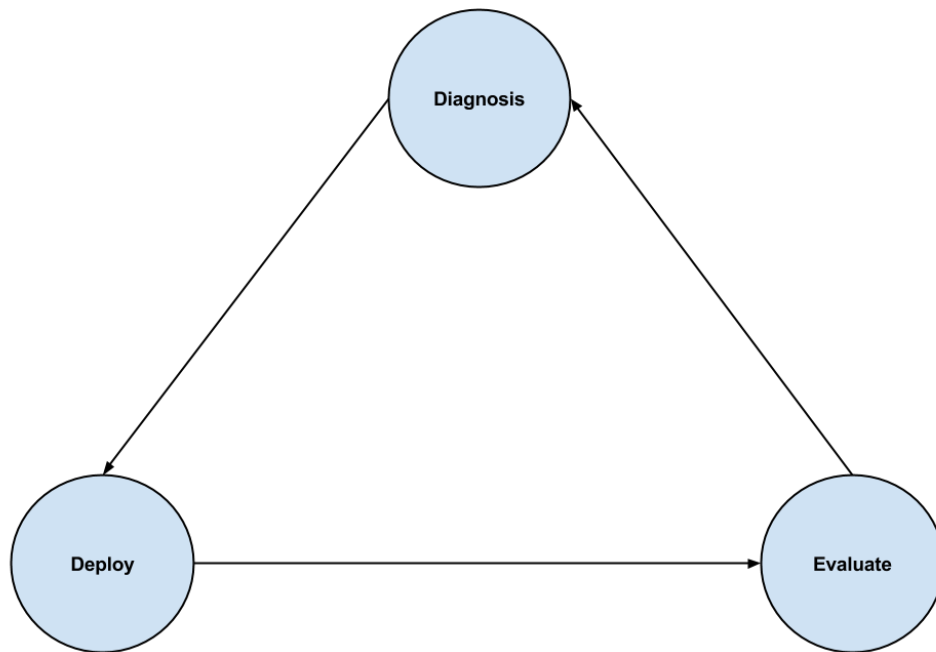
Figure 7.2: Overview of Method

7.1 Strategy

7.1.1 Action Research

7.2 Data Generation

7.2.1 Method Triangulation

Say something about method triangulation here. I hope to use all data generation methods. The positivist will see the truth were all methods imply the same.

7.2.2 Documents

7.2.3 Observations

Training

Requirements description

Developing process

Skill level

- Postgres

- Programming

- Operating system

- DHIS2

Team Coordination

Support

7.2.4 Interviews

7.2.5 Questionnaire

7.3 Data analysis

7.3.1 Quantitative data analysis

Math and logix :)

7.3.2 Qualitative data analysis

Themes and categories.

Chapter 8

Case

Jeg funnet ut at brukere av systemet kan ta feil av 1 og l, og
0(null) og O. Dette er jo selvfølgelig viktig å tenke på når vi
skal lage koder som skal brukes til å rapportere. Dette blir jo en
del av diagnosen. Jeg lærte det av Lars Roland og fikk det litt
bekreftet av Randy.

Videre er det en del basis kunnskap som burde vært på plass
her som ikke vi lærer på skolen heller. Som kommandoer i Linux.
Jeg er klar over at dette ikke har mye fokus blant forskere, men
ting går tregt på grunn av det tror jeg. Forsknings koblingen vil
kanskje gå på å få brukere til å stole på at datamaskinen gjør
det den skal når en skal utføre en operasjon.

8.1   Stakeholders

Part III

Discussion

Part IV

Conclusion

Appendix A

Requirements Document

A.1 The real deal is somewhere else!

A.2 Context

This requirements document is for setting up a environment for a SMS based reporting system with the DHIS2. The system should be able to support these four use cases.

1. The users will be able to receive automated SMS and email notifications based on rules that compare database values.

2. The users will be able to receive an automated reminder if a report is more than 4 days delayed.

3. The users will be provided with a predefined format for reporting.

4. If the user reports values that does not get processed, then he/she will receive a notification of what has happened and directions for necessary steps in order to complete the report.

A.3   Setting up Testing Environment

A.3.1   Testing without phone

Operating System

Tomcat

DHIS2

The hierarchy has to be at a village level. This is the level we want to be reporting on.

Postgres

Dataelements

When creating data elements we store the zero values.

Testing Script

Number Name	
1	Oral Contra
2	Oral Co
3	Oral Cont
4	Oral C
5	
6	
7	Inject
8	Inj
9	M
10	
11	I
12	
13	P
14	
15	
16	
17	
18	
19	A
20	
21	M
22	
23	V
24	
25	
26	

http://localhost:8080/dhis2/sms/testSMS.action

A.4 The Rights of The Participants

A.4.1 Not to participate

A.4.2 To withdraw

A.4.3 To give informed consent

A.4.4 To anonymity

A.4.5 To confidentiality

Appendix B

Interviews

B.1   Diagnosis

B.1.1   Randy

B.1.2   Andrew

B.1.3   Venuste

Appendix C

Journal

C.1   Day 1

C.1.1   Breakfast

Missed on the time here today. Wrong time zone. I thought the devices configured themselves, so I just trusted the watch. Randy missed a part of his meeting because of that. Very embarrassing.

C.1.2   MSH Office

Got the first tasks. Should refine and define the requirements. I don't see any problems just yet. A little unclear just who are the ones involved. There are two guys, Patrick and Eric that i should meet with. Both working with logistics I think, at least in stock management. Haven't heard anything on the the SMPP protocol other than it should be there.

C.2   Day 2

C.2.1   New Office

Today we have a population count problem in DHIS2. I would try to make a postgres query to check our implementation of

DHIS2. Got a temporary seat. Gloria is out in the field. Gloria is probably checking if the data is correct. I am now at the HMIS's new office. Met, Venus again, Andrew, Adolph, Erick, Olive'something, and another. Got to get better on those names. I think I'm a little further up the road from the old offices :).

C.2.2 Beginning to collect the requirements

It seems like the solutions should in some way be more effective. I've been introduced to several people here.

Names	Institution	Phone	Em
Deogratias Leopold	ISI - SC4CCM	0788486509	?
Wane Olivier	IMOH/MCH/CHD	0788358649	oligen123@
Erick Gaju	MoH/Ehealth	0788517168	gerick3fh@
Mike Misengo	MoH/CHD	0788482804	mike.miseng
Venuste Nsanzumuhire	MoH/HMIS	0788606639	venuste.nsanzumh

C.3 Day 3

C.3.1 Morning at the office

I am still trying to figure out the requirements or wishes of HMIS. Apparently there is not very much structure. No development cycle. No requirements document. Randy proposed that we need to be able to implement an algorithm. But there is still no sign of the famous algorithm. They don't know what they want I think.

C.3.2 Testing

I think we could start setting up the test environment and show what is possible so that they can see the opportunities.

C.3.3 Setting up the test environment with sms

This first time we will try with the SMS function in DHIS2. We've encountered a bug in 2.12 after setting up the data elements. The elements are there and connected to a data set. While trying to browse the data elements it never stops loading. Tried clearing cache, switch browser, update resource tables. We will try to update the local version to new one, then start over. Unfortunately I were told that we are the support, so I hope the HISP team in Oslo can help.

C.3.4 Tasks

I've got 2 tasks.

- Make the requirements document for the system that is being made.

- Make the testing environment.

C.3.5 End of the day

Try one more time to set up the test environment for tomorrow. The requirements document should be set up by 15th of March.

Got the backup from Randy and have to remember to run the analytic.

C.4 Day 4

C.4.1 Morning

The driver was about 20 minutes late. My goal was to be at the offfice by 08:00. Maybe I should arrange for some other transportation arrangements.

C.4.2 Before lunch

Will continue with trying to set up the testing environment and
defining the requirements. I have a new database instance and
a new database. If this works, everybody can probably learn
how to do this locally, so that testing can get done much faster.
Venuste and I should be able to set up the same system. We
did not manage to set up the database. Got several error mes-
sages. "psql:healthfinance2014.sql:3450210: ERROR: role "hf-
readonly" does not exist"

C.4.3 After lunch

I am still waiting for Randy to arrive so that he can describe the
algorithm to Ola. I am really just sitting here doing nothing.

C.4.4 end of work day

I think we've had a very productive day. We've got a description
of the algorithm and are trying to set up the testing environ-
ment. Tomorrow I will continue setting up a local instance of
DHIS2 with Venuste.

C.5 Day 5

C.5.1 Before lunch

Forgot my charger today. We are still trying to set up a local
instance. First we had to reinstall a new operating system on
Venustes computer. Now we are trying to install postgres so
that we can install the database. Venuste proposed that we do
not install a DHIS2 instance on all of the computers.

C.6   Day 6

C.6.1   Getting TV

We went to the city to acquire a tv subscription. Patricia knows a guy. We got it for 60k a month.

C.6.2   Market

We shopped at Namukat. Probably the best place for getting supplies here in Kigali. Bought bread from a different store some reason.

C.6.3   Hash

To of the girls got their names today. One is called bend, the other over. It was the international womens day, so one old lady did not like the names. We met at Chez Lando and started running from the facebook pub.

C.6.4   Casino

I got to drunk. I got this note from this girl, Kayli. She is saying she wants to meet. I started out thinking it was not such a good idea, but later I got curios. Was afraid she might set up a kidnapping or something. She is a little bit religious I think.

C.7   Day 7

C.7.1   Waking up

Got up around 10:00 today. Did nothing but some texting with Kayli.

C.7.2 Night time

I should remember to bring along Venustes charger tomorrow. It's in my backpack already. It would be good to continue some on my thesis. Aiming for delivery before 1. July so that I can focus on my other courses.

Would be just perfect if I got finished this summer.

C.8 Day 8

C.8.1 Morning at the office

Should be able to set up a local instance today. It seems like it takes up much time to set up here. I've been here for a week and still I am not able run a local instance.

Installing the software is somewhat difficult. Today I am getting this up and running. Documentation should be better and easier.

I have not yet received a permanent seat to work at.

Gloria said that the data quality was so so.

Set up the testing for mobile reporting. It works, but I cant figure out how I set the received date.

C.9 Day 9

C.9.1 Before lunch

Continued to add to the requirements document. I now have a 10 page document using Fowlers UML Distilled.

C.9.2 After lunch

Trying to get to the core of the requirements so that we can propose a solution based on around DHIS2. Got some feedback

from Eric today. It is important to take note that the difference between 0 and o and basic knowledge of Linux. We agreed on first setting up a local test environment. Then suddenly we started to set up a virtual server. I don't get an overview of the situation.

C.10   Day 10

C.10.1   Morning at the MoH/HMIS

Today I will continue finishing the requirements document. The en result should be something enumerated list with all the specifics. Sent a draft of the requirements to all the people that wanted to know what is going on.

I think there will be some positive feedback.

I don't really know what I am about to gather data about just yet. So any data generation methods are not appropriate yet.

C.11   Day 11

C.11.1   Morning

Heard that we've got the signature for the SMPP protocal last night. Eric advised me to take notice of that basic knowledge and the difference between '0' and 'o', '1' and 'l' are important. It seems like touch is neither used. Wich is the most basic thing in computers. There is alot that is not mentioned in the docuementation in DHIS2. Like how we should go about installing on a Windows machine. This might be a reason why this is not as widespread as it should be. A little note for reasearch is that communication is not the way I am used to. I am sitting very much alone without being very involved in what everyone else

is doing. I think I am in the loop, but it seems like everyone is working on separete things and just reporting to each other. I don't know why, but we are still missing that signature that allows us to use the SMPP protocol.

C.12 Day 12

The virtual server needs to be updated with the new Ubuntu. Unfortunately this has taken about 2 days I think. Don't know what the hold-up is.

C.12.1 CHW supply chain meeting

Today I probably holding a demo showing the use case 3 and 4. Next week I will focus my attention on use case 1 and 2. If everything goes after plan, we should have everything ready in about 2 weeks. I think there was a discussion around JSI which is a system like DHIS2. I don't know if this system is already in use or not.

C.13 Day 13

We climbed Visoke this day and I had some good sex. Borah is like very open about sex. I get a boner just thinking about her. Love it. She was like, "take it baby, take it". Just awsome. It's like she's giving something away. I really don't understand why, but that's the way she sees it. Probably the way all girls sees it. The more I try to define it the more difficult it gets. So, we boys are apparently trying to take the girls vagina.

That is what they are thinking. We are trying to get it. I am thinking that girls should give it if they want to. I don't want be with them if they don't really want to. It not like it is

a competition of trying to get something. It's enjoying the time we spend together. Sex is definitely a part of that.

C.14 Day 14

Me and Borah took a little longer than expected yesterday. I love being with her, but she spends a lot of money. For me here it's still a lot. And she like says that I should give my money away. Money in that direction is gone, no matter how much I spend. Still, I like her. Maybe I'll see her later today. We first took a cab from the hotel, don't remember it's name. Then we took the bus from wherever we where back to Kigali. The mountain we climbed was called Visoke. It is near where Dian Fossey made the documentary of the Silverbacks. We actually stayed at the same spot as she did, the hotel was the same and it was possible to rent her room.

C.15 Day 15

Alright. Everyday frustrations. Internet is not working. Apparently it should take 30 minutes to update flash player. The driver was only 30 minutes late today. That is hes only job. Drive from A to B. He also took a detour so that we could spend some more time driving. My phone is not working as I paid for. Now I am using airtime in order to be connected to the internet. This was before work. Now, at work things don't run. Like the VISA, I told Felix that I did not have a VISA for my whole stay, why is it necessary for me to say that he should fix it? It is like people don't listen. That is the essence of why things don't go the way it should. I also had to buy coffee in order to get some. Thing is. I don't think people understand if they are not able to provide for coffee, how can they really

be trusted to provide a information system covering the entire nation. And we need working chairs as well as working internet. The problem is obvious, yet nobody is doing anything about it. Stable power is still an issue if one wants everyday life to go around the way we want and that affects work. One cannot separate work from everything else.

C.15.1 Before Lunch

I've got some tasks that should be accomplished.

- Import the users in the excel file.

- Make the hierarchy so that it has 8 levels instead of 6.

Apparently it is not easy to get a the address of the MSH offices. Let's take the time. 10:40. 10:50.

Alright. Now it is not possible to take advantage of technology if one does not get replies. Google maps is almost not responding. It takes forever to sync my google drive.

Internet is the building blocks of network, if this is not working then everything else will not work. The signature for the SMPP protocol is still missing. And the virtual server is not running. The guys at the National Data Center is still trying to update from some Ubuntu version to the latest. Lunch in 2 minutes.

C.15.2 After Lunch

Today I will deliver my passport to Felix so that he can extend my VISA. Then I have to change my airplane tickets so that I can go home. Looking forward to it actually.

Also I have to see what is wrong with my internet at MTN.

C.16   Day 16

Allright. I'm a little puzzled by the update at the national data center. Still there is no real reason for why this is happening. Also, the requirements should clearly be stated in some computer language like UML. I came here with the impression that what was actually needed was described in UML or the like. Fortunately there were some description of what is happening, but very little. Proper documentation is obviously a key piece in order to get an overview of things. UML FTW! My bad, the virtual server is now up and running. It is a little unclear if the users are actually the HMIS or the CHW. We'll see. I should mention in my report the process of defining the requirements.

It is a lot of noise here from the outside.

C.16.1   After lunch

I will install Ubuntu on Edith's computer later. It seems like she wants to learn, which is positive. I have to restore my database so that we can find out what exactly is the motherfucking fuckup that is happening. In order to use this database I need a user I think. Maybe I can change the user password by accessing the database and give the right user rights. Probably. Eric is making the letter so that we have confirmation from the university.

I was told before I left that the whole team is in on this. But we have not yet had a meeting for how we will proceed. This is exhausting. And my driver is driving me crazy.

C.17   Day 17

C.17.1   Morning

Went out with Borah yesterday. It was nice, she said something about me not getting attached to things or persons. She said I

did not miss her, but that is not true. I do miss her when she is not there. It bothers me that she is to busy for me. Allright. I will try to make a database restore today. Would be nice to have a working instance. Then I should be able to import the users. I don't think they know about hash functions here. It should be noticed that DHIS2 is not being used as intended. Taking shortcuts like importing users into the database makes the users of the system not involved in the process. Venuste said that some of CHW's did not have the chance to go to school. If we take the shortcut, users will not be involved and we'll miss this oppertunity. The best way to go is to involve all users in the process. This is what is needed. I think I know the problem now. DHIS2 is not being used as intended. Therefore it does not work as it should. Take the databases from last year. Four instances of the program for some reason. This is why the problems are appearing.

It would be beneficial if the team had a specialist on databases. It is weird that all work could be stopped just cause one person is gone.

C.17.2 After lunch

I don't know what Randy's plan is, but I assume that after importing the users, we will have the data managers reset the password. Alright, job well done. Got the users imported, I assume that it will be no problem doing ut again. I will show Venuste how we import the users using postgres in a little while.

C.17.3 Back home

Seriously, people at work just does not know what they are doing. No buts, no explanation. If one is about to use a database called postgres. One should know what it is and how it works.

The overall database design is a good thing to understand, but really. Being able to manipulate it and use it is the are a must.

I think now I understand.

C.18   Day 18

C.18.1   Morning

I maybe think I am a little hard to please. To much complaining I think. Today I will probably teach Venuste how to use postgres.

C.18.2   Importing Users with Postgres

This did not happen as it supposed to. We agreed that we should meet at 09:00AM, but apperantly there was another meeting that was more important to Venuste. No point in setting time if one just books over anyway.

C.18.3   Generating passwords

In order to generate passwords we need to have access to an algorithm. This is touching on some security issues I think. I understand why it is this way. The security should be better i believe. Alright. The password should be contain 8 characters, one capital letter and a number.

C.18.4   Made the Password App

My first executable java program :) password_encoder! That is awsome :)

Bibliography

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