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ROYAL AUDIT AUTHORITY



IT Audit Report on Core Banking System in BDBL

April 2019

DISCLAIMER NOTE

The audit was conducted in accordance with the International Standards of Supreme Audit Institutions (ISSAIs). The review was confined to Finacle Core Banking Solution in Bhutan Development Bank Limited. The audit was based on the audit objectives and criteria determined in the audit plan and programme prepared by the Royal Audit Authority and the findings are based on the information and data made available by the Bhutan Development Bank Limited.

This is also to certify that the auditors during the audit had neither yielded to pressure, nor dispensed any favour or resorted to any unethical means that would be considered as violation of the Royal Audit Authority's Oath of Good Conduct, Ethics and Secrecy.



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ROYAL AUDIT AUTHORITY

Bhutan Integrity House

Reporting on Economy, Efficiency & Effectiveness in the use of Public Resources



RAA/TAD/BDBL(ITA-CBS)/2018-19/882

Date: 5/4/19

The Chief Executive Officer
Bhutan Development Bank Limited
Thimphu

Subject: IT Audit Report on Core Banking System of BDBL

Sir,

Enclosed herewith please find the **IT Audit Report on 'Core Banking System of BDBL'** covering the period 01 April 2017 to 30 September 2018. The Royal Audit Authority (RAA) conducted the audit in line with the mandates enshrined in the Constitution of Kingdom of Bhutan and Audit Act of Bhutan 2018. The audit was conducted in accordance with the RAA's Performance Audit Guidelines, which is in consistent with the International Standards of Supreme Audit Institutions on performance auditing (ISSAI 3000).

The objectives of the audit were to assess the effectiveness of system migration in achieving the organisation goals including accuracy and completeness of data migration, effective incorporation of compliance requirements, and adequacy and effectiveness of IT controls in Finacle CBS.

The report has been prepared based on the review of available documents, analysis of data, and discussion with relevant officials of the BDBL. The report contains positive initiatives, shortcomings and deficiencies as well as recommendations aimed at improving the system.

The draft report was issued on 07 February 2019 to the BDBL for factual confirmation, comments and feedbacks. Responses received have been incorporated as well as provided in the report as **Annexure 1**.

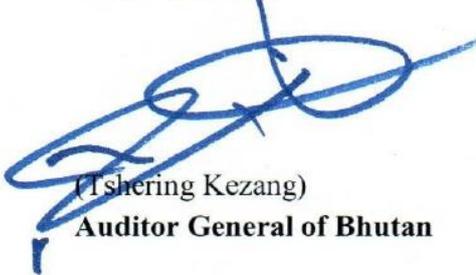
In line with the directives of the Parliament, the RAA has instituted a system to fix the accountability on the officials responsible to implement recommendations provided in the Performance Audit Reports. Therefore, we would request the BDBL responsible for implementation of each recommendation to submit duly completed and signed Management Action Plan and Accountability Statement (attached) to the RAA. **In the event of non-submission of the same, the RAA shall fix the responsibility for implementation of the recommendations on the Head of the Agency.**

The RAA will follow up implementation of the recommendations based on the Management Action Plan and Accountability Statement. Failure to comply will result in taking appropriate actions, which may include suspending audit clearances to the accountable official(s).

The RAA would therefore appreciate receiving a Management Action Plan Report for implementation of audit recommendations with definite timeframe on or before 14 July 2019 along with the signed Accountability Statement.

We take this opportunity to acknowledge the officials of BDBL for rendering necessary co-operation and support which facilitated timely completion of the audit.

Yours sincerely,



(Tshering Kezang)
Auditor General of Bhutan

Copy to:

1. Hon'ble Lyonchhen, Royal Government of Bhutan, Thimphu;
2. Hon'ble Gyalpoi Zimpon, Office of Gyalpoi Zimpon, Thimphu;
3. Hon'ble Speaker, National Assembly of Bhutan, Thimphu;
4. Hon'ble Chairperson, National Council of Bhutan, Thimphu;
5. Hon'ble Opposition Leader, National Assembly of Bhutan, Thimphu;
6. Hon'ble Chairperson, Public Accounts Committee, National Assembly of Bhutan, Thimphu (enclosed five copies);
7. General Manager, Information Technology Department, BDBL;
8. Assistant Auditor General, Follow-up and Clearance Division, RAA;
9. Assistant Auditor General, Policy, Planning and Annual Audit Report Division, RAA;
10. Office copy; and
11. Guard file.

"Every individual must strive to be principled. And individuals in positions of responsibility must even strive harder."
- His Majesty the King Jigme Khesar Namgyel Wangchuck

MANAGEMENT ACTION PLAN REPORT

Recon No.	Audit Recommendation in brief	Action Taken or To be Taken	Estimated Implementation Date	Estimated Completion Date	Responsibility Entrusted to:	
					Name & Designation	EID no.
4.1	Field receipts management should be incorporated in Finacle CBS					
4.2	BDBL should institute robust IT controls in Finacle CBS					
4.3	BDBL should meet and comply strictly with all the compliance requirements					
4.4	BDBL should establish problem management mechanisms					

ACCOUNTABILITY STATEMENT

IT AUDIT ON CORE BANKING SYSTEM OF BDBL

No.	Recommendations	Personal Accountability		Supervisory Accountability	
		Name & Desig.	EID No.	Name & Desig.	EID No.
4.1	Field receipts management should be incorporated in Finacle CBS				
4.2	BDBL should institute robust IT controls in Finacle CBS				
4.3	BDBL should meet and comply strictly with all the compliance requirements				
4.4	BDBL should establish problem management mechanisms				

(s/d)

CEO, BDBL

TITLE SHEET

1. Title of the Report	:	IT Audit on Core Banking Solution in BDBL
2. AIN	:	15742
3. Audited Entity	:	Bhutan Development Bank Limited
4. Audit Period	:	April 2017 to September 2018
5. Audit Schedule	:	27 September 2018 to 10 December 2018
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8. Supervisor	:	Sonam Wangmo, 200401104, Asstt. Auditor General
9. Overall Supervisor	:	Chimi Dorji, 9610060, Deputy Auditor General

ACRONYMS AND ABBREVIATIONS

AIN	Audit Identification Number
BCP	Business Continuity Plan
BDBL	Bhutan Development Bank Limited
CASA	Current Account & Savings Account
CBS	Core Banking Solution
CIF	Customer Information File
DC	Data Centre
DR Site	Disaster Recovery Site
DRP	Disaster Recovery Plan
FD	Fixed Deposit
FOB	Farmers Outreach Banking
GL	General Ledger
IT	Information Technology
NPL	Non-Performing Loan
OD	Overdraft Account
PAR	Portfolio At Risk
PSO	Product Service Officer
RAA	Royal Audit Authority
RD	Recurring Deposit

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EXECUTIVE SUMMARY

The Royal Audit Authority (RAA) conducted the “IT Audit on Core Banking Solution in Bhutan Development Bank Limited” as mandated by the Constitution of the Kingdom of Bhutan and Audit Act of Bhutan 2018. The audit was conducted following Performance Audit Guidelines, which is in line with the International Standards of Supreme Audit Institutions (ISSAI 3000).

The objectives of the audit were to assess the effectiveness of system migration in achieving the organisation goals including accuracy and completeness of data migration, effective incorporation of compliance requirements, adequacy and effectiveness of IT controls in Finacle CBS.

With the increased use of IT in Banks and with the aim to bring operational efficiencies, transform as a bank, and overcome the limitations of the legacy system, the Bhutan Development Bank Ltd. (BDBL) in 2017 implemented Finacle Core Banking Solution (CBS) with a “big-bang” implementation strategy. BDBL has the mandate to provide financial services to enhance rural prosperity, alleviate poverty, and bring in socio-economic development.

Recognising the role of BDBL to accelerate socio-economic development in the country and understanding the criticality of Finacle CBS in this, the Royal Audit Authority decided to carry out the IT audit of CBS in BDBL covering the period 01.04.2017 to 30.09.2018.

During the course of audit, the RAA found positive accomplishments, which included anywhere and anytime banking to its customers through integration of all delivery channels (ATMs, Internet, SMS, Mobile banking), gaining more control over data thereby enhancing service delivery to customers. Besides, positive initiatives included commitment of the top management towards the implementation of Finacle CBS, formation of CBS functional team comprising of officials from IT and business, establishing the Disaster Recovery (DR) site and conducting DR drills.

Apart from positive achievements, the RAA also observed deficiencies and shortcomings that are summarised below:

- i) There was no defined and approved system migration methodology to serve as blueprint for system migration from ABS to Finacle CBS.
- ii) Field receipts management for Farmers outreach Banking (FOB) was found not fully supported in Finacle CBS.
- iii) Draft IT policies were found not enforced.
- iv) Weaknesses in user account and access management have led to 10 employees with more than one user account, 15 generic or unidentifiable user accounts, 18 instances of access rights being wrongly assigned. Moreover, the access rights of former employees were not deactivated in the system.
- v) Loan payoff amounts were not same in the loan register and loan payoff menu screens of Finacle CBS.
- vi) The reports generated by Finacle CBS was incorrect with cases such as unreconciled differences in the trail balance and wrong information reflected in portfolio at risk reports and non-performing loan reports.

- vii) There were non-compliances to RMA's compliance requirements and BDBL's prescribed manuals and notifications while providing loan services.
- viii) Proper problem management was not established as a result the root causes to system problems were not identified and permanent solution was not applied.

These lapses were largely caused due to inadequate control over system migration. Inadequate and ineffective IT controls is the main cause for incorrect information generated by Finacle CBS. Weaknesses in supervisory control also seems to be one of the causes to non-compliances to RMA requirements.

Consequently, these had impacted the bank financially and might do so even in the future. Therefore, the BDBL should seriously address these lapses and root causes in order to render the system effective and credible. To address these lapses, the RAA have provided four recommendations as follows:

- a) incorporate field receipts management in Finacle CBS,
- b) institute robust IT controls in Finacle CBS,
- c) comply strictly with compliance requirements,
- d) establish problem management mechanisms.

While the RAA appreciates the prompt and immediate corrective actions taken by BDBL based on the draft report, the RAA hopes that BDBL will make further improvements to the system, design and implement IT controls and mechanisms for efficient and effective business operations. The BDBL should effectively enforce the Finacle SOP 2018 and ICT Security Policy 2018 to ensure that the audit findings and the recommendations are addressed as assured.

CHAPTER 1: ABOUT THE AUDIT

1.1. Mandate

The Royal Audit Authority (RAA) conducted the “IT Audit on Core Banking Solution in Bhutan Development Bank Limited” as mandated by Article 25 of the Constitution of the Kingdom of Bhutan to audit and report on the economy, efficiency, and effectiveness in the use of public resources.

Further, Chapter 5, Section 69 of the Audit Act of Bhutan 2018 stipulates, “*The Authority shall carry out performance, financial, compliance, special audits and any other form of audits that the Auditor General may consider appropriate.*”

1.2. Audit Standards

The RAA conducted this audit in accordance with the International Standards of Supreme Audit Institutions on performance auditing (ISSAI 3000). The RAA followed audit procedures as prescribed under RAA’s Performance Audit Guidelines and IT audit manual to maintain uniformity and consistencies of approaches in auditing.

1.3. Audit Objectives

The audit objectives were

1. To determine the effectiveness of system migration in achieving the organisation goals including accuracy and completeness of data migration;
2. To assess the effective incorporation of compliance requirements;
3. To ascertain the adequacy and effectiveness of IT controls in Finacle Core Banking System (CBS).

1.4. Audit Approach

Since the BDBL has implemented the Finacle CBS with the Bank’s vision of being a customer-focused bank, the audit approach used was result-based approach. Through the result-based audit approach, the RAA drew an objective tree to derive audit questions and the audit focussed on assessing the efficiency and effectiveness of the Finacle CBS.

1.5. Audit Scope

The IT audit of Finacle CBS covered the period from 01 April 2017 to 30 September 2018 in BDBL.

The audit examined the CBS implemented by BDBL and business processes surrounding the CBS. The audit covered general IT and application controls related to the system including operations, business continuity & disaster recovery, and compliance to laws and regulations governing BDBL. Additionally, recognising the risks involved in system migration, the audit also covered the data migration from ABS to Finacle CBS.

1.6. Audit Methodology

The RAA applied the following methodologies to gather information, analyze data and derive conclusions.

- i. Examined legislation, rules and regulations, policies governing Financial Institutions;
- ii. Studied the Banking Manual and Credit Manual of BDBL;
- iii. Conducted a background study on CBS and its workings, and Finacle CBS;
- iv. Reviewed system documents and any other document related to Finacle CBS;
- v. Studied the limitations of Ascend Banking System, the system used by BDBL prior to implementation of Finacle CBS;
- vi. Drew Process-flow diagrams for processes such as creating users, opening bank accounts, and processing loans;
- vii. Held several rounds of discussion with the project team involved in the implementation of Finacle CBS;
- viii. Conducted walkthrough of the system to observe and understand the activities performed in Finacle CBS and to assess the adequacy of rules and regulations, and policies incorporated in Finacle CBS;
- ix. Test checked and examined the IT controls implemented in the Finacle CBS;
- x. Analysed data in Finacle CBS using IDEA¹ to determine the integrity and accuracy of data, to assess the correctness of interest calculation, and to ascertain the reliability of the reports generated;
- xi. Visited regional offices of Gelephu and the branch offices of Gelephu, Phuentsholing, and Thimphu, and conducted interviews to collect information on their understanding of Finacle CBS and awareness of BDBL's policies;
- xii. Performed analysis of user access levels of different officials;
- xiii. Visited the Disaster Recovery site in Phuentsholing and the Data Centre in Thimphu to determine the level of physical and environmental security controls implemented at these sites; and
- xiv. Carried out comparative analysis of ABS data against data in Finacle CBS to ascertain the accuracy and completeness of data migration.
- xv. Selective review of hard copy documents relating to transactions in the system to check the authenticity of the transactions in the systems,

¹Interactive Data Extraction and Analysis (IDEA) is an auditing tool used by RAA for data analysis

CHAPTER 2: INTRODUCTION

The banking sector in Bhutan has come a long way. As recent as the early 2000s, the traditional model for growth has been through branch banking along with the computerization and automation of individual bank branches. Similarly, even the Bhutan Development Bank Ltd. (BDBL) had automated its branches through the implementation of Ascend Banking System (ABS) in 2007.

With huge mandate to provide financial services to enhance rural prosperity, alleviate poverty, and bring in socio-economic development and the Bank's vision to become a customer focused Bank, it is imperative for BDBL to enhance productivity, increase efficiency, and reduce operational costs. In order to achieve these goals and overcome the limitations of ABS, the BDBL in 2017 implemented Finacle Core Banking Solution² (CBS); a centralised system linking all the branches together for efficient and effective financial service delivery.

As Finacle CBS stores customers' banking information, it is important that BDBL protect this information from unauthorized disclosure, errors, manipulation, loss, and other irregularities. In order to achieve this, the BDBL should embed robust IT controls and compliance requirements in the system.

Therefore, recognising the role of BDBL to accelerate socio-economic development in the country and understanding the criticality of Finacle CBS in this, the Royal Audit Authority has decided to carry out the IT audit of Core Banking Solution in BDBL. The audit particularly emphasised on effectiveness of system migration in achieving organisation goals, data migration, incorporation of compliance requirements, and effectiveness of IT controls in Finacle CBS.

2.1. Background on BDBL

The Royal Charter assimilated Bhutan Development Bank Limited on 31 January 1988, with assistance of the Asian Development Bank (ADB) to function as a development finance institution (DFI). In 2010, the bank obtained a license enabling BDBL to function as a domestic development bank with cheque facilities. The Royal Government of Bhutan (RGoB) owns 96% of paid up share capital.

The head Office is located in Thimphu with three Regional Offices in Paro (western region), Gelephu (central region) and Trashigang (eastern region). The Bank has 35 branches nationwide with 24 Gewog field offices and around 200 community centers. This is depicted in **Figure 1**.

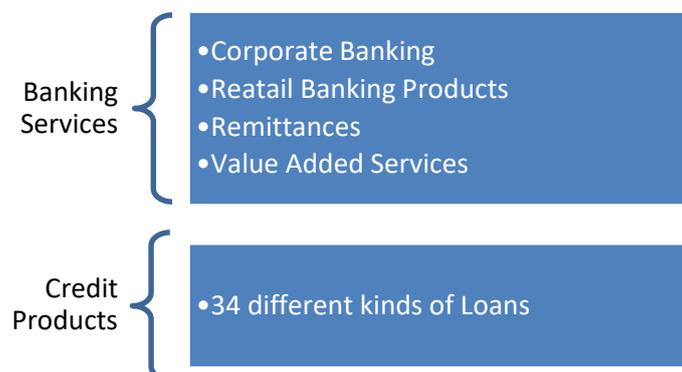
Figure 1: Organizational Structure



²A Core Banking Solution (CBS) is networking of branches, enabling customers to operate their accounts, and avail banking services from any branch enhancing customer convenience through anywhere and anytime banking.

The services offered by the Bank are banking services and credit products and the details of the services are given in **Figure 2**.

Figure 2: Services offered by the bank



The mandates of BDBL are the following:

- Provide micro, small and medium financial services for the development and modernization of agricultural, commercial and industrial enterprises in the country;
- Enhance income of the people thereby improve standard of living through provisions of financial services;
- Provide financial services for private sector development;
- Alleviate poverty;
- Provide technical and advisory services to the enterprises;
- Mobilize external and internal funds for investments.

2.2. Core Banking Solution in BDBL

Since 2007, the BDBL had been using the Ascend Banking System (ABS), from Southtech Limited, Dhaka Bangladesh, which supports both its banking and microfinance services. Apart from Accounting/GL, ABS integrated Current Account and Savings Account (CASA), Deposit, Credit, Customer Information Modules, Micro-Finance Module for Group Lending, Transaction Switching Interface (TSI) module for ATM Service, SMS and Internet Banking Services.

However, ABS is designed on distributed database architecture, which means that ABS has to be installed on every workstation in the branches and each branch will have maintained its own version of the system and data. This led to a host of problems and limitations as listed below:

- i. It became cumbersome and inefficient for BDBL to consolidate data and obtain an overall picture of the Bank's operations at any point of time, which impeded decision-making.
- ii. Each branch functions as a separate entity. For example, customers opening account has its own customer ID in that branch only. If the same customer visits another branch and opens an account there, he will get a new Customer ID of that branch leading to multiple customer IDs for the same customer in one bank. Thus, 360⁰ view of customer information was not possible.
- iii. There were inconsistent and inaccurate data.

- iv. Updating ABS in all the workstations of 35 Branches and 12 extension offices became time consuming.
- v. Integrating third party applications such as Mobile app was difficult due to its distributed architecture and with no standard Application Programming Interface (API) available.
- vi. The vendor makes the changes or customization, if any, in ABS and does not allow in-house customization.

In order to overcome these limitations and having obtained banking license in March 2010, the BDBL embarked on the implementation of Finacle CBS jointly with Nelito Systems, and went live in June 2017, with a “big-bang” implementation strategy. Finacle is a CBS from Edge Verve Systems, a wholly owned subsidiary of Infosys.

CBS is networking of branches, which enables customers to operate their accounts, and avail banking services from any branch of the Bank, regardless of where he maintains his account. CBS also integrates all third party services such as Internet and mobile banking. Thus, with Finacle CBS, the customers of BDBL can avail banking services anywhere and anytime without going to the bank.

Finacle CBS is a complete web-enabled solution and its salient features are:

1. **Centralised Database:** The data of all the branches are stored at a centralized location in Thimphu making it easier for the IT staff to handle any changes and back office functions.
2. **Enhanced Features:** It offers enhanced features (including security patches), which are monitored and implemented centrally by ICT Department, and access are given on a need-to-know basis only.
3. **Effective MIS:** With the data being centralised, Finacle CBS can generate any information or report without depending on the branches, for effective decision-making.
4. **Total integration of Channels:** Finacle CBS can integrate all the existing and envisaged banking channels through Finacle integrator or Connect 24. Thus, automating a majority of the tasks, and reducing the staff burden and giving them ample time for customer on boarding.
5. **One Customer:** Every customer of the branch is now a customer of the bank with a unique customer ID across the bank.
6. **Straight through Processing:** A transaction can occur electronically without any human intervention.
7. **Retail Functionalities:** The software encompasses all the retail functionalities like savings, current, cash credit, overdraft, term deposits, term loans, and safe deposit vault etc. The security features include maker-checker concept, audit trail etc.

CHAPTER 3: FINDINGS

This chapter is divided into two parts: Part 1 highlights the positive initiatives and Part 2 discusses the shortcomings and deficiencies in Finacle CBS of Bhutan Development Bank Limited (BDBL).

Part 1: Initiatives and Positive Developments

The implementation of Finacle CBS has resulted in providing anywhere and anytime banking to its customers through integration of all delivery channels (ATMs, Internet, SMS, Mobile banking). It has also resulted in gaining more control over data and reducing the workload of ICT Department with easier and convenient troubleshooting and system maintenance.

Apart from the aforementioned benefits, the BDBL put in efforts and brought in achievements for the implementation of Finacle CBS, which are as summarised below:

- i. Top Management Commitment to the implementation of Finacle CBS;
- ii. The formation of CBS functional team comprising of officials from IT and business;
- iii. Establishing the Disaster Recovery (DR) site using Bhutan Telecom’s infrastructure;
- iv. Conducting disaster recovery drills by ICT Department.

Part 2: Shortcomings and deficiencies

While recognizing the positive contributions made after implementing Finacle CBS, the RAA’s review also revealed areas that require further improvements, as detailed in this section. The findings were made based on review of available system documents and analysis of data using Computerised Aided Auditing Tools (CAAT) i.e. Integrated Data Extraction and Analysis (IDEA³). The findings are broadly categorized into three; system migration, compliance requirements and IT controls.

3.2.1 System Migration

Having obtained the banking license in 2010 and with the aim to bring operational efficiencies, transform as a bank, and overcome the limitations of the legacy system, the BDBL implemented the Finacle Core Banking System (CBS) in June 2017 with “big-ban” migration strategy. Until May 2017, BDBL was using the Ascend Banking System (ABS), which was holding back BDBL in innumerable ways, and it became cumbersome and costly to maintain the legacy system.

The RAA ascertained the adequacy of system migration process, and the accuracy and completeness of data migration, and noted the following issues.

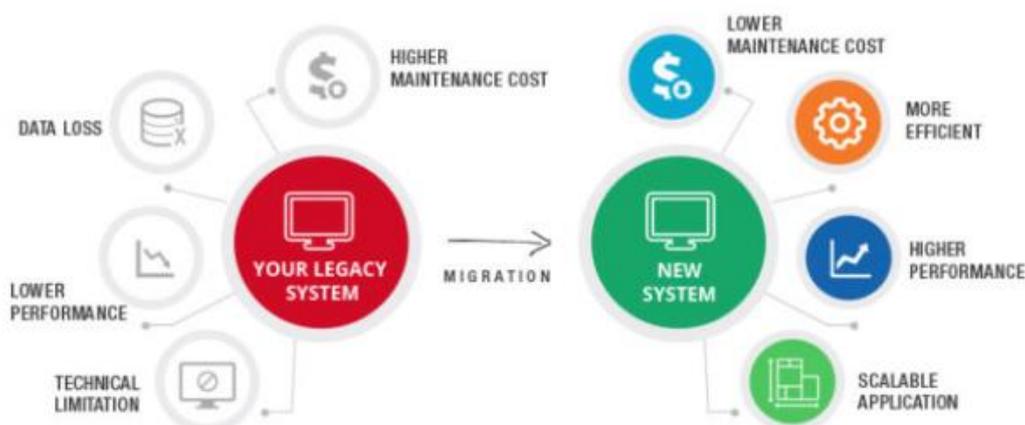
3.2.1.1. Inadequate control over system migration

System migration is the process of moving from the old IT system to a newer IT system in order to gain competitive edge and enhance performance (**Figure 3**). The migration is carried

³Interactive Data Extraction and Analysis Software is an auditing software used by RAA

out to keep up with the current/future technologies and involves huge financial and human resources.

Figure 3: System migration (Source: <http://www.axistechnical.com/dos-donts-legacy-system-migrations/>)



With enormous benefits of a core banking system, system migration is inevitable but it also comes with considerable risks. Therefore, it is imperative for BDBL to mitigate and manage these risks properly and successfully. BDBL should take a holistic view during system migration with a proper plan in place and observe due processes.

With scheduled downtime of six days, big bang migration strategy was adopted by BDBL to migrate from ABS to Finacle CBS and the following activities were carried out by BDBL during system migration.

- a) Representatives from across the business were involved;
- b) Branch readiness and implementation environment were assessed;
- c) Total account balances were noted and tallied with general ledger;
- d) Metadata (characteristics of the data content such as field name, data type, length, table name, etc.) of Finacle CBS were noted;
- e) Mock migrations (mock loads) and mock tests have been performed for one branch and general ledger;
- f) Pre-migration record count (static data) was verified against the post-migration record counts. For example, the total number of clients in ABS was verified against the total number of clients in Finacle CBS.

Yet the aforementioned processes were found to be inadequate as evidenced by the documentation maintained for the same. There was no proper migration plan including identification of data conversion required and test plans. Specifically, the following were observed:

- i. Documentation were incomplete with regard to data mapping of ABS to Finacle CBS and there was no examination of data quality of ABS prior to migration. It was not clear which data fields were transformed and which ones were cleaned and which were not available in the old system and had to be generated during transformation;
- ii. There was no evidence of content analysis and profiling being carried out and hence, it was not clear which product schemes have been merged in the new system, and which

accounts were not migrated;

- iii. There was no evidence of a test plan or test report or any testing conducted during and after migration to ensure that correct processes are followed, and that complete and accurate data is migrated to the new Finacle CBS;
- iv. Similarly, it can be construed that there was no testing conducted to ascertain the reliability of reports generated and if the reports can be generated. This is evidenced by the fact that the Finacle CBS could not generate the reports to follow-up on Non-Performing Loans for five months after the system migration. Product Service Officers (PSO) were unable to conduct proper follow-up on these loans. This had contributed to the huge loss incurred by BDBL in 2017.
- v. Reconciliation was conducted at branch level after migration but only the term deposits were reconciled and not for other accounts (Savings, Current, Overdrafts, loans) to confirm the accuracy of the account balances in the new Finacle CBS;
- vi. Data validation and overall reconciliation was not conducted at bank level and not reconciled against general ledger at overall bank level;
- vii. There was no migration audit conducted by internal audit or an external party to ensure that only reliable and complete data is uploaded to Finacle CBS. As a result, it is seen that IT team are busy attending to resolving the identified errors and problems on a daily basis at the time of audit.

Figure 4: Data migration



These show that there was no defined and approved system migration methodology to serve as blueprint and it could be construed that BDBL did not have a holistic overview of system migration. Inadequate control over system migration process could lead to dire consequences such as:

- Loss of important data required for operation of the bank;
- Wastage of time and effort required for data correction which could have negative impact on bank employees leading to increased hours and stress.

Furthermore, the RAA performed data reconciliation of ABS against the Finacle CBS in order to ascertain the completeness (account count) and accuracy (account balances) of the data migration. Results of all comparative analysis of data migration revealed that all the bank accounts and its account balances have been migrated properly from ABS to Finacle CBS.

The BDBL in their response stated that the ICT Department had initiated the data cleansing however cumbersome due to the limitation of data in ABS and the nature of the Bank's clientele (Customers are all scattered and the update of their information became difficult). For that matter, BDBL has issued office orders and formed a taskforce to follow-up on the cleansing activities.

Further, it was explained that the product schemes were mapped from ABS to be migrated to Finacle CBS and agreed that the list of accounts not migrated would be maintained for future reference. Test cases were developed and periodic reviews were conducted amongst the CBS team members to track the project progress. Further, BDBL

explained that although the branches could not generate reports, the ICT Department had ensured that the information required were extracted and emailed to all the branches. A team was identified to initiate correction of all the impacted accounts and the branches had rectified the same.

The BDBL argued that the data validation and reconciliation were carried out at branch level and not at bank level as the reconciliation at branch level would mean the same at bank level. Moreover, only account balances were confirmed and not number of accounts were not reconciled, as accounts with zero balances were not migrated.

The BDBL clarified that system migration audit was not carried out due to lack of internal expertise and even though the BDBL had floated Request for Proposal twice, no response was received for the same.

While the RAA acknowledges the efforts of the BDBL, it is to reiterate that a holistic approach to system migration was not adopted with a system migration strategy. The BDBL should be mindful of having a strategy in place before implementing any major ICT initiatives.

3.2.1.2. Field receipt management was not fully supported in Finacle CBS

When implementing a new IT system and most particularly an IT software, that is readily available in the market, it is important to identify all business operations and incorporate it in the new IT system. Similarly, BDBL should also carry out a requirement analysis, assess the new IT system's suitability and select the most appropriate software that is the right fit for BDBL's business operations. Additionally, the new IT system should be customised to incorporate those core functions, which were not initially available in the system. Thus, Finacle CBS should adequately support BDBL's business operations. With the implementation of a new system, it is also anticipated that business operations will be re-engineered to bring in efficiencies and enhance performance.

However, during the review, the RAA found that Finacle CBS is not used for the rural banking and credit operations in the field known as Farmers' Outreach Banking (FOB), which is a core business of BDBL; instead, hand written field money receipts are still being used.

The RAA noted that the services such as deposits, withdrawals and loan EMI repayment collections are offered by visiting the rural communities at the pre-determined place (Geog Centers, Community Centers, or Lhakhangs), on a regular basis using the traditional method (hand written money receipts). The field officials update the transactions in the system once they are back in branch offices within three days.

Furthermore, in the earlier ABS system, the inventory of the money receipts was maintained and the money receipt booklet was issued to the field official concerned within the system. Each field official has an individual field account and the official, on return, will deposit the total collection in his own individual field account. The clients' accounts are updated corresponding to the money receipt that is automatically loaded in ABS system as the inventory is maintained in ABS.

In contrast, the RAA observed the following practices:

- i. The inventory of the money receipts is not maintained in Finacle CBS, instead a manual register is kept to record the money receipt booklets received from head office and issued to the field officials;
- ii. As there is no inventory of money receipt maintained in Finacle CBS, the field receipt numbers are entered manually by the official thereby opening the system to more human errors;
- iii. The total field collections by all field officials in a branch is deposited in the sundry account of the branch and the clients' accounts are then updated. As per accounting norms, sundry account is used when the accounting head of the amounts are unidentified and in principle, the use of sundry account here is not clear and wrong as the clients' accounts are already identified;
- iv. If there are any mistakes or errors while updating the clients' accounts, all the field officials who have deposited the total collections into sundry account have to re-verify their work leading to *duplication of effort and inefficiencies*;
- v. With no real time transaction in Finacle CBS, the loan repayments collected in the field are backdated while the banking services such as withdrawals and savings were not backdated. Although backdating any financial transaction is wrong, it was understood that loan repayment transactions are backdated not to penalise the rural clients. Additionally, it is not known if the decision to allow backdating came from the management or with the Board's approval;
- vi. In addition, not backdating savings will lead to client losing interest on savings for the period from the date the amount was collected by the field official until the updated date in the system. Similarly, not backdating withdrawals will lead to bank incurring an expense on interest as the withdrawal transaction was updated after the actual withdrawal.

Nonetheless, the ICT Department explained that the inventory of field receipts functionality is being customised and will soon be rolled out to the branches. However, it is still noted that the Finacle CBS cannot be used in the field to provide FOB services. With more than 90% rural clients (or 27% of total share of products being catered to rural clients), FOB service is a core business function of BDBL and FOB service should have been customised and incorporated in Finacle CBS before the implementation of system. Although this requirement was identified at the initial stage as 'field collection module', the same was not customised in Finacle CBS nor was an alternative solution implemented to cater to FOB service. The customisation was limited to entering the receipt numbers while updating the clients' accounts and the management had accepted the same.

This has led to BDBL still using field money receipts and field receipts are considered as a risk area in the internal control framework. This is also evident from the office orders issued by BDBL instructing officials not to overwrite on the field receipts and from the Auditors' Report 2017 wherein emphasis was given on overwriting on the field receipts and non-updation of clients' accounts on time or otherwise.

The financial service delivery to the rural population is still being delivered using the conventional method through hand written money receipt despite implementing Finacle CBS.

Not being able to use Finacle CBS for FOB service has resulted in rural clients not being aware of the latest status of their loan and savings accounts, which could also have a negative impact of increasing their indebtedness and reducing the Bank's efficiency and effectiveness.

The BDBL in their response clarified that three custom menus were developed and deployed to cater the field receipt inventory from head office to branch and from branch to staffs. However, there was some technical glitches when using the receipts functionality of Finacle CBS in the branches.

The issue has now been fixed and all the functionality required has been put in place and a process flow document was circulated to all users for reference. Moreover, field advance account of individual field officials will be used to deposit the total field collections instead of sundry account.

Regarding the backdating of transactions, a standing order was issued by the management stating that the loan accounts has to be updated within three days by backdating. The BDBL explained that the savings accounts are not backdated due to buffer interest (interest calculated and applied daily on the balance but paid at the end month) as there was a problem of recalculation in the earlier ABS system and this same practice is continued in Finacle CBS.

During the exit meeting, the BDBL expressed that it may not be possible for the bank to incorporate the whole of Farmers Outreach Banking (FOB) processes in Finacle CBS as it will entail using third party integration, which will necessitate huge cost to the bank.

The RAA is pleased with the initiatives taken to enhance the field receipt management in the system and also recognises and accepts that the whole of FOB services cannot be brought online.

However, the BDBL should ensure that the customisations related to field receipt management is fully implemented to ensure that risks related field receipts are minimised. The compliance of assurance will be verified in the follow-up audit.

3.2.2 IT Controls

IT controls are policies, procedures and mechanism that provide reasonable assurance that the IT used by an organization operates as intended, that data is reliable and that the organization is in compliance with applicable laws and regulations. In a way, IT controls are automated internal controls in the system. It is important to ensure the IT controls are embedded and functioning effectively in the system.

Thus, the RAA assessed the adequacy and effectiveness of IT controls in Finacle CBS and noted the following.

3.2.2.1. Non-enforcement of draft IT policies

IT policies ensure the protection of the organisation's assets (including IT equipment, IT infrastructure and business-critical data) from unauthorized access, disclosure, damage, loss and unavailability. Having implemented Finacle CBS, it is critical for BDBL to have IT

policies in place that provide directions on IT operations and information security. As information security is both management and technical issue, the management should ensure the endorsement and enforcement of IT policies.

In this regard, the BDBL had carried out the following activities:

- a) 20 IT policies were drafted;
- b) A core group was formed by the management to review and discuss these policies;
- c) These policies underwent three reviews;

Nevertheless, the approval and endorsement of these IT policies by the BDBL board is still pending, even though these drafts were ready for endorsement since July 2018. These drafts were not endorsed because the BDBL board meeting occurs quarterly and the ICT Department was unable to put this in the agenda of the last meeting.

Non-enforcement of IT policies in BDBL could have the following consequences:

- No proper security measures to ensure the protection of the IT systems such as Finacle system from unauthorized access or physical damage;
- Lack of employee awareness and training on policy and procedures when using Finacle CBS which could lead to information loss, system errors, data misuse/abuse;
- Obscurity when dealing with accountability issues;
- No transparency of the disciplinary actions (whether it's fair, correct penalty) taken against an employee suspected of committing a breach;
- IT systems threats will not be addressed (no strategies to mitigate from these threats, or how to recover);

It has also led to weak IT controls in BDBL as apparent from the observations noted in the subsequent sections.

The BDBL stated that the management has taken note of the observation and accordingly BDB ICT Security Policy and Finacle SOP 2018 was implemented which will streamline and address major processes and procedures.

The RAA appreciates the initiative taken to implement the ICT policies and Finacle standard operating procedures and the RAA also found that the policies were endorsed with effect from January 2019. The RAA would like to stress that BDBL should effectively enforce the policies and operating procedures to enhance the security and operations of the system.

3.2.2.2. Procedural lapses in creating user accounts

User accounts/IDs allow BDBL employees to access and use the Finacle CBS to perform their day-to-day activities. As these accounts/IDs allows employees to use business-critical data in the Finacle CBS, it is imperative that BDBL takes a consistent and systematic approach for the user ID creation in order to mitigate risks associated with false user account creations.

The current procedures of BDBL entails the following steps while creating a user ID:

- a) Supervisor of the employee whose user ID is to be created will email the ICT Department along with the User ID Creation Form;

- b) User ID Creation Forms has details such as the employee name, employee ID, date of ID creation, the signature of the employee, signature of the recommending authority, and signature of the IT administrator who creates the account;
- c) After creating the user ID, the IT official informs the employee whose user ID is created via email;
- d) IT official documents this email correspondence, attach it with the User ID Creation Form and store/secure it for future references.

Despite these procedures, the RAA also noted procedural lapses, which need to be addressed:

- i. User ID Creation Form did not accompany the email correspondences.
- ii. In some instances, emails requesting a change in user access privileges did not contain the requesting employee’s signature. However, the request was approved, and access was given.
- iii. Documentation was incomplete; information such as recommending authority’s details and signatures were missing in the forms as shown in **Figure 5**.
- iv. The details and signatures of the IT official who created the user ID was missing in the forms as illustrated in **Figure 5**. The details and signatures of an employee who could verify the account creation as a witness was missing as well.

Figure 5: Incomplete user ID form



Such incidences imply that proper verification is not carried out and due diligence is not followed for user creation procedure by the officials concerned. Incomplete user ID creation forms and unverified emails being processed and subsequently getting approved for user ID creations might have the following effects:

- Any employee could seek a change in access privileges and obtain it. This will enable the employee to access, alter, modify, delete business critical data that they are prohibited from accessing;
- If an email account of an existing employee is hacked, a hacker can send a request for a user ID creation for a fake employee using this email account in-order to gain access to the Finacle CBS and bank data.

This had also resulted in employees having more than one user IDs and unauthorised users in Finacle CBS.

The BDBL stated that management has taken note of the observation and accordingly BDB ICT Security Policy and Finacle SOP 2018 was enforced which will streamline and address major processes and procedures. The BDBL assured that user creation and user access forms were developed in the Finacle SOP 2018, and these forms would be used to address the procedural lapses in creating user accounts.

The RAA noted and verified the user creation and access forms that has provision for assigning access for officiating and temporary access. As assured, BDBL should streamline the user creation procedures to avoid unauthorised users in Finacle CBS.

3.2.2.3. Inadequacies in user account management

User IDs are login names or usernames to identify a user/employee and allow access to a computer system, in this case the Finacle CBS. It is used in conjunction with a password and is the most common authentication mechanism in a computer system.

User IDs must be unique. In other words, each user ID must be associated with a single employee so that IT administrators can efficiently manage the overall operations of the computer system and track user activities effectively. Thus, no employee should have more than one user ID.

Further, for the user IDs to be consistent and unique, user ID generating process must follow a particular naming convention. These naming conventions can be according to employee ID, CID or employee name. BDBL user IDs are generated based on the *xxx protected number xxx*. Hence, generic or unidentifiable user IDs should not be used which cannot be tagged to a single employee.

The RAA analysed all the user IDs in Finacle CBS and found the following deficiencies:

- i. There were **ten employees** assigned with more than one user ID thereby defeating the purpose of having one unique identifier (user ID) per user. Specifically, there were more than one user ID created for two IT officials and one user ID of one IT official is the employee ID of the research officer. Likewise, there were two user IDs of an assistant general manager and one of her user ID is the employee ID of the personal assistant of Dy. CEO.
- ii. 15 generic or unidentifiable IDs such as 'FIVUSR', 'AUDIT1', etc. were discovered. These should not be permitted as a means of granting access to Finacle CBS because generic ID makes it difficult to identify individuals and fix accountability if fraudulent activities are performed under these user accounts. **Table 1** shows the generic IDs in

Finacle CBS.

Table 1. List of generic or unidentifiable IDs

Sl.No	User ID	User Name	User inactive?
1	0001	AUDIT1	No
2	AUDIT1	audit1	No
3	FIBATUSER	FIBATUSER	No
4	FINACLECRM	CRMUSER	No
5	FIVUSR	FIVUSR	No
6	MIG1	MIGRATION USER1	No
7	MIG2	MIGRATION USER 2	No
8	MIG3	MIGRATION USER 3	No
9	MIG4	MIGRATION USER 4	No
10	MIG5	MIGRATION USER 5	No
11	MIG6	MIGRATION USER 6	No
12	MIG7	migration user 7	No
13	MIG8	MIGRATION USER 8	No
14	UBSADMIN		No
15	UBSROOT		No

- iii. 13 user IDs were found in the system that were not created based on the naming convention proposed by BDBL as shown in **Table 2**. This defeats the purpose of having a consistent naming convention.

Table 2. User IDs not as per convention

Sl.No	User ID	User Name	User Inactive?
1	0001	AUDIT1	No
2	1208554	GINA DEVI	No
3	AUDIT1	audit1	No
4	BDB1001	Neera Acharja	No
5	BDB1002	Kezang Choden	No
6	BDB53	sonam letho	No
7	BDBAUD1	External Auditor	No
8	BDBC001	kezung choden	No
9	BDBCCIT01	Kezang Choden	No
10	BDBIT01	Kezang	No
11	BDBIT02	Chinnasamy Kandasamy	No
12	BDBIT03	IT	No
13	CCIT01	Chinnasamy Kandasamy	No

Upon enquiry with IT officials, it was known that generic IDs such as MIG1, MIG2 were created at the time of system migration and are no longer in use. Similarly, other IDs such as BDB1001, BDBC001 were created for the IT officials who do not have employee ID. Finally, user IDs such as AUDIT1, BDBAUD1 were created for external auditors who required access to the Finacle CBS.

Inadequacies in user account management indicate that due diligence is not followed to either assign one user account to a single employee or maintain unique user IDs or disable temporary

user IDs once their functions are completed. Having multiple user IDs and generic IDs will make it difficult for the IT administrators to efficiently assign rights, track user activity and manage overall operations of the Finacle CBS. This could also increase difficulty in fixing accountabilities in case of malicious activities performed in the system.

The BDBL explained that generic IDs were created at the time of data migration, which are now disabled. Further, some user IDs are default system user accounts, which are used for Finacle system related administration and the users do not have access to these accounts. Furthermore, all other user IDs are now disabled and with Finacle SOP in place, proper process and procedures will be followed for the user access management as earlier users were created without no clear-cut standards.

The RAA verified and found all irrelevant user accounts reflected in the report were disabled and deleted. As agreed, the BDBL should ensure that proper user account management is maintained in order to minimize the risk of compromising integrity, confidentiality and availability of Finacle data. Further, the BDBL should ensure due diligence in user account management and that no employee is assigned more than one user ID and follow proper naming convention to avoid generic IDs in the system.

3.2.2.4. Access privileges given not as per the roles and responsibilities

Access privileges or access rights of employees to Finacle CBS should be assigned in accordance to their roles and responsibilities in order to limit fraudulent practices. For instance, a teller should not have access to loan functions whereas a loan officer will have those access privileges. The access privileges should be changed as the employee's responsibilities changes.

The purposes of limiting access to data and information are to ensure (1) users have only the access needed to perform their duties, (2) access to sensitive resources is limited to only those for which it is required to carry out their job functions, and (3) employees are restricted from performing incompatible functions or duties beyond their responsibility.

The RAA tested the adequacy of access privileges assigned within the system by comparing the employees' designation against the role assigned in Finacle CBS using IDEA software. The analysis showed that the assigned responsibilities and rights assigned in the system do not match for 18 employees. This indicates that while creating user IDs and granting access to the system, the actual responsibilities of the users were not considered. These instances are shown in **Table 3**.

Table 3. Employee responsibility and their access rights to the system do not match

SI. No	User ID	Employee ID	Role Assigned in System	Designation	Department/Division	User account status Active in the system
1	BDB0810	0810	ADMINISTRATOR	HRA	HRM	Yes
2	BDB0216	0216	AGM	Account Officer	TMB	Yes
3	BDB0376	0376	AGM	Customer Desk Asstt.	Customer Care	Yes
4	BDB0723	0723	BANKING OFF-A	Customer Desk Asstt.	Phuentsholing	Yes

SI. No	User ID	Employee ID	Role Assigned in System	Designation	Department/Division	User account status Active in the system
5	BDB0061	0061	BRANCH MANAGERD	Legal Officer	NPA Unit	Yes
6	BDB0086	0086	BRANCH MANAGERD	Project Officer	CC, Operation	Yes
7	BDB0318	0318	BRANCH MANAGERD	Teller	Haa	Yes
8	BDB0787	0787	BRANCH MANAGERD	Customer Desk Asstt.	Trongsa	Yes
9	BDB0065	0065	LOAN OFFICER-C	Accountant	CSIFD	Yes
10	BDB0206	0206	LOAN OFFICER-C	Teller	Doksum GFO	Yes
11	BDB0397	0397	LOAN OFFICER-C	Teller	Gelephu	Yes
12	BDB0480	0480	LOAN OFFICER-C	Teller	TMB	Yes
13	BDB0581	0581	LOAN OFFICER-C	Teller	Buli GFO	Yes
14	BDB0459	0619	LOAN OFFICER-C	Network & Security Adm.	ICT Dept.	Yes
15	BDB0454	0454	LOAN OFFICER-D	Customer Desk Asstt.	C Care	Yes
16	BDB0198	0219	SYSTEM	Asstt. General Manager	F&T D	Yes
17	BDB0727	0727	COMPLIANCE	Project Officer	Western	Yes
18	BDB0111	0111	HEAD TELLER	Bank G. Asstt.	TMB	Yes

As can be seen from **Table 3**, an employee working in Human Resources is given the administrator role in Finacle CBS, which is not in line with the employee's responsibilities. Similarly, a customer desk employee and a teller are given the branch manager access in Finacle CBS. A network/security administrator is also assigned with a role of loan officer in the system. Additionally, these cases also suggest that user access to Finacle CBS are not reviewed and updated periodically.

Moreover, the user access level data maintained with ICT Department is incomplete or not updated as roles such as AGM, compliance, manager, OGM, System, Treasury officer, Credit AGM assigned to system users are not present in the list.

Assigning rights without considering users' responsibilities could lead to intentional or unintentional errors and opening rooms for fraud and malpractices.

The BDBL explained that with transfer of staffs or change of responsibilities, the user roles are changed in the system. In some exceptional case lower work class are assigned higher working class to facilitate faster services.

The BDBL further commented that users assigned wrong access rights have been rectified in the system and the bank is in the process of assigning proper work class as per the approved Finacle SOP – 2018.

The RAA noted that the user accounts in the observation were updated (either deleted or updated the user role). However, BDBL should revise the user roles and its assignment to appropriate officials along with a monitoring mechanism in place. There should be procedures to update the user access as soon as an official is transferred or separated. While noting the manpower shortage and the need to deliver services, BDBL should deliver faster services but not at the cost of security.

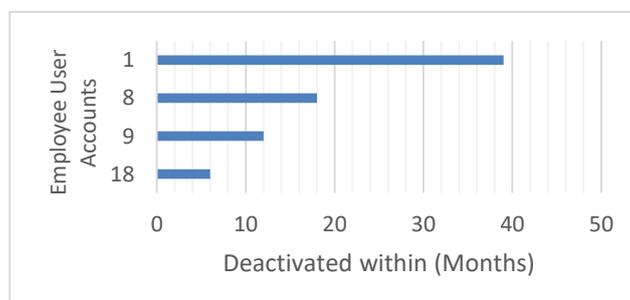
3.2.2.5. Delay in deactivation of user accounts of former employees

Each BDBL employee during their employment period are given an account with certain level of privileges (as per their job requirement) to access certain set of sensitive information and data to perform their day-to-day activities. These user accounts should be carefully monitored and managed by the IT administrators, and deactivated when an employee voluntarily resigns, superannuates or is terminated. Therefore, these accounts of former employees should be deactivated to avoid unauthorized access to sensitive information and reduce the risk of undetected fraudulent activities in the system.

In order to ascertain whether the accounts of former employees were disabled, RAA obtained a list of employees relieved from their duties during the financial year 2017-2018 and verified against the latest list of all the deactivated accounts using IDEA software. During this verification, the RAA observed the following:

- i. Of the 52 employees who had left the bank in 2017-18, 15 user accounts were not deactivated in the system. The access rights and user accounts were neither revoked nor disabled.
- ii. 36 Former employee user accounts were deactivated only after 29 to 1173 days from their relieving date. The deactivation date (4th and 5th October 2018) reflected that the deactivation was done during the time of audit and when the RAA asked for list of deactivated users in the system. This clearly represents negligence from the IT administrators and higher authorities of BDBL in enforcing secure IT access policy. **Figure 6** show delays in the deactivation of former employee's account in the system. The user account of one former employee was deactivated after 39 months (1173 days) while 18 user accounts were deactivated within 6 months.

Figure 6: Delay in deactivation of former employees' user accounts



- iii. Out of 10 suspended employees, user accounts of three employees were still active in the system. **Table 4** shows details of these three employees

Table 4. List of suspended employees who were not deactivated in the system.

SI #	EMP ID	Designation	Branch/ Division	CID Number	Suspended dated	Remarks
1	BDB0345	Bank G. Officer	Main Branch	11705001883	08/11/2016	Embezzlement case
2	BDB0357	Project Officer	L/Zingkha	11306001129	25/11/2016	Embezzlement case
3	BDB0297	Teller	Wamrong	11514004521	02-03-2017 to 01-04-2017	Embezzlement case

Delays and not deactivating former employees had occurred due to the following:

- Lack of proper monitoring and management of user accounts;
- Negligent attitude on the part of the IT administrators and officials concerned to deactivate the accounts directly; and
- Lack of proper procedures on handling accounts of suspended and terminated employees.

A disgruntled employee (recently terminated or suspended) is a threat agent. If their accounts are not deactivated or disabled immediately after their separation, these disgruntled employees may:

- ➔ try to access, steal, alter or delete important and sensitive bank data such as credit card numbers, account names, transaction summary, etc;
- ➔ transfer funds illegally;
- ➔ leak/sell information to malicious outsiders such as hackers which will assist the hacker in successfully bypassing the security features in the system;
- ➔ social engineers can easily deceive or trick unhappy employees for information that can be used to hack the system or cause damage to the reputation of the bank.

These might affect the functioning of BDBL and in worst-case scenarios; it can cause a severe financial loss from which BDBL may not be able to recover. This will also cause a huge PR disaster and customers may lose faith and confidence in the bank prompting them to switch banks.

The BDBL responded that the user administration were maintained at the SSO (Single Sign On) admin and FINCORE level. User creation and deletion were done at the SSO level and the users deleted in the SSO level cannot access any of the functions at FINCORE level. The employees in the list above were already deleted in the SSO level but not at FINCORE level and they do not have access to the system. Additionally, the BDBL mentioned that, with Finacle SOP 2018 in place, the whole user access management process is being implemented.

While the RAA verified and found the users listed in the observation were indeed deleted, the BDBL should establish proper procedures between HR and ICT Departments to deactivate the user accounts of former employees. BDBL should ensure that employees who are no longer with the bank do not have access to the system to avoid unnecessary risks to integrity and confidentiality of the information.

3.2.2.6. Loan payoff amount in two screens are different

Processing controls provide an automated means to ensure that data are processed and calculations, if any, are performed as per rules and standards without any omission or double-

counting. For instance, applicable interest rates should be used while calculating interest for bank accounts, which should accrue at the end of each month. In the same way, the loan payoff amount should be calculated correctly and the same amount should be displayed in the 'Loan General Details' and 'Loan Pay Off Process' screens of Finacle CBS. Thus, it is important to assess the adequacy of processing controls in a banking system like Finacle CBS.

During the assessment, the RAA noted differences in the loan payoff amount of the same loan account in 'Loan General Details' and 'Loan Pay Off Process' screens of Finacle CBS. Loan payoff amount is the total outstanding loan balance of a loan that is used to pay off the loan. One specific case is presented in case study 1.

Case Study 1: Different loan pay off amount for the same loan account

The RAA, while comparing loan pay amount through 'Loan Pay Off Process' and 'Loan General Details' pertaining to a loan on Agri. & Animal Husbandry, noted that the payoff amount vary from one another. The payoff amount in 'Loan Pay Off Process' is Nu. 234,343.15 (Figure 7) while the payoff amount in 'Loan General Details' is Nu. 232,485.78 (Figure 8) resulting in difference of Nu. 1,857.37.

Figure 7: Loan pay off Process screen

Function	Inquiry of Pay Off		
A/c. ID	002352130009	BTN	0230 Mr. Mair Singh Lepcha
Collect/Refund A/c. ID			
Pay Off Value Date	06-12-2018	Interest Calculation up to Date	05-12-2018
General Ledger Date	06-12-2018		
Reason Code			
Net Payoff Amt.	234,343.15	A/c. Liability	224,833.47
Pending Principal	150,652.45	Pending Normal	58,915.30

Figure 8: Loan general details screen

A/c. ID *	002352130009		
Go	Clear		
Past Due Account			
Scheme Code	LA701 AGRI & ANIMAL HUSBANDRY	A/c. Bal.	224,833.47
CF ID	0141098		
Communication Address 1	Communication Baldendara		
Communication Address 2	Dzongkhag 001 BUMTHANG		
Communication Address 3			
Gewog	014 Phuentsholing	Country	BT BHUTAN
Postal Code	011001	Phone No.	
A/c. Open Date	15-01-2013	Maturity Date	05-01-2018
Loan Amt.	200,000.00	Advance Interest Collected	0.00
Schedule Balance	224,833.47	Pay Off Amt.	232,485.78

From the case study presented above, it can be transpired that Finacle CBS does not calculate and display the loan payoff amount correctly in one of the screens. The cause of this seem to be bugs in the system and it was known that patches were applied to the system. Nonetheless, it is apparent that the application of patches (fixes) had still not resolved the problem. It can be deduced that the consultant hired for such specific problems had not fixed the problem yet.

Consequently, due to such problems, the bank officials were instructed to use the payoff amount displayed in 'Loan Pay Off Process' when clients come to close their loan account as the interest up to that date is calculated in 'Loan Pay Off Process' and not in 'Loan General Details'. However, some bank officials had inadvertently closed off loan accounts using the loan payoff amount in 'Loan General Details'. 'Loan General Details' screen only calculates and displays the loan payoff amount since the last interest run date or the last month's interest and not up to the current date of viewing. The resultant effect was that the loan balance is shown as zero while the remaining interest is still being reflected for some loan accounts. An instance is presented under case study 2.

Case Study 2: Loan balance zero but payoff amount shown as credit balance

The resultant effect of different loan pay off amounts displayed in two screens of the same account was studied. The RAA found that a seasonal loan account was closed through the 'Loan General Details' screen in September 2018 and the loan balance made zero but the loan pay off amount was shown as Nu. 9,802.80 as of 06 December 2018 as portrayed in **Figure 9**. This was because the payoff amount in 'Loan General Details' was calculated till August 2018 while the loan balance (loan payoff) was made zero on 18 September 2018. The remaining interest calculation of 1 day was not actually paid off and thus, was reflected as Nu. 9,802.80 as of 6 December 2018.

Figure 9: Loan balance is zero but the payoff amount is reflected as Nu. 9802.80

Field	Value	Balance
Scheme Code	LA715 SEASONAL LOAN	A/c. Bal. 0.00 C
CIF ID	0124297	
Communication Address 1	Communication Chokhorling	
Communication Address 2	Address 2	
Communication Address 3	Dzongkhag 013 SARPANG	
Gewog	125 Dekiling	
Country	BT BHUTAN	
Postal Code	011001	
Phone No.		
A/c. Open Date	21-08-2017	
Maturity Date	21-07-2018	
Loan Amt.	1,500,000.00	
Advance Interest Collected		0.00 C
Schedule Balance	0.00	Pay Off Amt. 9,802.80 C

Due to such wrong processing, the clients were asked to payoff again which is harassment to the clients. In some cases where the resultant payoff amount was small, the bank officials cited being hesitant to inform the clients and had paid off the amount themselves. Such wrong processing of data and its resultant effect will lead to client losing trust in BDBL and ultimately, BDBL may lose its client base.

The BDBL responded that Finacle CBS has different menus from where loan collections can be carried out and the cases mentioned in the observation can be attributed to users using the wrong screens (using HLASPAY instead of HPAYOFF) when paying off and closing a loan account. At times, the payoff figure is different in 'loan general detail' screen and 'payoff' (HPAYOFF) screen due to the way in which interest is accrued, booked and applied. The 'payoff' screen shows the total interest accrued on the day of checking while the 'loan general details' shows the interest applied on the last demand date. The account has to be paid off from 'payoff' (HPAYOFF) menu so that the interest accrued and booked till date is applied and collected.

The RAA agrees with BDBL's response and found 'Loan payoff and account closure' guideline drafted but BDBL should identify and rectify all such cases and intimate RAA through the

Management Action Plan Report. There is also a need to raise awareness to the users on the use of menus of Finacle CBS.

3.2.2.7. Incorrect report generation by Finacle CBS

Being a widely used core banking system, it is expected that Finacle CBS will generate accurate and correct reports that can be relied upon to make business decisions. The reports generated has to be customised to suit BDBL's requirements and tested for completeness and accuracy. Since reports are consumed to make informed decisions, the reports generated should be complete, accurate and ultimately, reliable.

On the contrary, while verifying the correctness and completeness of reports generated, the following anomalies were noted as detailed below.

a. Unreconciled difference in trial balance generated by Finacle CBS

Finacle CBS generates general ledger and trial balance of each branch and at bank level. These reports are important and critical input to prepare the financial statements of BDBL. Having recognized its importance, the correctness and accuracy of such documents are reckoned as a necessity. Thus, it is of utmost importance that the general ledger and trial balance generated be error free and accurate.

The RAA examined the financial statements generated by Finacle CBS and observed accounting errors in the trial balance of some branches of the bank. As per accounting norms, debit and credit amount of trial balance should tally. On the other hand, the credit and debit do not tally thereby generating an unreconciled difference in trial balance.

The review of monthly trial balance of BDBL's Thimphu Main Branch commencing from June 2017 till September 2018 showed mismatches between debit and credit amount thereby resulting into differences as shown in **Table 5**. Likewise, there were mismatch between debit and credit amount for 23 branches of the bank until October 2018. Except for Thimphu Main Branch and Trashiyangtse Branch Office, the ICT Department recently resolved these errors in the trail balance of other branches.

Table 5. Difference in debit & credit amount in trial balance of Thimphu Main Branch

Month	Debit Amount (Nu.)	Credit Amount (Nu.)	Difference Amount (Nu.)
Jun-17	19,110,977,258.38	19,120,096,906.60	-9,119,648.22
Jul-17	18,920,879,613.28	18,929,984,262.40	-9,104,649.12
Aug-17	19,346,450,975.28	19,355,653,424.59	-9,202,449.31
Sep-17	20,408,320,372.61	20,400,790,211.16	7,530,161.45
Oct-17	19,218,050,892.59	19,217,475,338.32	5,75,554.27
Nov-17	19,609,517,533.33	19,618,627,700.46	-9,110,167.13
Dec-17	19,872,721,969.83	19,883,269,139.68	-10,547,169.85
Jan-18	17,880,620,402.59	17,891,132,859.23	-10,512,456.64
Feb-18	18,122,065,559.62	18,132,641,794.34	-10,576,234.72
Mar-18	18,657,437,313.61	18,667,987,994.52	-10,550,680.91
Apr-18	18,093,883,944.28	18,104,536,334.22	-10,652,390

Table 5. Difference in debit & credit amount in trial balance of Thimphu Main Branch

Month	Debit Amount (Nu.)	Credit Amount (Nu.)	Difference Amount (Nu.)
May-18	18,919,239,578.59	18,929,873,201.05	-10,633,622.46
Jun-18	19,547,830,802.90	19,558,595,121.86	-10,764,318.96
Jul-18	19,344,688,654.64	19,355,406,950.22	-10,718,296
Aug-18	19,275,962,032.51	19,286,511,222.66	-10549190.15
Sep-18	18,988,575,946.32	18,988,015,477.81	560,469

The reason for mismatch between debit and credit balance was stated to be problems with summation. Although the trend of mismatch between the debit and credit balance is decreasing, the debit and credit amounts of trial balance for Thimphu Main Branch and Trashiyangtse Branch do not match.

As trial balance is part of the accounting cycle, such inaccuracies cannot be relied upon and will only impede the preparation of BDBL's financial statements as more time and effort is needed to correct the errors. This also raises question of the correctness of the bank's financial statements.

The BDBL in their response explained that the difference in the trial balance occurred due to inter SOL (inter branch) transactions not happening properly after go-live which was resolved towards the end of October 2018 only. However, BDBL stated that the difference in trial balance has no effect at the bank level as the debit and credit were matching.

The RAA verified trail balance of December 2018 of Thimphu Main Branch and found that the same was rectified. Nevertheless, the reports generated by Finacle CBS should be tested properly in the future.

b. NPL reports were not generated for five months after migration

Non-Performing Loans (NPL) reports is an important report of BDBL to assist the management to assess the list of non-performing loans of the bank and to conduct follow-up on such loans.

Due to inadequacies in system migration, proper testing of reports generated by Finacle CBS was not conducted and hence, NPL reports were not generated for five months. This had major consequences as loan repayments could not be collected on time and impacted the income of the bank.

The BDBL responded that the report testing was conducted in short period due to involvement of the entire CBS task force in Finacle CBS. The BDBL also explained that after migration branches were not able to generate report through IP/VPN network as the reports were tested in high speed LAN at Head Office premise. The CBS team generated the required reports from the backend for business continuity.

The BDBL assured that the issue was now fixed with the deployment of patches and following reports are now corrected and fine-tuned.

a. PAR Report (PSO-Wise/Branch Wise)

- b. NPL Report (Loan Asset Classification Report)
- c. Ledger Report
- d. Field Collection Report
- e. Loan Register Report
- f. Trial Balance & GL Reports

The RAA recognises the fact that system migration is huge task and the IT resources were engaged in system migration but reports such as Non- Performing Loans report is an integral part of the business and it should be tested properly. Nonetheless, the RAA verified and found the reports corrected.

c. Incorrect generation of Product Service Officer-wise Portfolio At Risk report

The verification of Product Service Officer (PSO) wise Portfolio At Risk (PAR) report disclosed that the report reflects names of those PSOs who are either transferred or resigned and no more under the branch.

For instance, in Gelephu Branch, the PSO who is no longer under the Branch is still reflected in PSO-wise PAR report at the time of audit as shown and highlighted in **Figure 10**. This error was corrected instantly.

Figure 10: Wrong PSO reflected in PAR report of a branch

PSO ID	PSO Name	No of Active Accounts	Total Outstanding	Standard	Watch	Sub-Standard	Doubtful	Loss	Portfolio at Risk >30 Days			Portfolio at Risk >90 Days		
									Accts	Amount	Ratio	Accts	Amount	Ratio
BDB0302	MR. PREM BDR. BISWA	490	179,150,613.40	114,477,271.72	15,431,708.18	11,505,939.66	6,881,770.04	30,853,923.80	172	64,673,341.68	36.1	124	49,241,633.50	27.49
BDB0343	MS. BIR MAYA CHHETTRI	298	100,431,446.52	71,959,768.60	6,426,792.01	5,330,723.49	5,189,649.32	11,524,513.10	100	28,471,677.92	28.35	75	22,044,885.91	21.95
BDB0344	MS. TASHI LHAMO	339	161,777,481.31	96,711,580.94	11,769,835.88	4,951,543.79	12,174,471.02	36,170,049.68	99	65,065,900.37	40.22	66	53,296,064.49	32.94
BDB0544	MR. PHUB TSHERING	1	384,400.67	384,400.67	0.00	0.00	0.00	0.00	0	0.00	0	0	0.00	0
BDB0554	MS. TSHERING DOLKAR	347	128,645,159.83	91,298,112.14	7,740,693.16	7,022,215.42	4,692,451.18	17,891,687.93	126	37,347,047.69	29.03	93	29,806,354.53	23.01
BDB0564	MR. NAMGYEL DORJI	288	100,406,016.81	64,664,080.19	9,973,527.61	14,912,324.61	1,742,549.63	19,113,534.67	100	45,741,936.42	45.56	70	35,768,408.81	35.62
	Total	1763	679,795,118.34	429,495,214.26	51,342,556.84	43,722,746.97	30,680,891.09	115,553,709.18	599	241,299,904.68	35.97	428	189,957,347.24	28.32

Likewise, in Phuentsholing Branch, three PSOs' names were reflected in the PSO-wise PAR report even when they were no longer under Phuentsholing Branch.

The BDBL responded that during migration, all accounts were migrated with USBRoot users and the responsibility lies with the respective branch office to transfer portfolio of staffs.

Such incorrect generation of reports indicates the need for due diligence by the branches and the BDBL should institute a proper monitoring mechanism in place.

d. Accounts with zero balance reflected in Non-Performing Loan report

There were also instances of accounts with zero balance being reflected in Non-Performing Loan (NPL) reports. This is a clear indication of lack of adequate controls in the system. Such instances will not only increase the number of loan accounts that are non-performing but also mislead the decision makers.

Inaccuracies in reports confirm that the Finacle CBS is not able to generate correct and reliable reports. Although a consultant was hired to create customized reports and fine tune existing customised reports, errors still persist in the reports generated by Finacle CBS.

Control weaknesses in Finacle CBS to correctly generate reports, has led to unbalanced trial balance, incorrect PSO-wise PAR and NPL reports. These will subsequently impede effective monitoring, may result in making wrong decisions and could impact the income of the Bank.

The BDBL stated that loan account with zero balance does not have any negative impact on the profitability of the banks and all accounts with zero balance have been excluded from non-performing loan report.

The BDBL further explained that the accounts with zero balance were found active due to non-closure of account from CAACLA & HCAAC after loan repayment.

NPL reports generated should be correct and only non-performing loans should be reflected. Although the zero balance does not impact on the profitability, it does increase the number of accounts which are non-performing. It is observed repeatedly that account closure procedures are not properly followed and BDBL should train/remind their officials on account closure procedures properly and familiarise the users on the different menus in Finacle CBS. Further, BDBL should initiate to close all such accounts wherein zero balances are reflected.

3.2.2.8. Wrong master data mapping in the system

Master data is a list of data, which is used as a common point of reference, and it removes duplicates and standardises data (mass maintaining). Master data is an authoritative source of data. List of Dzongkhags, Gewogs, departments/regional offices under an organisation are examples of master data. Master data has to be mapped with its corresponding sub data correctly. In this context, the Gewogs have to be mapped to its Dzongkhags correctly. Since master data are used as reference data, it is all the more important to map it correctly with the corresponding sub data.

However, the RAA observed that gewogs were not correctly listed according to their Dzongkhags. Particularly, the Gewogs under Bumthang and Chhukha Dzongkhags do not match to its Dzongkhags. Instead, the Gewogs under Bumthang were reflected under Chhukha Dzongkhag and vice-versa as shown in **Figure 11**.

Figure 11: Gewogs of Bumthang Dzongkhag mapped against Chhukha Dzongkhag

REGION	DZONGKHAG	GEWOG	REGION	DZONGKHAG	GEWOG
Centr	SAMTSE	SIPSI	West	BUMTHANG	CHAPCHHA
Centr	CHHUKHA	CHHOEKHOR	West	BUMTHANG	BJACHHO
Centr	CHHUKHA	CHHOEKHOR	West	MONGAR	DRAMITSE
Centr	CHHUKHA	CHHOEKHOR	West	MONGAR	DRAMITSE
Centr	CHHUKHA	URA	West	BUMTHANG	BJACHHO
Centr	CHHUKHA	CHHOEKHOR	West	BUMTHANG	BJACHHO
Centr	CHHUKHA	CHHOEKHOR	West	BUMTHANG	CHAPCHHA
Centr	CHHUKHA	CHHOEKHOR	West	BUMTHANG	BJACHHO
Centr	CHHUKHA	CHHOEKHOR	West	BUMTHANG	CHAPCHHA
Centr	CHHUKHA	CHHOEKHOR	West	BUMTHANG	BJACHHO
Centr	CHHUKHA	CHHOEKHOR	West	BUMTHANG	CHAPCHHA
Centr	CHHUKHA	CHHOEKHOR	West	BUMTHANG	BJACHHO
Centr	CHHUKHA	CHHOEKHOR	West	BUMTHANG	CHAPCHHA
Centr	CHHUKHA	CHHOEKHOR	West	BUMTHANG	BJACHHO
Centr	CHHUKHA	CHHOEKHOR	West	BUMTHANG	CHAPCHHA
Centr	CHHUKHA	CHHOEKHOR	West	BUMTHANG	BJACHHO
Centr	CHHUKHA	CHHOEKHOR	West	BUMTHANG	CHAPCHHA
Centr	CHHUKHA	CHHOEKHOR	West	BUMTHANG	BJACHHO
Centr	CHHUKHA	CHHOEKHOR	West	BUMTHANG	CHAPCHHA
Centr	CHHUKHA	CHHOEKHOR	West	BUMTHANG	BJACHHO
Centr	CHHUKHA	CHHOEKHOR	West	BUMTHANG	CHAPCHHA
Centr	CHHUKHA	CHHOEKHOR	West	BUMTHANG	BJACHHO
Centr	CHHUKHA	CHHOEKHOR	West	BUMTHANG	CHAPCHHA
Centr	CHHUKHA	CHHOEKHOR	West	BUMTHANG	BJACHHO
Centr	CHHUKHA	CHHOEKHOR	West	BUMTHANG	CHAPCHHA
Centr	TRASHIGANG	LUMANG	West	BUMTHANG	CHAPCHHA
Centr	CHHUKHA	CHHOEKHOR	West	BUMTHANG	CHAPCHHA

Wrong master data mapping has led to such instances of inaccurate and unreliable data in Finacle CBS.

The BDBL accepted and stated that the error has occurred during migration and this too only for dzongkhags that were mapped to wrong gewog. The error has been rectified and the issue stands resolved as of date.

The RAA has verified and found that the errors were corrected however, in future the BDBL should map master data properly as master data is used as a reference data.

3.2.2.9. Non-review of audit logs and trails

Surveillance of the business-critical data in Finacle CBS can be carried out through audit trails and logs. Audit logs and trails can provide a means to help accomplish several security objectives, including individual accountability, reconstruction of events (actions performed on the Finacle CBS), intrusion detection and identification of system errors. In general, application-level audit trail monitors and logs user activities and error events.

With enough time, even the best controls put in place to prevent malicious system activity can be circumvented with appropriate proficiency. In such events, audit trails and logs form an essential component to enforce accountability. It has a capacity to detect unauthorized intrusions or trace activities of a system user by relating a process or action with a specific user.

The damage that occurred from an incident can be assessed by reviewing audit trails, thereby enabling system administrator to locate how, when and why such incident occurred or who caused the incident. Accordingly, audit logs & trails can also help to reconstruct events after a problem has occurred. Audit trails form a considerable part of the front-line defence for fraud and embezzlements detection and prevention. Thus, audit logs and trails should also be periodically analysed to detect any control weaknesses in the system

During the assessment of audit logs and trails, RAA observed that Finacle CBS generates audit

logs and trails of all the user actions and error events on the system. Though the system maintains logs of various events, RAA noted that the existing logs/trails were inadequate due to the following reasons:

- i. The audit logs and trails were not monitored or reviewed to gain insights into the system activities since its inception;
- ii. Integrity and authenticity of the audit trails and logs could not be verified or established;
- iii. No assurances that audit trails could be reconstructed for accountability.

Without a review of audit trail data, malicious activities, system errors and intrusions could go undetected and defeat the very purpose of maintaining the audit trails/logs. This could consequently compromise the very expensive Finacle CBS and disrupt the bank from functioning.

The BDBL argued that the Finacle application audit logs can be checked post incidents to find out the cause while for the network infrastructure, with ICT Security Policy 2018 in place, all logs will be enabled as per security policy and reviewed on periodic basis to check and detect intrusion to the internal systems. (Network security policy).

The RAA maintains that the Finacle application audit logs should be reviewed sporadically not only for detective measure and post incident management but also as a preventive measure to avoid security incidences in the first place.

3.2.3 Compliance Requirements

3.2.3.1. Non-incorporation of RMA and BDBL requirements

The Royal Monetary Authority issues guidelines on different types of loans, which requires adherence by the Banks. Similarly, the BDBL has to abide by the compliance requirements of the RMA and has accordingly issued the banking manual and credit manual and other such notifications. Such compliance requirements or parameters specified in the guidelines, manuals and notifications should be set in the Finacle CBS and is being set in the scheme parameter screen in Finacle CBS.

As these parameters are used for processing loan transactions, it is of utmost importance that these parameters be set in controlled environment with access given to authorised individuals and duly verified by competent officials. Moreover, these parameters should be changed only when there is a change in the policies or rules.

The RAA test checked the parameters defined in the Finacle CBS against the prevailing rules and noted the following anomalies.

a. Interest rates not applied as per prescribed rates

Interest rates are specified by RMA and through notifications given by the BDBL management based on RMA's directives. The BDBL had issued a notification vide BDB/CEO-02/2016/8037 dated September 23, 2016 with revised interest rates which would be effective from October 2016. Later, the BDBL had issued another notification

vide Office Order no. BDB/CEO-02/2017/1961 dated April 4, 2017 with the new revision of interest rates.

The RAA ascertained whether these revisions in interest rates have been incorporated in the system (Scheme Parameter setting screen). It was found that the system not only maintains history on interest rate revision but also the latest revised interest rates were captured correctly.

The RAA further verified the loan data of Finacle CBS to confirm that the revised rates are applied in the actual loan transactions. For the purpose of verification, the loan accounts opened from October 2016 was taken into consideration.

The analysis revealed 1056 active loan accounts wherein the interest rates applied was other than the prescribed interest rates. The summary of those instances are given below in **Table 6**.

Table 6. Interest rate applied other than prescribed rate

Sl.No.	Product Type	Prescribed interest rate as of 1/10/2016 (A)	Prescribed interest rate as of 1/04/2017(B)	No. of loan accounts (levied neither A nor B)
1	Agri & Animal Husbandry Loan	10.55	10.25	825
2	Consumer Loan	9.75	9.50	19
3	Education Loan	11.50	10	1
4	General Trade Loan	12.50	12.25	9
5	Group Seasonal Loan	10	10	2
6	Group Term Loan	10	10	1
7	Manufacturing/ Industrial Loan	11.30	11.30	11
8	Micro enterprise Loan (BCCI Scheme)	12.00	12.00	82
9	Overdraft Gen	12.00	12.00	44
10	Personal Loan	13.50	13.50	27
11	Seasonal Loan	11.55	11.55	10
12	Small Scale Industrial Loan	11.50	11.30	2
13	Transport Loan	12.50	12.50	6
14	Working Capital (OD)	12.00	12.00	17
Total				1056

As apparent, the **Table 6** shows that interest rates were not applied as per the prescribed interest rates for 1056 loan accounts. Most instances were observed in Agriculture & Animal Husbandry Loan with 825 loan accounts.

Unexpectedly, the RAA also found 116 active loan accounts with zero interest rate, which were opened after October 2016. The summary is given in **Table 7**.

Table 7. Loan Accounts with Interest Rate Zero

Sl. No.	Product Type	No. of loan accounts
1	Agri & Animal Husbandry Loan	32
2	Consumer Loan	8
3	Education Loan	1
4	General Trade Loan	4
5	Group Seasonal Loan	2
6	Group Term Loan	1

Table 7. Loan Accounts with Interest Rate Zero

SI. No.	Product Type	No. of loan accounts
7	Manufacturing/Industrial Loan	1
8	Micro enterprise Loan (BCCI Scheme)	1
9	Overdraft Gen	32
10	Personal Loan	7
11	Seasonal Loan	9
12	Small Scale Industrial Loan	2
13	Working Capital (OD)	16
Total		116

It is evident from **Table 6** and **Table 7** that the BDBL has been applying inconsistent interest rates to its clients due to lack of proper monitoring and supervision. Levying interest rates other than the prescribed rates may result in the following:

- bank losing income when the interest rate is lower than prescribed;
- client paying more when the interest rate is higher than prescribed.

The BDBL argued that the interest rates for loans are based on credit manual 2015, base rate and MLR and on loan tenor. BDBL further mentioned that system users could have entered the wrong rates in some cases. It was explained that in ABS some loan schemes such as loan against fixed deposit, loans for invoked guarantee, loan to purchase shares, etc. were opened under product code of personal loan. Further, the 116 loan accounts with zero interest are all closed.

*The RAA would like to stress that the interest rates of 1056 loan accounts were compared and extracted against the rates defined by the BDBL (Notifications issued on September 23, 2016 and April 4, 2017) and taking into account the loan tenor also. Only 75 out of 1056 loan accounts were found corrected and the remaining 981 loan accounts provided under **Appendix I** will be verified in the follow-up audit.*

While the BDBL found that the 116 loans accounts with zero interest were closed accounts, the RAA would like to clarify that the comparative analysis was carried out on bank accounts by selecting the account status that are shown as active. This again indicates that proper account closure procedures were not followed and as stressed earlier, the BDBL should sensitise their officials on account closure procedures and the different menu screens of Finacle CBS.

b. Non-compliance to maximum loan term period

The RAA conducted the comparative analysis of maximum loan term period set in Finacle CBS against the loan term period defined in the requirements.

The analysis showed differences as tabulated in **Table 8**.

Table 8. Variance in loan term period

Sl. No.	Scheme Code	Name of Loan Product	Maximum Loan Term Period as per Credit Manual/RMA guidelines	Maximum Loan Term set in Finacle CBS
1	LA718	Small Scale Industry loan	5 years	10 years
2	LA719	Transport Loan	5 years	15 years
3	LA711	Industrial/Manufacturing Loan	10 years	18 years 3 months
4	LA 703	Construction Loan	5 years	15 years
5	CL802	Commercial Housing Loan	20 years	12 days
6	LA725	Working Capital Loan	1 year	10 years
7	LA713	Personal loan	5 years	15 years
8	LA706	Consumer loan	5 years	15 years
9	LA721	EDP loan	10 years	5 years

As evident from the **Table 8** that most of the loan term periods set in the Finacle CBS is double or triple the actual loan period in the compliance requirements. Surprisingly, the maximum loan term parameter set for commercial housing loan is just 12 days. Such non-adherences indicate weaknesses in the procedures of setting parameters in the Finacle CBS and that these parameters are not closely monitored for compliance.

Setting just 12 days also raises the question of how the commercial housing loans are processed. The RAA further extracted the commercial housing loan details from the loan data of Finacle CBS to ascertain the maximum loan term. The analysis revealed that there is no commercial housing loan accounts with maximum term period of 12 days indicating that the parameter for commercial housing loan is changed as and when required.

As the parameters were not set as per the compliance requirements, the RAA also verified the maximum loan term in the loan data of Finacle CBS. Only those loan accounts that have been opened from April 2017 till the period of audit (September 2018) has been taken in consideration as the change in loan term period came into effect only from April 2017.

The RAA expected to find only those instances of loan accounts whose parameter setting was incorrect to start with. However, the extraction result also revealed loan accounts wherein the parameter setting was correct but the maximum term period was not as per compliance requirements in the actual loan transactions.

The total number of instances of loans period sanctioned above the required period are summarized in **Table 9**.

Table 9. Instances of variances in loan term period

Sl. No.	Scheme Code	Name of Loan Product	Maximum Term period as per rule (in years)	Maximum Term set in Finacle CBS (in years)	No. of loan accounts exceeding maximum loan term	Remarks
1	LA701	Agri & Animal Husbandry Loan	10	11 to 60	39	Set correctly in the scheme parameter screen in Finacle CBS but existence
2	LA707	General Trade Loan	5	6 to 10	7	
3	LA709	Group Term Loan	5	9 to 15	3	

SI. No.	Scheme Code	Name of Loan Product	Maximum Term period as per rule (in years)	Maximum Term set in Finacle CBS (in years)	No. of loan accounts exceeding maximum loan term	Remarks
4	LA712	Micro Enterprise Loan(BCCI scheme)	3	5	38	of loan accounts exceeding defined loan term in the requirement
5	LA722	Purchase of share/equity	5	7	1	
6	LA715	Seasonal Loan	1	2 to 11	4	
7	LA706	Consumer Loan	5	10	3	
8	CL802	Housing Loan Commercial	20	21	12	
9	LA711	Manufacturing/Industrial Loan	10	11	1	
10	LA713	Personal Loan	5	6 to 15	7	
11	LA718	Small Scale Industrial Loan	5	6 to 10	3	
12	LA719	Transport Loan	5	6 to 10	6	
Total					124	

As apparent from **Table 9**, there are 12 different types of loans with 124 loan accounts where the maximum loan term was more than the required term.

The maximum loan term parameter for agriculture and animal husbandry loan was set correctly in the scheme parameter-setting screen but there were 39 loan accounts wherein the maximum loan term exceeded 10 years ranging from 11 to 60 years. For consumer loans, as the parameter set was 15 years, there were three consumer loan accounts with maximum term period of 10 years, which is double of the required period of five years.

This imply that the parameters were changed as and when convenient to process loans.

The BDBL accepted and stated that the general scheme parameters maintenance (GSPM) mistake pointed out has been rectified. For non-conforming accounts, the users made mistake during the account opening by setting the wrong number of instalments, which only increases the loan term period. It was explained that to avoid such mistakes, an exception handling message has been set in the system that will be block the user from making such mistake.

As assured, during the exit meeting, the BDBL should prepare a process flow document for setting number of instalments in line with the term period which should be provided in the Management Action Plan Report.

*Furthermore, BDBL should require its branches to correct the variances in the loan term period and to provide the same in the Management Action Plan Report, which will be verified in the follow-up audit. The loan accounts exceeding the allowable maximum loan term are detailed in **Appendix II**.*

c. Variation in scheme parameter of maximum loan amount

With the exception of group term, personal and consumer loans, the maximum loan amount sanctioned depends on the source of return and on the value of the collateral.

As per RMA's Guideline on Consumer Loan, every individual consumer loan account should have a maximum limit of Nu. 500,000. Similarly, the personal loan amount limit should be Nu. 500,000 and group term loan should be Nu. 150,000.

The loan amount parameter is set as it should be in the scheme parameter setting of Finacle CBS as shown in **Table 10**.

Table 10. Loan amount limit set correctly as per compliance requirements

Scheme Code	Name of Product	Maximum loan amount as per Credit Manual/RMA guidelines	Maximum loan amount set in Finacle CBS	
			Min. Amount (Nu.)	Max. Amount (Nu.)
LA706	Consumer loan	Upto 500000	5,000.00	500,000.00
LA713	Personal loan	Upto 500000	100.00	500,000.00
LA719	Transport loan	N/A	1,000.00	99,999,999,999,999.99
LA711	Industrial/Manufacturing Loan	N/A	100.00	99,999,999,999,999.99
LA717	Service & Tourism Loan	N/A	100.00	99,999,999,999,999.99
LA 703	Construction loan	N/A	100.00	99,999,999,999,999.99
CL802	Commercial housing loan	N/A	1,000.00	99,999,999,999,999.99
LA726	Staff loan	N/A	1,000.00	2,500,000.00
LA709	Group Term Loan	150,000.00	1,000.00	150,000.00
LA 712	Micro Enterprise Loan	N/A	100.00	300,000.00
LA730	Cooperative Loan	N/A	100.00	300,000.00
LA715	Seasonal Loan	N/A	100.00	99,999,999,999,999.99
LA707	General Trade Loan	N/A	100.00	99,999,999,999,999.99
LA725	Working Capital Loan	N/A	1,000.00	99,999,999,999,999.99

Although the parameter was correctly set for loan amount limit, the analysis of loan data showed 536 loan accounts, which exceeded the loan amount limit as shown in **Table 11**.

Table 11. Instances of variances in maximum loan amount

SI. No.	Scheme Code	Name of Product	Max. amount as per compliance requirement and set in Finacle CBS	Maximum loan amount range exceeding the requirement in loan data	No. of loan accounts
1	LA706	Consumer Loan	500,000.00	1,075,825.00	1
2	LA709	Group Term Loan	150,000.00	160,000.00 to 300,000.00	500
3	LA713	Personal Loan	500,000.00	530,000.00 to 5,012,000.00	35
Total					536

Most instances were observed in group term loan type with 500 loan accounts having more than the maximum amount prescribed. For one consumer loan, the loan given was as high as Nu. 1,075,825.00 which is double the permissible limit of Nu. 500,000. Likewise, a personal loan account was sanctioned Nu. 5,012,000.00 which is 10 times the maximum loan amount of Nu. 500,000.

These show that the requirement for loan amount limit was not complied with and the parameter was initially not set as per the compliance requirement. These also indicate weak supervisory controls and monitoring mechanism in processing loans and setting loan parameters.

The BDBL responded that for the group loan schemes, the maximum ceiling for the loan was increased from 150,000 to 300,000 but was not parameterized in the scheme level and no validation was set for the maximum loan amount in the system. For loan amount 1,075,825.00 showing as consumer loan is due to user opening a transport loan under that scheme by mistake which is now rectified by transferring the scheme from consumer to transport loan.

The BDBL further explained that for few personal loans were actually invoked bank guarantee converted to loan by users despite having a loan scheme. Few personal loans were disbursed over the set limit of 500,000 as the users were not aware of maximum limit. Henceforth, system validation message has been set where the users will not be able to proceed with account opening for loan limit exceeding the maximum limit.

The RAA verified and found that the error message has been set and the loan accounts has been corrected. It appears that the users are not aware of the different loan schemes and thus, there is a need to sensitise the users on the same and fix accountability where necessary, as it is the users' job responsibility to have an in-depth knowledge on BDBL's products.

d. Inconsistencies in maximum age set as scheme parameter

With non-compliances to loan term period and amount limit, the RAA also verified the maximum age limit of loan applicants. There is no mention of age limit in the compliance requirements except that the applicant has to be at least 18 years of age. In the case of senior citizen fixed deposit, the applicant has to be 65 years and above.

As there is no mention on the maximum age of the applicants, the age limit should be set as '99' in the scheme parameter screen in Finacle CBS. However, upon verification, it was observed that the maximum age limit set varies from one loan scheme to another as shown in **Table 12**.

Table 12. Variances in maximum age limit of loan applicants

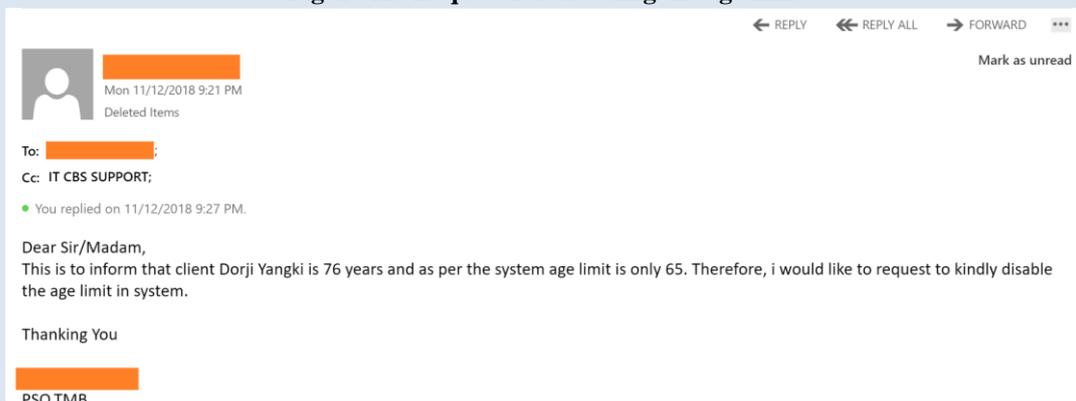
Scheme Code	Scheme Description	Age set as Scheme Parameter in Finacle CBS	
		Min. Age	Max. Age
LA706	Consumer loan	18	56
LA713	Personal loan	18	75
LA710	Housing loan	18	75
LA719	Transport loan	18	66
LA720	Home settlement loan	18	56
LA723	Loan against fixed deposit	18	77
CL803	Manufacturing/Industrial loan	18	65
LA716	Service loan	18	68

As shown, the age limit for consumer loan was set to 56 years yet there is no basis for setting it as 56 and the reason cited was that the maximum working age is until 56 and hence the age limit for consumer loan was set as 56. It was observed that the age limit is changed as and when convenient, and when an applicant's age exceeds the maximum age set in Finacle CBS. One such case is presented below.

Case in point: Changing the age limit in Finacle CBS

A user requests the ICT Department to disable/change the age limit, as the applicant’s age is higher than the age set in Finacle CBS through email as shown in figure 12.

Figure 12: Request for disabling the age limit



The IT official makes the changes and the other IT official verifies the change in the system as given in figure 13 and 14.

Figure 13: IT makes the change

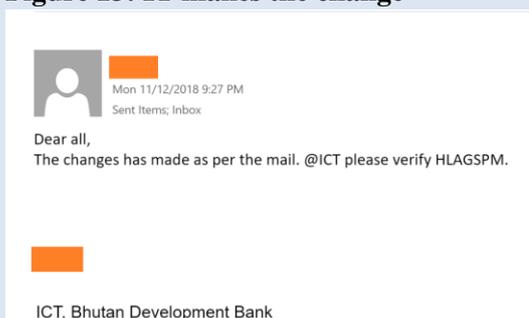
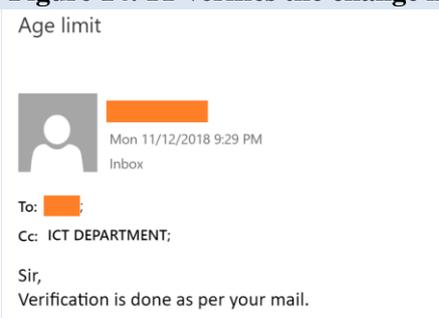


Figure 14: IT verifies the change made



It can be deduced from the case study presented above that the ICT Department makes changes based on an email. There is a risk of basing the changes to be made just on an email as emails could be hacked. Moreover, accepting changes as and when requested could lead to frequent and unauthorised changes being made which could result in loan manipulation.

Non-compliances to loan term period, amount and age limit, and frequent ad-hoc changes to such scheme parameters would invite unnecessary room for manipulation. Users may not process loan uniformly in the absence of clear policy, procedures and monitoring mechanism for parameter setting.

The BDBL responded that age limit in parameter was set based on the request, as there was no clear-cut process and procedures in place but with the implementation of Finacle SOP 2018, any changes required will be made as per the Change Control process Management.

The RAA verified and found that a 'Scheme Creation' form was developed to create any scheme or make changes to a particular scheme. In the future, the BDBL should ensure a strong monitoring mechanism in place to meet compliance requirements of the bank.

3.2.4 Disorganised IT helpdesk and problem management

Quite often organizations relying on IT will experience some level of disruptions to their operation. Most of the system users do not have the requisite knowledge and expertise to deal with such problems and disruptions. In such cases, the IT helpdesk should troubleshoot and respond to end-user problems or requests, maintain incident logs, and determine the best manner to resolve the incidents. Moreover, the IT helpdesk should track the frequency of incidents occurrences, identify the recurrent incident and find out the root cause to such incidents. In addition, there should be a problem escalation process in place to escalate the problems when it cannot be directly resolved.

The BDBL had established the CBS functional team comprising of officials from the business and IT side to guide the users when they face any user related problems. If the CBS team cannot resolve the problems, it is escalated to the consultant. The consultant in turn resolves the problem and shares the solution to the rest of the ICT Department for knowledge transfer.

However, the RAA observed that although the helpdesk function tries to resolve the incidents reported by the users as soon as possible, the incidents are not logged. This shows that the helpdesk functionality is just limited to resolving incidents as and when it occurs. In other words, the helpdesk provides event based or reactive services and not proactive services.

Without incident logs, the helpdesk do not currently

- i. track the frequency of incidents;
- ii. identify recurrent incidents;
- iii. categorise the incidents;
- iv. perform root cause analysis of such incidents to identify the underlying problem;
- v. correct the underlying problem through proper problem management to prevent future incidents and stabilise the system.

The resultant effect is that the IT officials are spending their major efforts on resolving the reported incidents and not on stabilising the system.

The BDBL responded that after migration, the management sought expertise from other sources and ultimately hired Finacle Technical Consultant to resolve reported issues and to stabilize the system. Additionally, the ICT department had assigned three ICT officials as helpdesk for resolving the issues submitted by the branches but periodic monitoring of such calls has been challenging due to multiple tasks carried out by ICT department.

With regard to issues reported to Nelito system (CBS implementation Partner), separate tracker was maintained to monitor the status. For any bugs in the system, ICT officials logs the problem with TechOnline and monthly status reports are shared on periodic basis.

With Finacle SOP 2018, ICT department is implementing online support system, which will track of issues reported; there will be knowledgebase section for the users and separate section for internal ICT officials to see help for quick solutions/ recurring problems.

The RAA appreciates the prompt action taken by ICT Department, more specifically, the initiative to develop an online helpdesk portal to report, record, and track incidences. The ICT Department should conduct an analysis on frequently recurring issues to arrive at a permanent solution.

3.2.5 Inadequate training and knowledge transfer

In order to improve the effectiveness of the system through reduced errors and increased productivity, it is essential to provide training to all users including the IT technical team. The RAA noted the following with regard to user training and knowledge transfer.

- ☒ 138 system users out of 572 including managers and supervisors were not trained. Having a supervisory role in the system, the managers should have been trained which would lead to lesser instances of errors.
- ☒ Some users were trained in February 2017 while the actual implementation of Finacle CBS was in June 2017. By then, the users had already forgotten to navigate the system and it became cumbersome for them to operate and use the system even for simple banking operations. Users cited having to consult the CBS functional team constantly to operate the system.
- ☒ There were 56 to 57 participants for each batch of training. The effectiveness of any training decreases with the increase in number of participants
- ☒ Even with the training provided, most of the system users did not know how to run the interest in the system. There were incidences of users running interest for all the bank accounts instead of running interest for individual bank account. This had actually resulted in overdue being reflected even for those bank accounts that were not due. The impact is resource intensive because users spend long hours reversing the interest or rescheduling the loan and having to recheck all the loan accounts to correct the errors.
- ☒ Besides trainings on the operations of the system, the BDBL had issued directives and raised the security awareness of the system users. However, the RAA observed that users share their login credentials (username and password).

These indicate that the end user training was inadequate which may result in users making inadvertent errors and IT technical team spending time to guide the users and troubleshoot the problems.

The BDBL responded that the management tried its best to ensure all the employees of the bank are trained on the Finacle system without disrupting operations of the bank. With the large number of employees and limited trainers, the user trainings had to be carried out in batches over the span of more than 3 months.

In February 2018, the management identified six officials (2 from each region) from branches and were trained on the operational process to streamline the workflow processes, bring

consistency and uniformity in Finacle CBS. These officials were then sent to all branches to train the users in their branches under their respective region.

ICT department circulates operational process and manuals as and when new product is being added to the system and training on the Finacle CBS operation is given as and when bank recruits a new employee.

Furthermore, with the Finacle SOP 2018 and ICT Security Policy 2018 in place, ICT department has started creating awareness and sensitization on the security aspects in Finacle.

The RAA acknowledges the effort put by BDBL management and the BDBL should further prioritize capacity building for smooth functioning of the business.

CHAPTER 4: RECOMMENDATIONS

Based on the issues pointed out under Part 2 in chapter 3, the RAA has provided four recommendations aimed at enhancing efficiency and effectiveness of Finacle CBS. The recommendations are as discussed below:

4.1. Field receipt management should be incorporated in Finacle CBS

With the mandate to enhance rural prosperity and alleviate poverty, BDBL is the principle vehicle for financial inclusion in the country through Farmers Outreach Banking (FOB). The RAA found that field receipts was not customised in the system even though this requirement was identified before the implementation of Finacle CBS.

Therefore, considering the risk of using field receipts, there should be proper control over field receipts and BDBL should automate the inventory management of field receipts in Finacle CBS.

4.2. BDBL should institute robust IT controls in Finacle CBS

Robust IT controls provide reasonable assurance that Finacle CBS operates as intended thereby increasing the trust and confidence of the bank's employees towards the system. This will ultimately result in retaining old customers and attracting new customers due to reliable system in place. Currently, the BDBL does not have adequate and robust IT controls in Finacle CBS. BDBL should institute and enforce robust IT controls in the system to maintain the integrity and reliability of the system at all times. Specifically, BDBL should:

- endorse and implement IT policies to ensure that effective IT controls are in place;
- institute monitoring mechanism in order to avoid multiple user accounts for one employee, generic user accounts, follow proper naming convention and deactivate those users who are no longer with the bank;
- ensure access control mechanism to assign access rights and privileges based on 'need to know' and 'least privilege' principles in order to mitigate the risk of unauthorised access, data modification, disclosure, or loss;
- implement strong input validation controls so that the system does not accept garbage, duplicates, invalid data, and process data incorrectly or illogically;
- implement adequate processing controls to prevent erroneous, incorrect calculations and variations;
- ensure accurate and complete reports are generated to prevent errors and inconsistencies as incorrect reports have financial implications on the bank;
- apply strong validation controls over master data since master data are important files used as references and input for processing transactions;
- establish review mechanism for audit logs and trial;
- identify and rectify the flaws in the system; and

- initiate data cleaning of Finacle CBS database to remove inaccurate and incomplete data.

Although every employee plays a role in strengthening the organization's internal control system, the responsibility for establishing and maintaining the control environment rests with the management.

4.3. BDBL should meet and comply strictly with all the compliance requirements

The RAA noted several instances of non-compliances to RMA and BDBL's regulations. In order to address these non-compliances the BDBL should ensure strict compliance by leveraging the Finacle CBS. In particular BDBL should:

- maintain the master copy of all (both past and current) the compliance requirements;
- institute proper procedures to set the parameters of all its products; and
- institute appropriate monitoring mechanism for setting scheme parameters in Finacle CBS.

The impact of such non-compliances might be reputational risk, which might lead to losing clients and business, the BDBL should ensure strict compliance to regulations.

4.4. BDBL should establish problem management mechanisms

Effective problem management has the potential to reduce incidents, proactively prevent problems through trend analysis and identification of root cause, and provide permanent solutions to problems so that repeat occurrences are all but eliminated.

BDBL should maintain incident logs and perform analysis to find and resolve the underlying problems. IT helpdesk could identify frequently occurring user related incidents and resolve it either through trainings or dissemination of user guides. In addition, root cause analysis should be performed and permanent solution should be applied to the commonly occurring system related incidents. This should also lead to improved productivity of the IT helpdesk support through resolution of problems effectively and in a timely manner.

CHAPTER 5: CONCLUSION

Recognising the role of BDBL to accelerate socio-economic development in the country and understanding the criticality of Finacle CBS in this, the Royal Audit Authority decided to carry out the IT audit of CBS in BDBL. The audit of CBS focussed primarily on accuracy and completeness of data migration, effective incorporation of compliance requirements, and adequacy and effectiveness of IT controls in Finacle CBS.

Finacle CBS is one of the most widely used CBS and is capable of bringing in operational efficiencies and transformational change in the bank. With the implementation of Finacle CBS, BDBL now has a centralised database thereby reducing the workload of ICT Department to maintain the system and enhancing efficiencies. Moreover, anytime, anywhere banking is possible as the third party services and delivery channels can be easily integrated with Finacle CBS.

Notwithstanding the positive effects of Finacle CBS, the RAA observed several shortcomings and deficiencies that require further improvements. These lapses were largely caused due to inadequate control over system migration. Inadequate and ineffective IT controls is the main cause for incorrect information generated by Finacle CBS. Weaknesses in supervisory and monitoring control also seems to be one the causes to non-compliances to RMA requirements.

While the RAA appreciates the prompt and immediate corrective actions taken by BDBL based on the draft report, the BDBL should seriously enforce the ICT Security Policy 2018 and Finacle SOP 2018 in order to render the system effective and credible.

The RAA hopes that BDBL will make further improvements to the system, design and implement IT controls and mechanisms for efficient and effective business operations considering that BDBL has spent time and effort, and the fact that Finacle CBS has the potential to bring in transformational change to the bank.

APPENDIX

ANNEXURE



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