



**An Undergraduate Internship on Topic
Comparative Analysis of the Core Banking System of
Standard Bank Limited with the Global Market.**

By

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**Dissertation submitted in partial fulfillment for the degree of Bachelor of
Science in Computer Science and Engineering.**

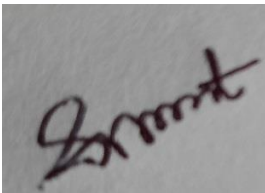
Independent University, Bangladesh

Attestation

Internship Program of Independent University, Bangladesh is a graduation requirement for the students, which is also a partial requirement of the Internship program. The main purpose of internship is to get the student exposed to the job world. Being an intern, the main challenge is to translate the theoretical concepts into real life experience. The internship program and the study have following purposes:

- To get and organize detail knowledge on the job responsibility.
- To gather experiences about the real world.
- To compare the real scenario with the lessons learned in the university.
- To fulfill the requirement of Internship Program.

To accomplish the internship program, I was placed at Standard Bank Limited, Dhaka under the guidance of Subrata Kumar Dey as my academic supervisor. The topic of the report was approved by the supervisor to satisfy the organizational requirements and fulfillment of the internship program. As a requirement of the completion of the internship program, I had to submit this report, which includes an overview of my 12 weeks internship progress and organization.



Date 22/01/2020

Sabrina Zaman Trisha.

Acknowledgement

First of all a special thanks to my Almighty Allah for giving me the strength to successfully attend the internship program at Standard Bank Limited and made me able to complete this report within the schedule time. It is very difficult to express my feelings that helped in completion of this report.

I want to thank especially to my internship supervisor Subrata Kumar Dey (Senior Lecturer, School of Engineering, Technology and Science, Independent University, Bangladesh) for his inspiring guidelines, valuable suggestion and constant help throughout the work and in preparation of this report. I also express my warm gratitude and cordial thanks to my onsite supervisor Md. Arif (IT Officer of Standard Bank Ltd).

I would also like to thanks to Mr. Shafiulah Alam Chowdhury (SAVP) he gave the full support during my internship to the organization. I would like to thank from my deep of heart to the management and some officials of Standard Bank Ltd, Ms. Suraya Ahhmed (Officer), Tarikh Hasan (AVP of IT), Bijoy Rahman (SAVP of IT), Nazmul Khan (Officer), Ms. Sadia Hyder (Officer), Mr. Jahidur Rahman(P.O) and others who helped me a lot and gave me their valuable time, for providing me with the most relevant information on the basis of which I have prepared this report. I am thankful to all of them for helping and guiding me.

And finally I would like to thanks the Standard Bank Limited, for providing me the great opportunity to being with the friendly and excellent working environment as a part of my Internship.

Letter of Transmittal

January 22, 2021

Subrata Kumar Dey
Senior Lecturer,
School of Engineering, Technology and Science,
Independent University, Bangladesh (IUB)

Subject: Submission of Internship Report.

Sir,

It is my pleasure to submit my internship report on “Comparative Analysis of the Core Banking System of Standard Bank Limited with the Global Market” as a requirement of internship program of undergraduate degree, Bachelor of Computer Science & Engineering (CSE). In this report, I tried my best to gather relevant information for constructing a complete report as outlined. This internship has given me a great opportunity to learn about different aspects of the core banking system this reputed organization closely. I have also had a substantial amount of Professional guidance on multiple levels. My supervisor and the employees of the organization were very supportive and welcoming towards me. The preparation of this report enables me to a great extent to complete my theoretical knowledge with practical analysis.

I would like to express my profound gratitude for your kind and conscious guidance in preparing my report in the giving time.

Thank you.

Yours Sincerely,

Sabrina Zaman Trisha.
ID: 1610983
Student,SECS

Evaluation Committee

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Supervisor

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Internal Examiner

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External Examiner

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Convener

Abstract

I have chosen Standard Bank Limited (SBL) for gaining on-field experience as an intern for a period of three months starting from 26th November 2020 till 26th February 2021, as a part of my internship program of (BSC) requirement. I was recruited as an intern for the department of IT Department of SBL. I have conducted a study on the overall activities of SBL as well as the customer satisfaction within the organization and presented it on a working report. This report consists of information about the project I had been assigned. A central banking infrastructure networks branches and helps clients in each of the branches of the bank to run their accounts. Data was gathered and analyzed using purposeful sampling, semi-structured questionnaires, semi-structured interviews, and descriptive statistics. The critical success factors described in this paper were used to design a core banking system implementation structure. The results of this report would be of interest to the banking industry. In preparation of this digest both secondary and primary data sources have been used. The primary data were mainly collected while conducting the survey on customer satisfaction. The secondary data sources were the company website, the annual reports and other publicized documents of the company as well as from other books. The report will mainly focus on a comparative analysis of Standard Bank Limited's core banking system with global standard.

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Chapter 1

Introduction

1.1 Objective of internship

Internship is known as gaining sensible experiences from the different Organizations that helps a lot to make a relation between the theoretical and practical knowledge. Internship is three credit compulsory courses for the students graduating from Independent University, Bangladesh (IUB). A student from School of Engineering, Technology and Sciences should go for these six credit hours practical course that is related to their relevant field. It's very important because it is the first time for a student to acquire a keen practical knowledge from the different organizations. As a student of Computer Science of Independent University, Bangladesh (IUB) I have studied a lot of programming courses during last four years. My project paper is "Comparative Analysis of the Core Banking System of Standard Bank Limited with the Global Standard." This report covers the whole project, which I have learnt during the Internship period. This report will be helpful for those who want to learn more about Core Banking System.

1.2 About Standard Bank Limited

Standard Bank Limited (SBL) was incorporated as a Public Limited Company on May 11, 1999 under the Companies Act, 1994 and the Bank achieved satisfactory progress from its commercial operations on June 03, 1999. SBL has introduced several new products on credit and deposit schemes. It also goes for Corporate and Retail Banking etc. The Bank also participated in fund Syndication with other Banks. Through all these myriad activities SBL has created a positive impact in the Market. Mr. Kazi Akram Uddin Ahmed is the founder Chairman and Mr. Khondoker Rashed Maqsood Managing Director & CEO of Standard Bank Limited. Both of them have long experience in the financial sector of our country. By their pragmatic decision and management directives in the operational activities, this bank has earned a secured and distinctive position in the banking industry in terms of performance, growth, and excellent management Mr. Khondoker Rashed Maqsood becomes Managing Director of Standard

Bank Ltd. He was also an Advisor to the Board of Directors of MIDAS Finance Ltd. Under his leadership, the bank has been placed on a state of the art centralized IT platform with two modern data centers.

Standard Bank Limited has a website which contains their relevant information. The address of their website is <http://www.standardbankbd.com/>



Figure 1: Home page of Standard Bank's website.

1.3 Organogram of IT Division

The IT Division is responsible for all type of IT related problem, support and solution. According to the organogram the head of the department is Executive Vice President (EVP). He has sub-ordinate Senior Vice President (SVP), Assistant Vice President (AVP), Junior Assistant Vice President (JAVP), Senior Officer(SO), Officer, Junior Officer(JO), Assistant Officer(AO), and Sub-staffs. The IT Division is one of the departments of head office of Standard Bank Limited.

The Organogram of the ITS Division is given below.

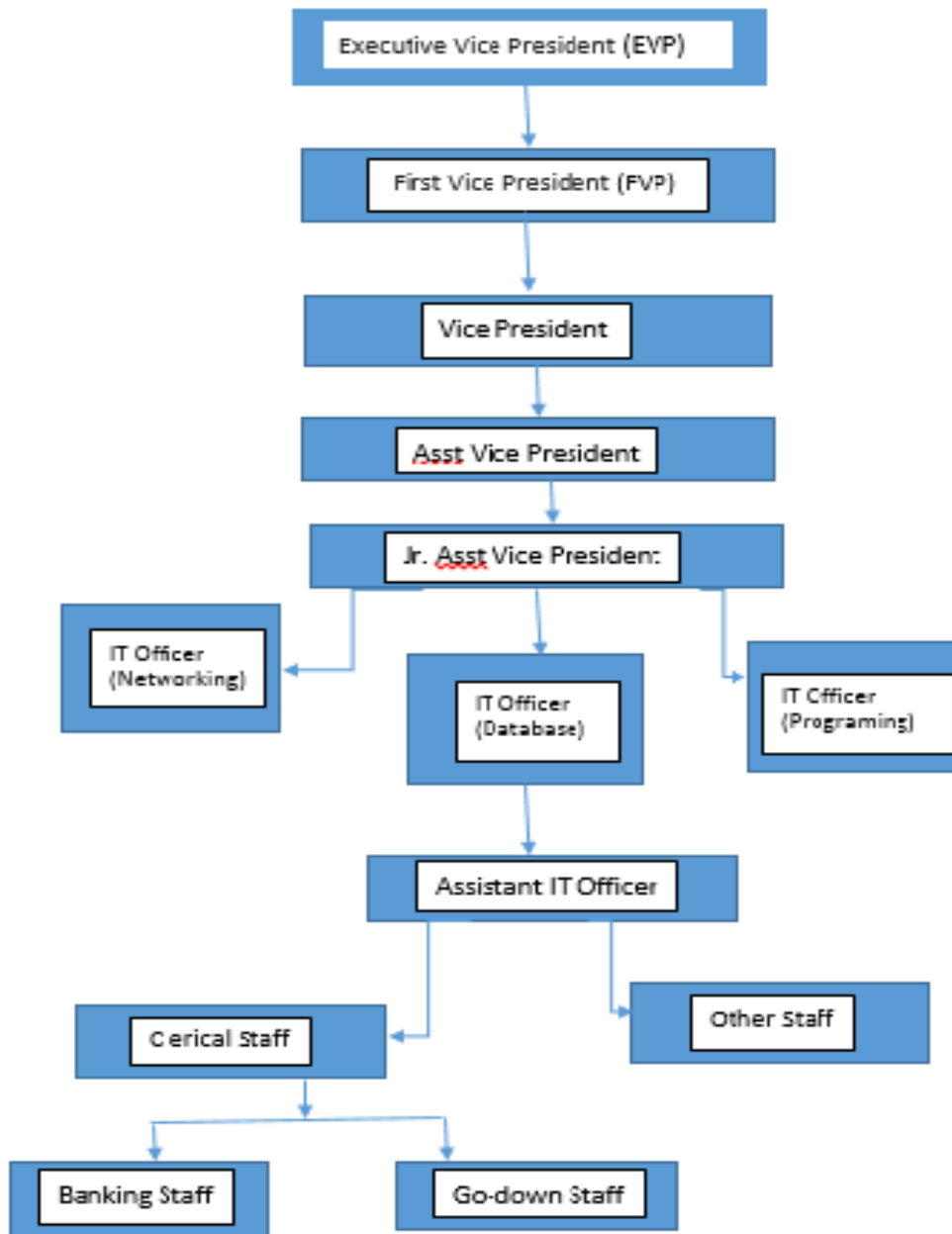


Figure 2: The organogram.

1.4 Project Objectives

The following are the broad objectives of this internship project.

- To study information technology support division activities of **Standard Bank Limited**.
- To gather wide range of knowledge about the core banking system.
- To find out the problem, solution and requirements specification regarding information technology support.
- To develop a comparative analysis about the core banking system.

Chapter 2

Literature Review

2.1 Introduction

A literature review or narrative review is a type of review article. A literature review is a scholarly paper that presents the current knowledge including substantive findings as well as theoretical and methodological contributions to a particular topic. Conducting a writing audit includes collecting, assessing and analyzing distributions that relate to you inquire about question.

A literature review is a survey of scholarly sources on a specific topic. It provides an overview of current knowledge, allowing you to identify relevant theories, methods, and gaps in the existing research.

The literature review strategy is an examination of data on particular subject. It is looking into what is known, and not what is expected. It points to form the ultimate, exact representation of the knowledge and research-based hypothesis accessible theme. This strategy is aiming to be utilized due to require of gathering and preparing hypothetical base. I am aiming to utilize diverse books and articles too other sources like instructional exercises, gatherings and related program.

In the 1970s, the Core Banking Program developed and has undergone numerous major improvements over time; the new CBS has real-time processing and multi-channel integration capability. CBS's basic purpose is to render deposits and loans at a bank. The central banking framework is the software used to support banks, the most basic transactions including the distribution of service loans, the opening of new accounts,

the handling of cash deposits, withdrawals, interest measurement, customer relationship management behavior and the maintaining of transaction documents for the bank. It has been imperative for banks to recognize their successful clients and to ensure that various services and deals are properly taken care of.

2.1.1 Global Market

The software market for banking systems is segmented by type, application, and area. The software industry is segmented into core banking system, multi-channel banking software, bi-software, and private wealth management software on the basis of the form of banking system. Risk management, information security, business intelligence, preparation, and advisory solutions are categorized into application segments. Increasing the introduction of online banking and mobile banking by consumers with a high degree of propensity to access their account data and carry out financial actions through a digital network that drives software specifications for the banking system. Customers are expected to be able to use their laptops, smartphones, tablets and new technologies such as patch management to create multiple opportunities for business growth in banking system applications. The tech demand for banking systems is motivated by the growing need to improve the banking industry's competitiveness and operating efficiency. In addition, information management issues and the high cost of transitioning from outdated networks to the modern automated industry.

2.2 About Core Banking

As a back-end system that handles regular banking transfers and posts updates to accounts and other financial information, Gartner describes a core banking system. Usually, central banking systems provide deposit, loan and credit management capabilities, with general ledger systems interfaces and monitoring tools.

There are various core banking services.

Internet banking

Internet has greatly affected electronic banking. There is no temporal and geographical constraint through the application of internet banking. Internet banking is an electronic payment system which enables customers to conduct financial transactions without referring to the bank, just through their PCs or communications networks.

ATM

Automated teller machine (ATM) is an electronic telecommunications device that enables the customers of a financial institution to perform financial transactions. ATMs

are often located inside a specific place which may be accessible 24 hours a day. They are also considered as a branch of the bank, since they provide different services offered in the bank.

POS

Point of sale (POS) is the place where a retail transaction is completed. It is the point at which a customer makes a payment to the merchant in exchange for goods. At the point of sale the retailer would calculate the amount owed by the customer and provide options for the customer to make payment.

Mobile Banking

Multidimensional services such as GPRS which are accessible through mobiles enable customers to conduct financial transactions like getting account balance and financial statement, requesting check, and transferring from one account into other accounts.

Telephone banking

Conducting small transactions between a customer and its bank can be possible through telephone banking which can be through three different methods: audio transaction, voice recognition, and pre-planned telephones.

Electronic money

Electronic money involves the use of internet or other networks to store or transmit money. This type of money can be stored on smart cards or computer's hardware. Electronic money falls into different types as follows: electronic card, electronic wallet, electronic check, digital money, and virtual card.

2.3 Core Banking System Advantages

The concept of e-banking has meant a progress in the communication between the bank and the client because this way the client can perform banking transactions on the Internet from anywhere, without going to the bank branch office. To make it easier for customers to access their accounts and to simplify banking transactions, with the assistance of CBS banks provide the following services:

- Determining the balance – debit or credit entries on the account.
- Access and review of client's accounts.
- Records of all transactions.
- Cash payments from the client's cash account.
- Loan payments on client's account.
- Incoming cash payment on the account.
- Account statements from the previous day.

2.4 Relationship with Undergraduate Studies

During my internship, I was assigned to work at the Standard Bank Limited. I worked in their hardware, General Banking and give them support about computer hardware maintenance and troubleshooting and also observe how the software works. If the IT support manual can be organized successfully, it will help the employees to gain a primary idea about the computer problem and support. It can be a guideline for the IT professional working in this division. It will help management to assist in taking fast decisions and giving support to the overall organization.

2.5 Related Works

There are some related works like it helps to create online account, helps to keep customer data with high security, helps in first transaction in between banks and person to person. Sending money overseas, investing online marketing example: forex, crypto, coinbase.

Chapter 3

Project Management & Financing

The name of the software is Hikma20. It based on Islamic Shari'ah. The software was purchased from ERA Company.

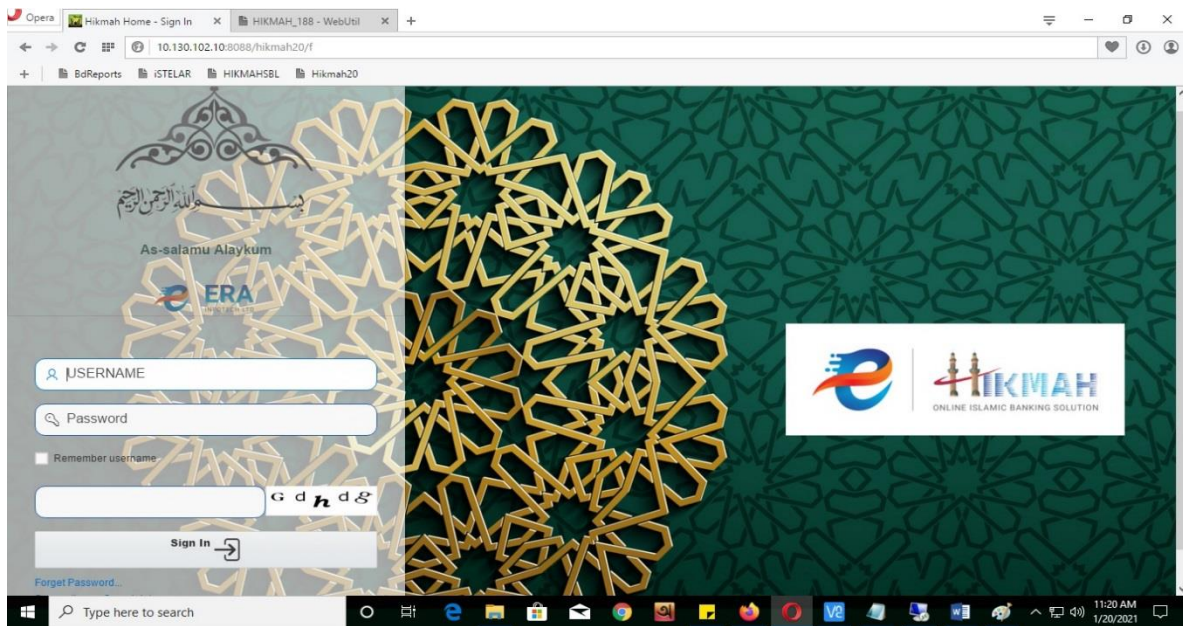


Figure 3: Log in page.

3.1 Work Breakdown Structure

A work-breakdown structure in project management and systems engineering, is a deliverable oriented breakdown of a project into smaller components. Our works were divided into categories and each category have a sub category as shown below in the diagram. Starting from the beginning of the project to the deployment segment. Having this Diagram gives the operators a basic idea of how the project is going to be and what comes after which. So they do not lose track in work.

3.2 Process/Activity wise Time Distribution

The time distribution defines the estimated time required to end the update from Isteller to Himkma20 of the software successfully, the timeline designed below in a Gantt chart shows the developers what processes are completed, which are behind schedule and what is yet to be completed. This helps the developers create a mind map as to how efficiently they need to work in order to meet the deadlines.

3.3 Gantt Chart for Process

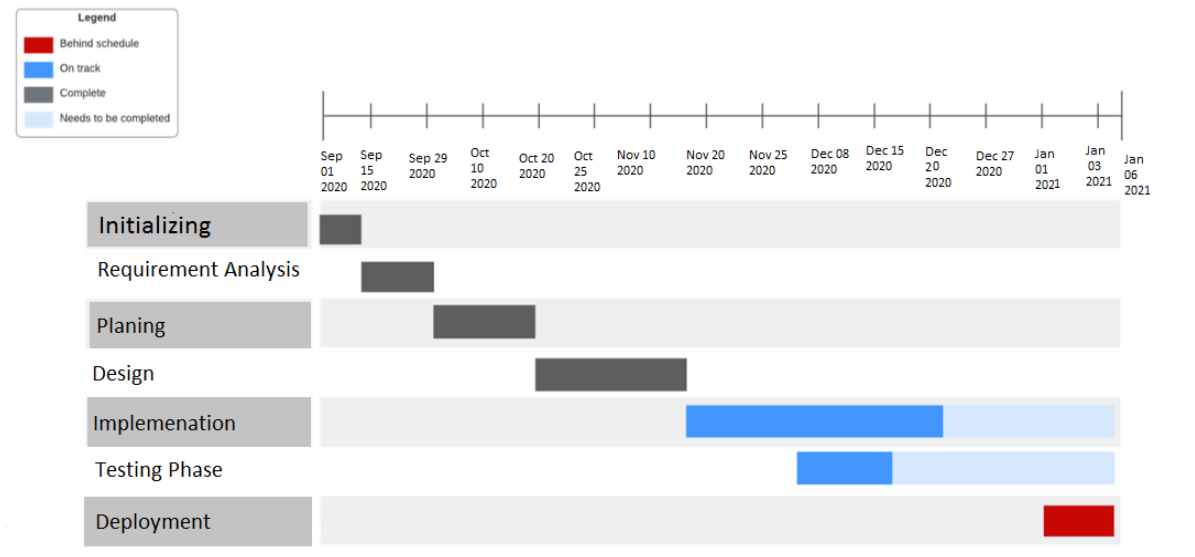


Figure 4: Gantt chart for process.

3.4 Process/Activity wise Resource Allocation

The time distribution defines the estimated time required to end the project successfully, the timeline designed below in a Gantt chart shows the developers what processes are completed, which are behind schedule and what is yet to be completed. This helps the developers create a mind map as to how efficiently they need to work in order to meet the deadlines.

3.5 Estimated Costing

The software was purchased from ERA Company. The company takes around 3.5 core taka for the readymade project.

Chapter 4

Methodology

To conduct the study, sources of data had to discover, collect, filter, classify, analyze and present in a specific systematic manner. All the data is collected from secondary sources. But it has to admit that the main source of my report was secondary sources. Face to face conversation with officers was the secondary source of data.

4.1 Research Methodology

Descriptive research includes surveys and fact-finding enquiries of different kinds. The main feature of this type of research is that the researcher has no control over the variables. He can only report what has happened or what is happening.

4.2 Data Collection Method

Data Collection Tool Secondary data: Various websites, articles from magazines and newspapers, books were used for collecting secondary data.

Analysis of Data

The collected data in the study has been presented and analyzed using the various tables & representations.

Agile methodology is a type of project management process, mainly used for software development, where demands and solutions evolve through the collaborative effort of self-organizing and cross-functional teams and their customers.



Figure 5: Agile Methodology.

Chapter 5

Comparative Analysis of Core Banking System

The comparative analysis of some core banking system is given below.

5.1 FIS

The FIS Company develops banking and financial software solutions for over 14,000 financial institutions in over 90 countries all over the world. Features for end-users are grouped in the following modules:

- Basic processing.
- Debit and electronic processing.
- Credit solutions.
- Deposit automation.

- Multichannel delivery.
- Safe cash management.
- Fraud management.
- Loyalty and rewarding program.
- Currency processing.
- Electronic bill payment.
- Maintenance service.

Core Bank Software is a customer-oriented solution that operates in real time and offers deposits, loans and transfers to benefit banks. It is based on the IBM FSDM model (Information Framework Financial Services Data Model). This software provides a range of possibilities: a financial institution's facilities, development goods, sales service and customer ratings, transaction management, payments, information management. Systematics is a solution that, alongside handling deposits and loans, facilitates reporting. It is a multilingual application that, regardless of its structure, scale or venue, is ideal for organizations. Bill transfers, an automated credit system, treasury automation, inventory testing, receivables, customer service management, financial system management, centralized monetary control, investments, and real estate are the solutions provided by this program.

5.2. Temenos

Temenos is a Swiss company which has over 300 clients all over the world, and its products are implemented in over 100 countries. Established in 1993, this company offers the following products: TEMENOS T24, TEMENOS Core Banking TCB, T24 MCB (T24 for microfinance and general banking). These solutions include the following functionalities:

- Corporate sector - commercial lending, overdrafts, commercial transactions, reminders, debt collection, accounts, guarantees, leasing.
- Trading in securities - money market, foreign exchange, securities, futures and options (financial derivatives).
- Retail sector - savings, current accounts, savings and deposit accounts, overdrafts, checks, credit cards, mortgage loans, revolving loans, investment funds.
- Private Banking - Securities and portfolio management clients, business introductions.
- Basic Operations - CRM (Customer Relationship Management), market risk, credit risk, accounting and general ledger, document management, profitability, payments, nostro reconciliation, business flow.
- Alternative channels - Internet, call center, other e-channels.

Temenos also provides teller applications, conversion of money, bank deposits, management of checks and credit cards, as well as ATM server processing, in addition

to the above. A flexible banking framework for the retail sector is the Temenos CBS solution.

5.3. Oracle FSS

Oracle covers the market of both corporate and retail sectors, then investment banking (funds, cash management, securities trading, payments, lending, asset management, entrepreneurship and business risk analysis). Oracle has a product called FLEXCUBE, which is an aggregation of banking solutions. This solution includes automated teller operations, signature verification and monitoring outstanding receivables. The features of the Oracle are given below.

- Industrialized Banking.
- Hassle-Free Originations.
- Risk-Free Collections.
- Simplified Product Management.
- Customer-Centric Pricing.
- State of the Art Technology.

5.4. Pexim

Pexim provides software solutions in the areas of: CBS, e-solutions, business intelligence, professional services, advanced infrastructure services, e-government, with an emphasis on the development of vertical banking solutions. Their modules are:

- Customers information.
- Account administration.
- Payment services.
- Deposits.
- Loans.
- Credit cards.
- General ledgers.
- Support management applications.
- Shares and stock.

Pexim CMS solutions provide management of domestic and foreign credit cards (MasterCard, VISA, DINA, etc.), online and offline data sharing, ATM and POS payment terminals management, Internet and mobile banking.

5.5. Antegra

Antegra is a company specialized in the development of banking solutions. The key functionalities of Antegra are:

- System administration.
- Retail banking (savings, current accounts, loans, nostro payments, etc).
- Corporate banking (loans and deposits, current accounts, securities, foreign. payments, check clearing).
- BI card.
- Reporting.
- Current assets.
- Shareholder Book.
- Connection with external environment.
- E-banking.

5.6. Asseco

Asseco SEE (Asseco South Eastern Europe) is an IT company that is engaged in producing and implementing its own software solutions to the financial sector and banking, telecommunications, public sector, administration and telecom. The main modules of this system are:

- Information about the client (can be used for direct marketing or customer analysis).
- Account services (administration, debit, checks, bank accounts, paying bills, recording activities)
- Payment services (ability to pay in local and foreign currency).
- Deposits.
- Loans.
- Retail banking (cash, checks, transfer funds, loans, savings level of services, currency exchange, electronic signature, etc).
- Cards.
- General ledger.
- Application management support.
- Shares and shareholder's books.

5.7 ASEBA BPS

(Banking Process Suite) is a solution for corporate banking that is used to automate business processes and includes the following modules:

- Automation of account opening.
- Automation of lending.
- Automation of the process of documenting the flow of foreign exchange.
- Deposit management.

- Cards management.
- Automation of required reports.
- Automation of board meetings.
- Control of inputs (processing of payment orders, checks or POS papers from branches to the central office).
- Automation of payment.
- Savings accounts opening.
- Physical archiving.

5.8 ERA

ERA-InfoTech Ltd, a local software development company, has teamed up with Ireland based CR2 Ltd to provide sophisticated software services to Bangladeshi banks. The core banking system of Standard Bank Limited is HIKMA20, which is running along with some alternate delivery channels like ATMs and SMS banking. The key features are given below.

- Retail Banking
 - Deposits
 - Investments
 - Cards
 - Internet Banking
 - SMS Banking
 - Locker Services
- Corporate Banking
 - Investments
 - Foreign Exchange & Trade Finance
 - Corresponding Banking
 - Import Finance
 - Export Finance
- SME Banking
 - SBL Babbosha Shachal
 - SBL Babbosha Unnayon
 - SBL Babbosha Shommridhi
 - SBL Karma Uddogh
 - SBL Moushumi Rin
 - SBL Nari Anuprerona- Women Entrepreneurs' Loan.
- Agri Banking
 - Standard Sonali Fasal.
- Remittance

- Foreign Remittance
- SBL Exchange Company (USA) Ltd.
- SBL Exchange Company (Bahrain) Ltd.
- SBL Exchange Company (Dubai) Ltd.
- SIFT
- International Operation.

The table of comparison is given below.

Features	Pexim	Artegra	Aseba	Oracle	Era
Retail Banking	√	√	√	√	√
Corporate Banking	√	√	√	√	√
Account Administration	√	X	√	√	√
Deposits	√	√	√	√	√
Loans	√	√	√	√	√
Cards	√	√	X	√	√
Accounting	√	X	√	√	
SMS Banking	√	√	√	√	√
Remittance	√	√	√	√	√
E- banking	X	√	X	√	√
Electronic bill payment	X	X	X	X	√
AML (Anti-money laundering)	X	X	√	√	√

Table1: Comparison analysis.

Chapter 6

Body of the Project

6.1 Work Description

Core banking is a general term used to describe the services offered by a group of branches of network banks, the funds of bank customers and other basic transactions from any member which occur. Thus, the Central Banking Approach is a step towards improving consumer services by banking anywhere and anywhere. Simply placed, core banking enables clients to reduce temporal and spatial restrictions and to shift networks and telecommunications technologies to Money (resources) in the financial system.

6.2 System Analysis

6.2.1 Introduction

System analysis is conducted for the purpose of studying a system or its parts in order to identify its objectives. It is a problem solving technique that improves the system and ensures that all the components of the system work efficiently to accomplish their purpose.

As a back-end system that handles regular banking transfers and posts updates to accounts and other financial information, Gartner describes a core banking system. Usually, central banking systems provide deposit, loan and credit management capabilities, with general ledger systems interfaces and monitoring tools.

6.2.2 Six Element Analysis

Process	Human	Non Hardware	Hardware (Computing)	Software	Database	Communication Network
Log in register	Use email password		Keyboard Mouse & Computer	Himka 20	Stores register data and retrieves login data	Internet
Activation			Mouse & Computer	Himka 20	Save Activation data	Internet
Investment	User click		Keyboard Mouse & Computer	Himka 20	Save Investment amount	Internet
Transection	User click		Mouse & Computer	Himka 20	Transection Amount By real time In database	Internet
Deposit Module			Keyboard Mouse & Computer	Himka 20	Amount of money	Internet
A/C Opening	Fill up form	NID, Picture, Sign	Keyboard Mouse & Computer	Himka 20	User/Acc Information Save in database	Internet
A/C enquiries	Account Number Last digit	Account Number	Keyboard Mouse & Computer	Himka 20	Retrieve Data	Internet
Statement report	User click	Account Number	Keyboard Mouse & Computer	Himka 20	Retrieve Data as PDF	Internet

Table 2: Six element analysis table.

6.2.3 Feasibility Analysis

Feasibility study means the analysis of problem to determine if it can be solved effectively. In other word it is the study of the possibilities of the proposed system it studies the work ability, impact on the organization ability to meet users need and efficient use of resources. Three aspects in which the system has to be feasible are:

- Economical Feasibility: The economical analysis checks for the high investment incurred on the system. It evaluates development & implementing charges for the proposed 3Banking Project. The software used for the development is easily available at minimal cost & the database applied is freely available hence it results in low cost implementation.
- Technical Feasibilities: This aspect concentrates on the concept of using Computer meaning, 3Mechanization of human works. Thus the automated solution leads to the need for a technical feasibility study. The focus on the platform used database management & users for that software. The proposed system doesn't require an in depth technical knowledge as the system development is simple and easy to understand. The software used makes the system user friendly. The result obtain should be true in the real time conditions.
- Behavioral Feasibility: Behavioral feasibility deals with the runtime performance of the software the proposed system must score higher than the present in the behavioral study. The software should have end user in mind when the system is designed while designing software the programmer should be aware of the conditions user knowledge input, output, calculations etc. The software contains only a minimum no. of bugs.

6.2.4 Effect and Constraints Analysis

Recently, IT growth and growing rivalry among banks have had a tremendous effect on attracting customers. The financial sector has made significant improvements to turn it into the central banking business. The present study aims to examine the effects on profitability of the deployment of core banking services. As distinct divisions of electronic banking, these facilities consist of online banking, mobile banking, telephone banking, point of sale (POS), ATM and electronic currency, all of which have been checked in the current research.

6.3 System Design

6.3.1 Data Flow Diagram

A data-flow diagram is a means to depict data flow through a process or device. Also, the DFD contains information about each entity's outputs and inputs, and the process itself. DFD is required in the process of developing the core banking software, in the following diagram we have tried to show how the actors in the process interacts with one another and also the connection with the database.

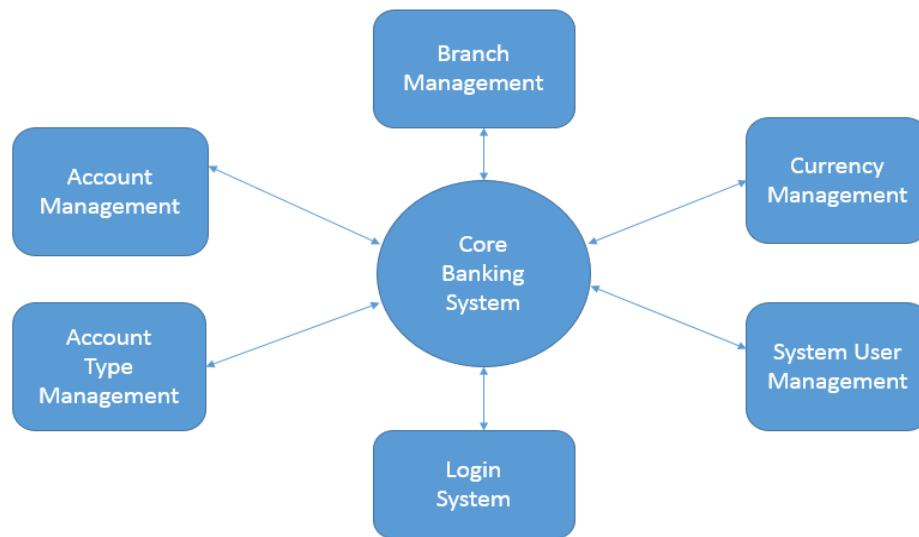


Figure 6: Data Flow Diagram.

6.3.1 Entity Relationship Diagram

Entity Relationship Diagram is a type of structural diagram for use in database design. An ERD contains various symbols and connectors that display two important information: the major entities within the scope of the system, and the interrelationships between these entities. The Normalization done before satisfies the ERD and the following is how the user's Entity will be displayed in the database of the system.

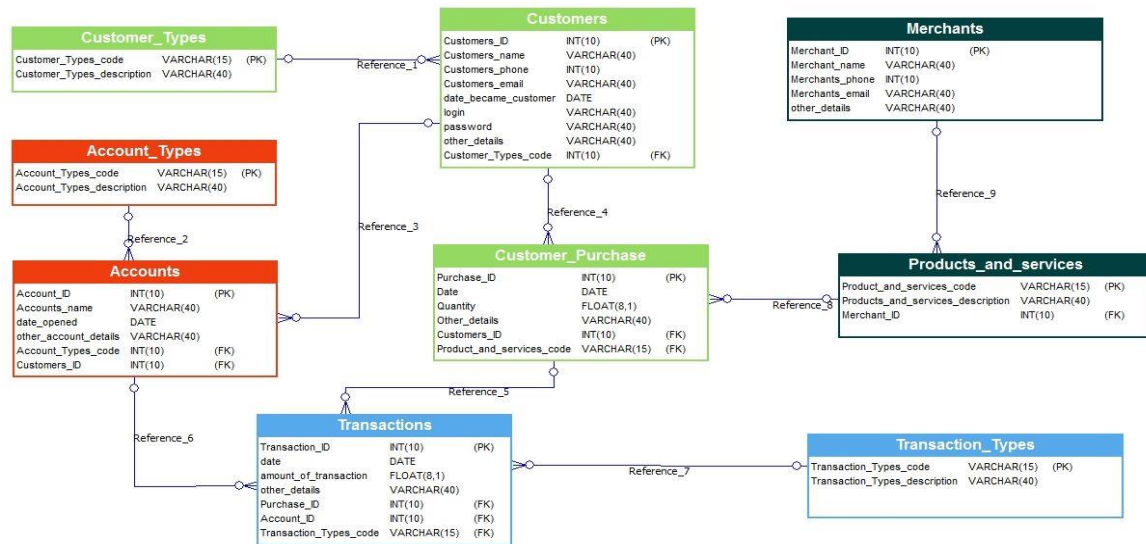


Figure 7: Entity Relation Diagram.

6.3.2 Rich Picture

A rich picture is a drawing of a situation that illustrates the main elements and relationships that need to be considered when attempting to intervene to bring about some improvement. It consists of images, text, symbols and icons all of which are used to graphically illustrate the situation.

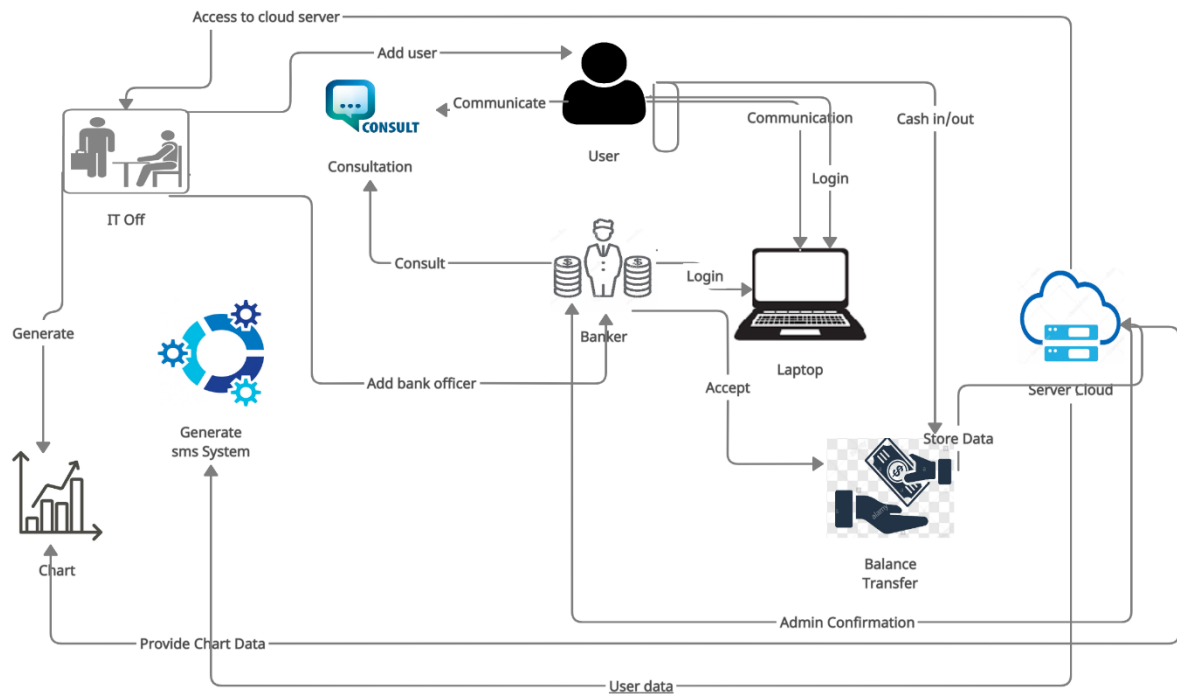


Figure 8: Rich picture of banking system.

6.3.3 UML Diagrams

A UML diagram is a UML (Unified Modeling Language) diagram designed to visually represent a system along with its main actors, roles, actions, artifacts or classes to better understand, alter, maintain, or document system information.

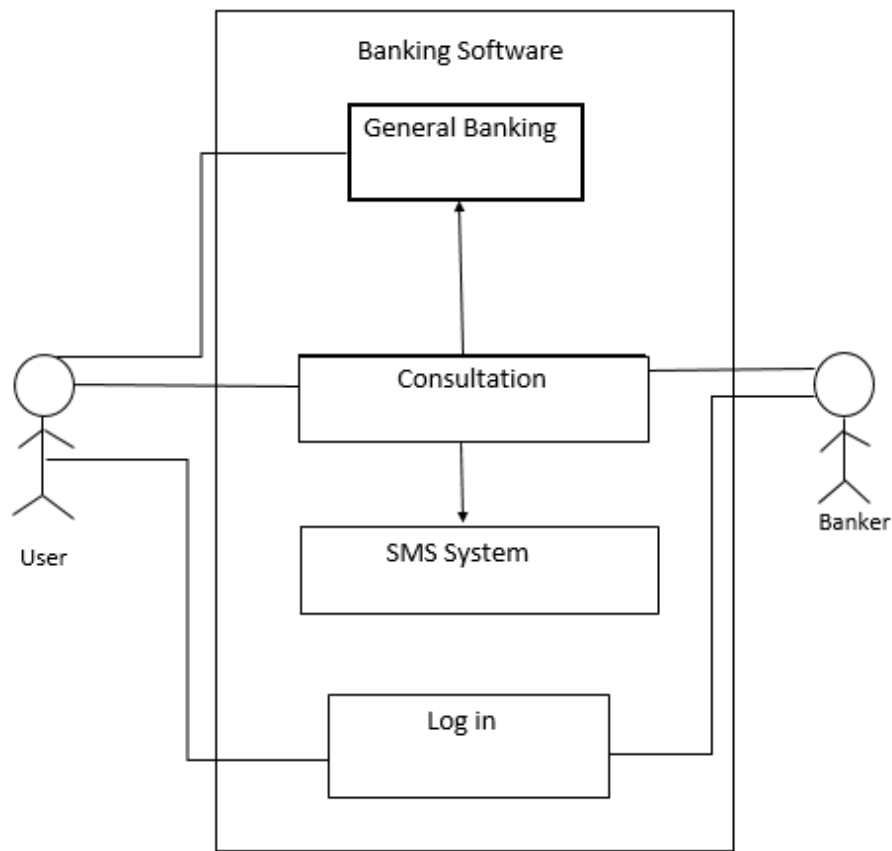


Figure 9: UML Diagrams

6.3.4 Activity Diagram for Banker

Another essential behavioral diagram in UML diagram is the activity diagram which describes dynamic aspects of the system. The activity diagram is basically an advanced version of the flow chart which models the flow from one activity to another.

The admin UML diagram shows the activities and limits that the admin has in the system. Firstly, Admin cannot do his/her tasks without logging in. He has the following workflow in the system:

Add Account- Although a banker can sign up by himself but the IT officer can add the user of the app as well as manage the account.

Search Data- Banker can search the data of the customers.

Generate chart- The banker can generate the chart.

View user file – The banker can view the user files.

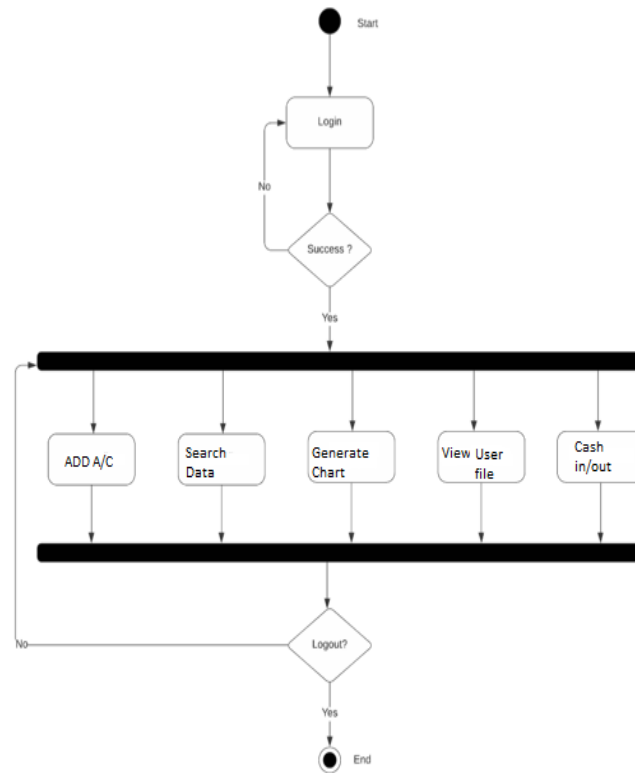


Figure 10: Activity Diagram for Banker

6.3.5 Activity Diagram for User

Balance Transfer: User can transfer the money.

Profile Change: User can change the profile like password, phone number and address.

Balance Check: User can check the balance.

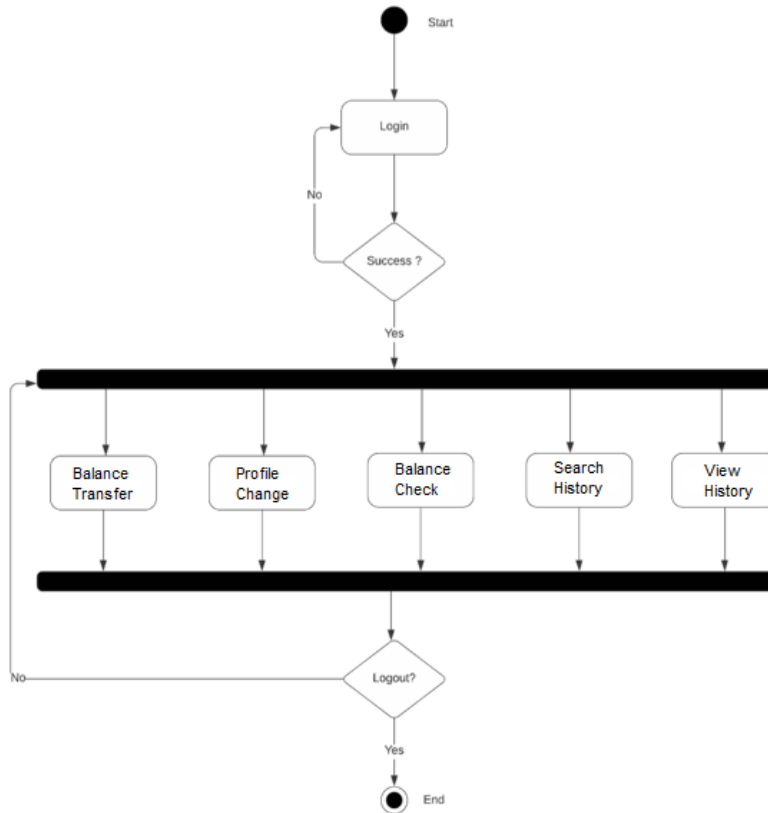


Figure 11: Activity Diagram for User

6.3.6 Activity Diagram for IT Officer

Add Banker: For the new Banker, IT officer can give the access of the system.

Add user: For the new user, IT officer can give the access of the system.

Server check: They can maintain the server, check whether the server work properly or not.

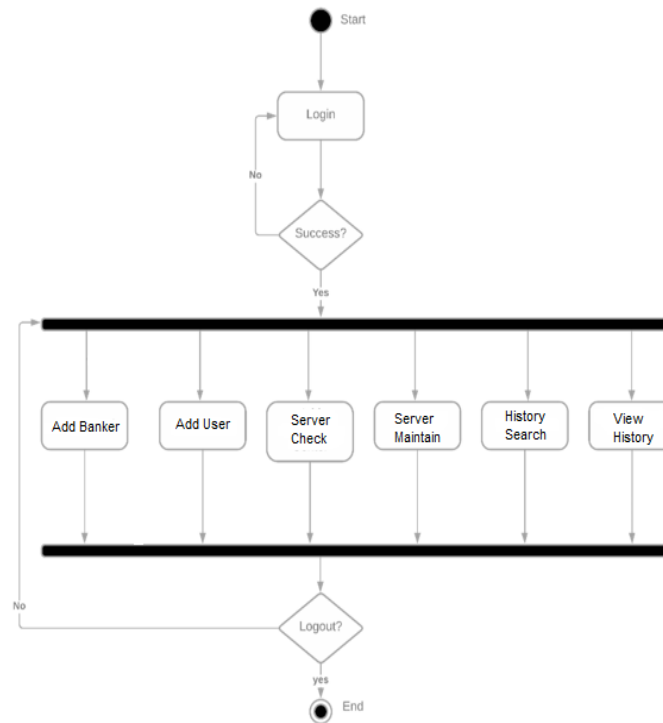


Figure 12: Activity Diagram for IT Officer.

6.3.7 Functional and Non-Functional Requirements

The general standards of engineering requirements are a distinction between descriptions of requirements and specifications of requirements. An abstract summary of the resources that the system can provide and the restrictions under which the system must function is a program specifications concept. And the concept of criteria is perhaps the most significant methodology in formal analysis. It is the only technique that permeates the method's every move. It is also one of the least illustrative, finding it impossible to classify specifically. In essence, the approach involves capturing what the users actually want and ensuring that each resulting project operation leads to the best possible translation of certain user needs into device needs that can produce what the users needed in the first place until fulfilled.

Non-functional specifications (NFRs) are major technical requirements that have been measured and defined right from the start of the software development cycle while defining the requirements for usable software (FRs). It is necessary to regard Nfrs as external criteria that must be satisfied by the practical requirements. One of the

necessary purposes behind the failure of software projects is the frustration of Nfrs. In online banking systems, non-functional specifications such as consistency, accessibility, efficiency and protection are also important. Seen prior to conferring on the detailed specification in the program design.

6.3.8 Architecture

Core banking systems provided only basic functionalities for core banking transactions.

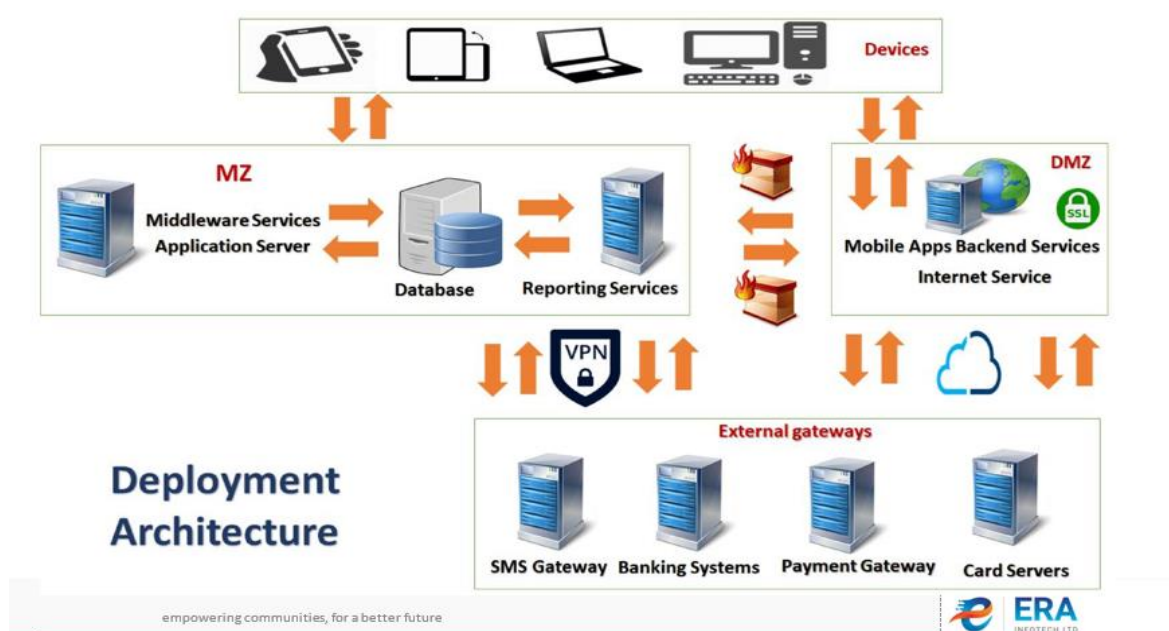


Figure 13: Deployment Architecture.

Chapter 7

Results & Analysis

From the analysis we can see that maximum (80%) core banking features of the standard bank matches with the other global core banking system. It should be noted that there are differences between CBS solutions used abroad and the ones used in SBL

in a way of different calculation of interest rate amount, different exchange rates, etc. Nevertheless, the CBS solutions differ from provider to provider, but also, there is a difference in a client's (bank's) requirements. There are many factors affecting a final CBS product, so it is difficult to tell in which way it can be improved due to different client's needs.

Chapter 8

Project as Engineering Problem Analysis

8.1 Sustainability of the Project/Work

Global sustainable development is closely linked with finance. Substantial financial investments will be required to mitigate and adapt to climate change, fight hunger, and respond to droughts, to increase job opportunities and support livelihoods, and to offer affordable health-care to everyone. As a result, banks and other financial institutions will play a significant role in funding economic growth and addressing social needs. The finance sector is best known for market strategies that rely primarily on growing financial returns and disregarding societal needs, especially since the last financial crisis, rather than being a "a force for good" to serve societal needs by providing creative financial goods and services that encourage sustainable growth.

8.2 Social and Environmental Effects and Analysis

Although there is ample evidence that the financial performance and social and environmental performance of non-financial companies are linked, evidence remains minimal and inconclusive for the banking sector. This paper explores the effect on the financial performance of the banking industry internationally of access to finance and environmental financing. Based on cross-sectional linear regressions and non-linear threshold regressions of 713 banks from 75 countries over the period 2013–2015, we find that access to finance has significantly positive effects on bank's financial performance in most estimation models controlling for both bank-specific and

macroeconomic variables. The positive financial performance impact is channeled through the growth of loans and the quality of management.

8.3 Addressing Ethics and Ethical Issues

Manipulation of credit ratings, mis-selling of stocks, illegal trading and short-selling of bank stock were among the particular ethics concerns that dominated the financial crisis. Moreover, activities such as stock manipulation and insider trading have long-standing legal issues.

Chapter 9

Future Work & Conclusion

9.1 Future Works

The future for core banking: A short, Medium and Long-term View. Core banking networks frequently end up in a "legacy spaghetti" environment. This is a perfect opportunity to update infrastructure, clean the sprawl or decommission systems and streamline the business processes enabled by the legacy technologies as banks minimize the number of large core computing platforms. And whilst this is a powerful exercise, it is not always adequate to guarantee that the core banking infrastructure has entirely new plumbing. Cleaning is not always adequately extensive or deep enough to reach into the core banking sprawl backed by considerable technological debt.

9.2 Future Scope of Work

Within the limited duration of three months internship program, it is very go through in-depth works related to the IT support manual. During the project work, there was an opportunity to work with the professional and skilled personnel of Standard Bank Limited. It can be said that this manual is not a complete reference or manual or

guideline for IT Division of Standard Bank Limited. Considering the limitations, anyone can improve this manual and there is lot of future scope of work in IT Division of Standard Bank Limited.

Creating New Accounts- The application can be used to create two different types of accounts by the customers, which are Savings Account and Current Account. It helps save the hustle for the customer to visit the bank physically and create/use these accounts.

Depositing Money- As the world is moving towards the limited use of paper currency, depositing or transferring money from one bank to the other will become as easy as clicking a few buttons using this application.

Withdrawing Money- Requests can be sent through the application to ask for money transfer as well.

Account Holder List- This is a feature for the admin. The admin can view the list of all the account holders.

Balance Enquiry- The customer can check their balance via this application.

Changing Passwords/PIN- The customer can easily change the passwords and pin numbers using the application.

Closing- The customer can close their accounts too using this application.

9.3 Conclusion

A core banking system (CBS) as a back-end system that processes daily banking transactions and posts updates to accounts and other financial records. CBSs typically include deposit, loan and credit processing capabilities, with interfaces to general ledger systems and reporting tools. This market assesses CBS vendors based on the multicurrency products they offer in support of a bank's financial transaction management in the retail banking market.

We can say from the above scenario the core banking system of standard bank is following the global standard.

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