# cput-logo - The Maynards GroupCover Page

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# Approaching business when considering Chapter 9: SDLC and DBLC

## Participants: Sean Robert Trainor 218060033

We are going to approach and complete this project using the skills and knowledge we learned in Chapter 9 of our textbook (Coronel & Morris, 2016), specifically the skills on SDLC and DBLC.  
  
Since this is a small business, we do not have a large budget. Therefore, we will not be able to approach the project with a perfect solution. We instead must work with what we have and make the best of what we have with regards to our solution.

We will be following a standard SDLC and DBLC process to complete this project. They will both be iterative processes. We have chosen iterative processes because we feel it will be easier to complete the project this way due to COVID-19 and the distance between the stores we will be working in/on. Iterative processes will lead to less mistakes and less miscommunication. (Talk, 2015)

Our initial assessment of the problem with the stores indicates that some aspects of the business need to be completely replaced (Yellow pages, fax machines, Excel spreadsheet) and others only need to be updated (Facebook) or slightly modified (customer limit). Our planning and analysis phases are this document, where we detail what we plan on doing to complete our project.

Once our document is complete and approved by the relevant stakeholders, we will begin and complete our implementation phase, were we will implement all the work we have planned out. After that, we will need to maintain the new systems put in place. (Coronel & Morris, 2016)

# Facebook problem and intervention

## Participants: Sean Trainor 218060033

The Facebook problem is most certainly both something concerning and very fixable. As it stands right now, there is a Facebook account name with the same name as that of our customer, and their customers believe it to be the real store speaking in an official capacity as the store itself. However, as the director had no idea about this Facebook account, this is clearly incorrect.

We will approach this problem on two fronts, as this problem is a good opportunity for improvement. First, we contact the owners of the fake account and ask them to delete the account. If they refuse, we contact Facebook and ask them to take down the fake account for our customer. This allows us to make a real, official, and legitimate account for our customer, owned by the director. (Facebook, 2020)

As is well known, social media is a great and effective tool for promoting business and acquiring new customers. We will teach the director the skills needed to run a successful campaign on Facebook to serve his customers better.

While we are working on social media for the company, we will also check to see if there are fake Instagram and Twitter accounts and follow the above stated process again if there are. We will then create legitimate accounts for these platforms too.

Finally, we will claim and legitimize or otherwise create a Google Businesses account for our customer, so that their customers can Google the business to find addresses and phone numbers etc.

Essentially, we will fix the Facebook and social media problem by legitimizing the service, thereby allowing for higher quality service from our customer to their customers, ease of communication and more business for our customer.

# Excel spreadsheet integration

## Participants: Cameron Michael Mostert 218006098

According to the director, the floor managers handle stock take and management using an efficient, but still manual spreadsheet system. While the spreadsheet itself and the management of it is impressive, it is imperative to note that for the business to sustainably grow and keep up with data demands, a DBMS system will be preferable. Relational Database Management will allow the company to expand their database without cost and keep up with stocktake will minimizing human error. (360 Data Science, 2020)

There are multiple solutions available for implementing SQL standards and database management systems, however there are free alternatives better suited to small/medium sized businesses such as the client’s. For this purpose, I have selected DB2 Express-C from IBM, as it is easy to learn and completely free. It is specifically designed for small start-ups and does not have any specific hardware or server requirements. (IBM, 2009)

With the database implementation itself being free, the client can focus on spending money to establish a VPN connection between both branches, SQL training for the floor managers, and a reliable data server to be installed in each branch. Using the barcodes that come with each garment, they can be registered with primary keys within the database, and automated queries can be set up in order to make the process of monitoring the ins and outs of stock take easier and less prone to error. This solves the director’s concern about shipments going missing – they can now be traced if such a thing were to happen. The DBMS also allows for higher levels of data integrity and meta data collection which can help the business with business analytics. (360 Data Science, 2020)

In addition, the use of DB2 Express-C comes with a license allowing free distribution, commercial use, and limitless database growth perfectly suited to this business, as the director can therefore focus on expansion of their company and not have to worry about their database buckling under load due to said expansion, thus following along with the goal of catapulting their business into a different orbit.

# The Yellow Pages Problem and Solutions

## Participants: Lukanyo Tando Nkohla 218328877

## **Yellow Pages and White and Telkom Problem**

Yellow pages are an old fashion tool of advertising a business, organised by a type of service in a geographical area and then alphabetically (Boudreau, 2017). Businesses usually buy advertising space in the yellow pages to advertise their businesses or companies. Telephone carriers could make a profit from printing their yellow page directories and made telephone companies very profitable. Telephone companies distribute new yellow pages yearly and deliver them to their clients.

A yellow page phone book can tell a lot about a business, but it has no comparison to what the internet and digital marketing can do today. A phone book can only be updated once a year, but with digital marketing you can change the information anytime you need to “websites” (McDonald, 2014). You cannot collect your customers contact information via a printed ad, but you can easily build an email list through digital marketing to collect your customer details. Businesses can only show one or two photos in yellow pages display ad, but you can add as much as you want on your site or over the internet. One of the most important problems faced with phone books is the rapidly ascending rate of smartphones and internet use for finding and contacting businesses, people are always on the internet hence using phone books as a way of advertising will limit the reach of being in touch with people.

## Comparing the Cost

The Yellow Pages charges obscene amounts for both their print advertisements and their marketing “solutions” as compared to digital marketing. Digital marketing can be done completely on your own and free. The use of social media can be used to advertise the company and the benefit of using this tool is that the longer you use social media, the more likely your following will grow. A website can be built to advertise a company and in this a web developer will be needed for the development and maintaining the website with a cost way cheaper than the huge amounts being paid out currently.

A company’s online presence is critical to reaching most of your current prospective customers and perhaps nearly all your future customers.

## **Digital Marketing as a solution**

### What is Digital Marketing?

Digital marketing goes by many names and includes many types including inbound marketing, content marketing, online marketing, and even more. All the terms basically encompass the same idea, which is the promotion of your business online (Johnson, 2016).

## **What Digital Marketing Strategies Can Be Used?**

### Website and Search Engine Optimization

A website is a significant aspect of the cycle since this is the place clients visit to find out about your company and choose whether they want to purchase a product or not. Your website ought to have your contact details so customers know how to contact you, and it should detail precisely what your business does.

Search Engine Optimization is the second part of this because once you have your website set up, you want people to be able to find it. This includes things like targeting keywords, earning valuable links from other sites, and the architecture of your pages.

### Social Media

Facebook, Twitter, Instagram, and other platforms account for almost 30% of all daily internet activity (Johnson, 2016). With so many people using social media, it is crazy to ignore the marketing potential in social media. It is free to set up an account and free to post. There are also opportunities for advertising or promotion to use to reach more customers. You can connect with your customers and show people another side to your business.

# Three group customer solution to increase sales

## Participants: Lance Johnson 213148889

To address the limitation on serving customers due to COVID, a viable option such as e-commerce should be looked at**.** E-commerce (electronic commerce) is the buying and selling of goods and services, or the transmitting of funds or data, over an electronic network, primarily the internet. The terms e-commerce and e-business are often used interchangeably**.** (Rouse, 2012)

E-commerce has **experienced rapid growth since its humble beginnings** with e-commerce sales projected to [grow to 599.2 billion USD by 2024](http://www.statista.com/statistics/272391/us-retail-e-commerce-sales-forecast/). The COVID-19 outbreak saw e-commerce sales spike 25% in March 2020 alone. The power of e-commerce should not be underestimated as it continues to pervade everyday life and present significant**opportunities** for small, medium, and large businesses and online investors. You do not need to look far to see the potential of e-commerce businesses. [Amazon](https://feinternational.com/blog/how-to-increase-your-amazon-associates-revenue/), for example, which set the standard for customer-orientated websites as well as a lean supply chain, is selling [over 4000 items a minute](https://www.oberlo.co.uk/blog/amazon-statistics) from SMBs alone. (Morrish, 2020)

## **Benefit of Electronic Commerce**

## **Higher Margins and Better Cashflow**

If your business is involved and sells within the trade industry sector, an e-commerce website will allow you to sell at higher margins. This will make the profits you make on your products even higher. The shopping cart and payment options on these websites also mean you are gaining a 100% payment from the customer straight away. This will improve your cash flow, particularly when customers normally provide you with payments in several instalments.

# Handling stock

## Participants: Ayabulela Mahlathini – 218017774

## **A Cloud-based Stock Management Solution with barcode technology**

In order to handle stock in both branches, it is important to have a cloud-based inventory management system that will allow these branches to operate as one, as mentioned, using spreadsheets for inventory management will be inadequate for the business’ scalability, which will therefore reduce productivity and increasing the chances of losing business because of stock-outs and data entry errors.

A cloud-based inventory management system will provide an effective way to keep tracking items in real-time, ensuring that the data is stored centrally for both branches, therefore enabling real-time access the system anytime, anywhere (Retail Express, 2014), allowing the director or the employees to be able to monitor changes in the stock in both branches, ensuring that they do not over-stock, which therefore cuts unnecessary costs to the business. This will also provide a better understanding of the business’ sales, with information such as what is selling and when, this information ensures there is enough stock in the right branch.

With the stock in the factories already barcoded, this adds an advantage, getting barcode scanners and adding a barcode feature to the system ensures a successful and stress-free stock management, this will be much efficient in the long run. We do not have to wait until problems such as missing or excessive stock occur, integrating this feature to the system gives the business a better tool to automate stock management (AHG, n.d.)

These are the key benefits of using the barcodes in the stock management system:

**Improved Accuracy**

Reduces the chance of human error that might occur when counting the stock manually and instead of typing the item number, which leaves more room for error, the barcode scanner simply adds data to the database.

**Security**

Human errors are big problem to a business, for example, simple mistakes made in a company could cost a company a fortune. Barcoding technology is better prevention of such mistakes, improving security and reliability of the stock management routine of the business (Dynamic Inventory, n.d.).

**Cost Efficiency**

Using the barcodes will prevent the managers from ordering excessive and unnecessary stock, without using these barcodes, we might not know whether the needed item already exists (Chauhan, n.d.). In addition, with barcodes, fewer resources get spent on hiring and training new employees for data entry.

**Usability**

Barcode scanners are probably one of the simplest machines in the world. Using a barcode scanner optimized with user-friendly barcoding tools is much simpler than manually entering loads of data (Dynamic Inventory, n.d.).

**High Speed**

It automates and optimizes the stock management routines, converting time-consuming manual tasks into only a few scans and gestures that are completed within seconds (Dynamic Inventory, n.d.). A barcode scanner enters data just like your keyboard would, but with just less effort.

Summarily, without having this system in place to automate stock management routines, everything would eventually slow to a halt. This way the business will save valuable time and significantly reduce the number of expensive business mistakes that result from manual data entry.

# Project Priority Plan

## Participants: Lance Johnson 213148889

**Priority Project Plan**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **No** | **Description** | **Minor** | **Moderate** | **Urgent** | **Cost** |
| 1 | |  | | --- | | Approaching business when considering Chapter 9: SDLC and DBLC | | 🗸 |  |  | Free |
| 2 | |  | | --- | | Facebook problem and intervention | | 🗸 |  |  | Free |
| 3 | |  | | --- | | Excel spreadsheet integration | |  | 🗸 |  | R5 000.00 |
| 4 | |  | | --- | | Yellow and white pages and Telkom problem | |  | 🗸 |  | Free |
| 5 | |  | | --- | | Yellow and white pages solution | |  | 🗸 |  | Free |
| 6 | |  | | --- | | Three group customer solution to increase sales | |  | 🗸 |  | R15,000.00 |
| 7 | |  | | --- | | Handling Stock on floor | |  | 🗸 |  | R5,000.00 |
| 8 | |  | | --- | | Handling stock at remote branch | |  |  | 🗸 | R10,000.00 |
| 9 | |  | | --- | | Rolling out the project. Priority project plan | |  |  | 🗸 | N/A |
| 10 | |  | | --- | | Hardware and Software setup at Cape Town branch | |  |  | 🗸 | R25,000.00 |
| 11 | |  | | --- | | Hardware and software setup at Durban branch | |  |  | 🗸 | R25,000.00 |
| 12 | |  | | --- | | Communication between the two branches | |  |  | 🗸 | R15,000.00 |

# Hardware and Software Setup

## Participants: Anganathi Ngodwane 217078907

It has been widely recognized that the selection of information system (IS) is a critical part of IS planning. Multiple factors that impact the decision to select an appropriate set of IS projects include project risk, corporate goals, benefits, the availability of scarce IS resources and the interdependencies that exist among candidate IS projects. (Santhanam & Kyparisis, 1995)

With that in concern the decisions made considering this project will be made in concern of the risks we are exposed to and therefore being proactive of any case that might sabotage business operations. The corporate goals will not be ignored, and benefits will be highlighted. Given that budget is also an important aspect of the process, saving is also of priority.

**SDLC**

**Planning:**

Since there is already some hardware that the company has in their possession although it is obsolete technology and given that all processed are done manually with very minimal computation. The plan is to replace the existing minimalistic technology and incorporate modern technology and network infrastructure to facilitate fast and efficient resource and file sharing. The allocated budget is R100 000 and it is in our interest to save where possible and thus will use open source and some proprietary software with licenses.

Some software and hardware will be rented, and some will be purchased. Network/server infrastructure will be rented from [OneProvider](https://oneprovider.com/dedicated-servers/cape-town-south-africa).

Costs will be mentioned respective of location, i.e. Cape Town and Durban.

**Analysis:**

With the existing hardware and hardware, improvising will be done to optimize the business processes. Major problems include fax, manual operations, lack of technology, Facebook presence, yellow and white pages marketing, spreadsheets, to name a few which has all been already highlighted. Other problems worth mentioning is that staff will require training at a certain fee later to be mentioned in this piece of the overall document.

Primary opportunity is the fibre that will be used as an advantage of speedy network which will result in good business operations. As technology business is all about filling gaps, the fact that this business lacks computerized operations is an opportunity for the implementation.

**Implementation:**

**NB:** Implementation is split into two since there are two branches.

### **Cape Town**

**HARDWARE**

Given that procurement is done in Cape Town, it is a wise idea to have the main infrastructure installed in Cape Town. The first step is network configuration that requires hardware, the initial cost is $6628.40 which in rand amounts to R10 8027.34 charged at the quantity of 2, one for Cape Town and other for Durban. This dedicated server/network infrastructure includes hardware of the following specs:

CPU: Xeon E5-2620 2 GHz 6 cores

RAM: 64GB DDR3

STORAGE: 3 \* 1TB HDD SATA

BANDWIDTH: 100Mbps 6TB

All this hardware specification with the server will be connected using the existing fibre which will be used for peer-to-peer connection with the Durban branch. This package also includes a Network Operating System (NOS) Windows 2016 Standard Server. This will be obviously installed in the dedicated server machine. We will then have POS Hardware installed on premises and configure them as clients to our network. Within our network, we will configure a remote server to enable seamless fast sharing of files. This remote server is going to be a hypervisor connecting both our branches within the same network.

We will also buy 4 x Cat6 30M network cables with the assumption that we have 2 cashiers and we keep 2 for backup at R300 from Takealot which equals R1 200.

We will also need a desktop at a fee of R10 000 to administer daily operations in the network, including database.

**SOFTWARE**

Firstly, Windows Server has been mentioned in the hardware level to give context to our configuration so that it makes sense. Proceeding, the POS software will be purchased from [Square POS](https://squareup.com/us/en/point-of-sale/software/pricing) which gives the software for free but charges for hardware at a rate of 2.6% + 10¢ Per tap, dip, or swipe which equals 2.6% + R1.63. This will be ongoing business operations daily.

We will configure Active Directory to administer user accounts for employees and management.

**DBLC AT A GLANCE:**

On our desktop, we will install and configure MySQL server which is open-source, create MySQL database for business decision making. This database will be connected to the POS system, meaning each client will connect to the central database for transaction records.

PHPMyAdmin will be the server-side application of the database software which is also open-source.

### **Durban**

**HARDWARE:**

The hardware implementation of the Durban branch will be same as the one in Cape Town, except the remote server configuration which will be central to both branches for seamless filesharing.

The specs remain the same, including the number of employees needed the special hardware, i.e. POS hardware, in essence:

* CPU: Xeon E5-2620 2 GHz 6 cores
* RAM: 64GB DDR3
* STORAGE: 3 \* 1TB HDD SATA
* BANDWIDTH: 100Mbps 6TB
* 4 x Cat6 30M network cables

**SOFTWARE:**

The above-mentioned approach also applies to the software level of implementation which is:

* Windows Server Standard Edition
* Square POS software

**DBLC AT GLANCE:**

The implementation here is that there will only be clients installed, as there will be no procurements taking place and subsequently no business decision making needed.

# Communication between the two branches

## Participants: Cameron Mostert (218006098)

This system can easily be expanded upon, and the establishment of a VPN allows for secure communication between each branch, which is also useful for administration purposes. Having two servers available, one for each branch, allows not only for unique data sets to be safely stored, but the ability to back up important data in case one server goes down.

Utilizing a router or gateway with VPN routing enabled, the branches can then safely communicate email, database information and other business-related information securely over the internet without worry of being tracked or monitored by suspicious parties. This also allows the branch managers or director to perform important admin away from the branches securely if they are connected to the VPN. (Hein, 2020)

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