
Audit in CBS platform (Banking Sector)

(Module - 6 : DISSA Course) Part 1 & 2

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Banking Products & Services

- Acceptance of Deposits & Granting Advances
- Remittances – NEFT /IMPS/RTGS
- Collections, Clearing
- Treasury Function
- Cash Management product
- Letter of Credit and Guarantees , Merchant Banking
- Credit – Debit cards , dividend / Interest/
- Safe-keeping & Lockers
- Handling Government Business
- DP services
- ATMs
- Auto Sweep facility in S/B Accounts
- Advertisement on ATMs
- Securitization of future Lease Rentals , reverse mortgage
- Equipment Leasing, Hire Purchase & Factoring
- Mutual Fund business , Insurance Agents , Tax Matters
- Forex transactions

Banking Software – An Overview

- 1980 – Computerization of Branches in limited manner
- 1990 --Total Branch Automation packages.
- Central Server – database – multiple terminals.....AND
- Multiple PCs as nodes linked on LAN.
- CBS – 2000- full connectivity with DC
- ❖ CORE - Centralised Online Real-Time Electronic Banking
- ❖ All the bank's branches access applications from centralised DC
- ❖ Enhancing customer convenience = Anywhere & Anytime Banking
- ❖ Efficiency, Productivity and Convenience

Review

- Centralised Online Real time Electronic (CORE)
- Banking products
- RBI – Health code 1 to 8
- TBA = 1990
- CBS – 2000- full connectivity with DC
- ❖ CORE - Centralised Online Real-Time Electronic Banking
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CBS Definition

- Gartner defines = CBS “ as a back-end system which processes daily banking transactions, and posts updates to accounts and other financial records.
- CBS typically include deposit, loan and credit-processing capabilities, with interfaces to general ledger systems and reporting tools.
- Core banking applications are often one of the largest single expense for banks and legacy software are a major issue in terms of allocating resources.
- Spending on these systems is based on a combination of service-oriented architecture and supporting technologies.”
- Many banks implement custom applications for core banking

CBS implementation

- CBS = capable of being implemented in stages.
- **Initially** = basic modules : Savings Account, Current Account, Fixed Deposits, Bills & Remittances, Loans and advances models implemented.
- **Subsequently**= alternate delivery channels : ATM,
- Internet banking, RTGS/ NEFT, Mobile Banking, Treasury, Government Business etc., added.
- The customer is no longer a customer of the branch but a customer of the bank

CBS

List of few Core Banking System in India & World over:

Package	Provider
Finacle	Infosys
FLEXCUBE	Oracle Financial Service Software(By iflex)
TCS BANCS	Tata Consultancy Services(TCS)
Alnova Financial Solutions	Accenture/ Alnova
SAP Banking Services	SAP AG

CBS Requirement

- □ To meet dynamically changing market & customer needs.
- □ To improve & simplify banking processes = bank staff can focus on sales & marketing
- □ Convenience to customer as well as bank.
- □ To Speed up banking transactions.
- □ To expand presence in rural & remote areas.
- *Basic Elements of CBS that helps Customers :*
 1. □ Internet Banking.
 2. □ Mobile Banking.
 3. □ ATM.
 4. □ Fund Transfers – NEFT, RTGS.

RTGS, IMPS, NEFT

- ***Real Time Gross Settlement (RTGS)***
- continuous (real-time) settlement of funds transfers individually on an order-by-order basis (without netting).
- Funds settlement takes place in books of RBI , payments : final & irrevocable.
- RTGS = available for customer & inter-bank transactions round the clock,
- except for interval between 'end-of-day' and 'start-of-day' processes.
- ***IMPS***
- IMPS = Immediate Payment Service
- Money transfer mechanism made available by RBI & National Payments Corporation of India (NPCI).
- Initiated in 2010 by NPCI
- Feature of IMPS = available at all times for usage.
- Transfers funds instantly & great banking platform in case of emergencies

Technology Behind CBS

- Every Transaction happens at Centralized Data Centre
- A strong secure Communication infrastructure
- Secure Network (Restricted Domain)
- Various Interfaces – Middleware
- VLAN, Firewall, IDS, IPS
- 24X7 Connectivity
- Central Data Base Servers = store the data of the bank.
- Only this data base server that is **centrally located** stores data for the bank which means = data for all of the branches of the bank are stored in this **central data base server**.

Components of CBS

- **Centralized Data Centre –**
- large data housing infrastructure = provides high bandwidth access to its clients & includes many services, Networking devices, Firewalls & related equipment.
- *Network & Communication*
- *Core Application Systems*
- *Other Infrastructures*
- *Networking Devices- Routers, Firewall, Switches*
- *Databases*
- **Servers- Application servers, Data Base Servers, Web server, Mail server, Report Generating Servers etc.**

Components of CBS

Data Centre

- Single Location = Data (information) is maintained for all branches which are on CBS
- Processes undertaken
 - Parameterization Maintenance
 - Set up related processes
 - MIS related report handling
 - Batch processes like Interest Calculation, Charge Calculation, Statement Generation Etc.
 - End of Day & Beginning of Day operations
 - Back ups

Automated Teller Machines Server

- This server contains = details of ATM account holders.
- After facility of using ATM is created by the Bank, details of such customers are loaded = ATM server.
- ATM server does not hold PIN numbers of ATM account holders
- Internet Banking Data Base Server (IBDS)
- Internet banking data base server stores :
 - user name,
 - password of all the internet banking customers
 - Location
- IBDS located in demilitarised zone.
- separate VLAN that connects a proxy server, mail server, web server & IBAS.

Various Roles under IT Department

1. Security Administrators
2. System Administrators
3. Database Administrators
4. Network Administrators
5. Librarian

Functions of IT Department in CBS

1. Security Administrators

1. Have to follow security policy approved at Board level.
2. Understand policies & procedures mentioned in security policy.
3. Assesses risks for non compliance.
4. Decides access rules for data & IT resources.
5. Should not have any access to transaction level data.
6. User creation, User deletion
7. Locating a branch code & providing connectivity to the branch
8. Defining interest rates for deposit loans & other products.
9. Responsible for processing of EOD & BOD operations.
10. Responsible for introducing latest application of CBS application program.

2.Data Base Administration

- Custodian of Bank's databases
- Responsible for management of data
- Database access control
- To ensure :
 - Data integrity
 - Availability
 - Security
 - Recoverability

3. Network Administrator

- Placement of devices – router, bridge, switch, hub etc.
- Securing devices – strong access control
- Configuration of firewall, other devices (IPS & IDS)
- Arrange to conduct VAPT
- **4. Librarian**
- Maintain detailed documentation of all receipts & issues of software.
- Keep a record of all licenses obtained for usage of software.
- Be in charge of user manual & system manual.

Operations of CBS Branch

- **ATMs being attached to Branches**
 - ATM cards be secured with lock & key.
 - Regular reconciliation procedures for stock of ATM cards.
 - Updating of CBS with details of cards issued
 - ATM cards kept securely.
 - Procedures for loading cash, recording & reconciliation of cash.
 - Master key of ATM under dual control.
 - ATM journal rolls - reconciliation purposes & for detecting any unauthorized transaction
 - Procedures for dealing with swallowed card.
 - Procedures for dealing with cash which is in reject bin.
 - **Control = Surrendered & Captured Cards**
 - **Check – SOP : replacement for cards**

Types of Security & Controls in CBS

1. Management Controls

- **Formulating a security policy :**
 - Formation of Security Committee/ Steering Committee
 - Asset Management
 - Human Resources Management
 - Physical and Environmental security
 - Communication & operative management
 - Access Control
 - Systems development and Change Management Procedure
- **Developing a business continuity planning:**
- RBI mandates BCP for every bank.
- **Laying down procedures for systems development :** Procedures include program development, program testing, movement to library, movement from library to production, roles & responsibilities of Computer Team members , highlighting incompatible functions.

Security & Controls in CBS

2. Organizational Controls

- Organization structure of IT Department
- IT Strategies roles and responsibilities
- Incompatible functions

3. Operational Controls

- Physical access
- Logical access
- Environmental controls
- Evaluation controls in operation systems
- Evaluation controls of network

Security & Controls in CBS

4. Application Controls – Input, Processing, Output

- **Input** : ensure data entered = complete & correct through built in checks,
 - Data validation
 - Reasonableness check
 - Format check (Mandatory files)
 - Range check

Application modules

- *Customer ID generation*
- *Accounts Management -*
- *Savings Bank & Current Accounts*
- *Fixed Deposits, Recurring Deposits and other Term Deposits.*
- *Cash Operations Module*
- *Clearing Module - inward clearing and outward clearing*
- *Bank Guarantee , Performance guarantee*
- *Letter of Credit*
- *Bills*
- *Remittances*

Indicative list of Domains:

- A. Information Security
- B. Recruitment & Training
- C. Logical Security
- D. Network Security
- E. Change Management
- F. Backup & Restoration Management
- G. Physical Security
- H. Environmental Controls
- I. Security Operations Centre

RBI : Additional requirements

- 1. Mobile Banking Transactions in India-** *compliance with Operative Guidelines for Banks vide RBI Master Circular–DPSS.CO.PD.Mobile Banking.No./2/02.23.001/2016-2017 dated 01.07.2016 or the current Master Circular as on date of Audit.*
- 2. BCP, VAPT & Information Security** *vide RBI Circular DIT.CO(Policy) No. 2636/ 09.63.025/2012-13 dated 21.01.2013.*
- 3. Security and Risk Mitigation Measures for Electronic Payment Transactions** *vide RBI Circular DPSS (CO) PD No.1462 / 02.14.003 / 2012-13 dated 28.02.2013 / instructions/guidance issued by RBI.*
- 4. Master Circular on Credit Card, Debit Card and Rupee Denominated Co-branded Prepaid Card operations of Banks** *vide RBI Circular No. RBI/2015-16/31 DBOD.No.FSD.BC.18/24.01.009/2015-16 dated 1st July, 2015 or the latest instructions / guidance issued by RBI*

IS Audit with evidence

- Needs to be tested with appropriate evidences:
- **a. General Security settings** with respect to Application, Operating System and Database
- **b. Procedures for New User setup**, Terminated Users, Transfers
- **c. User Access Reviews**
- **d. Segregation of Duties**

Backup Management

- *To determine : data supporting business information is properly backed-up so that it can be accurately and completely recovered if there is a system outage or data integrity issue.*
- **IS Auditor** : Needs to be tested with appropriate evidences:
 - *a. Backup and Recovery*
 - *B. Job scheduling*

Backup Policy

- **Check =**
- 1. Whether approved backup policy is in place & back up of data and software essential for the continued operations of the bank is taken as specified in the backup policy
- such backups are tested periodically for recovery.
- Security controls over backup data & media are stringent.
- IT Media handling is in compliance with Bank's IT Policy