Indian Banks' Association

Operational Business Intelligence in Banking

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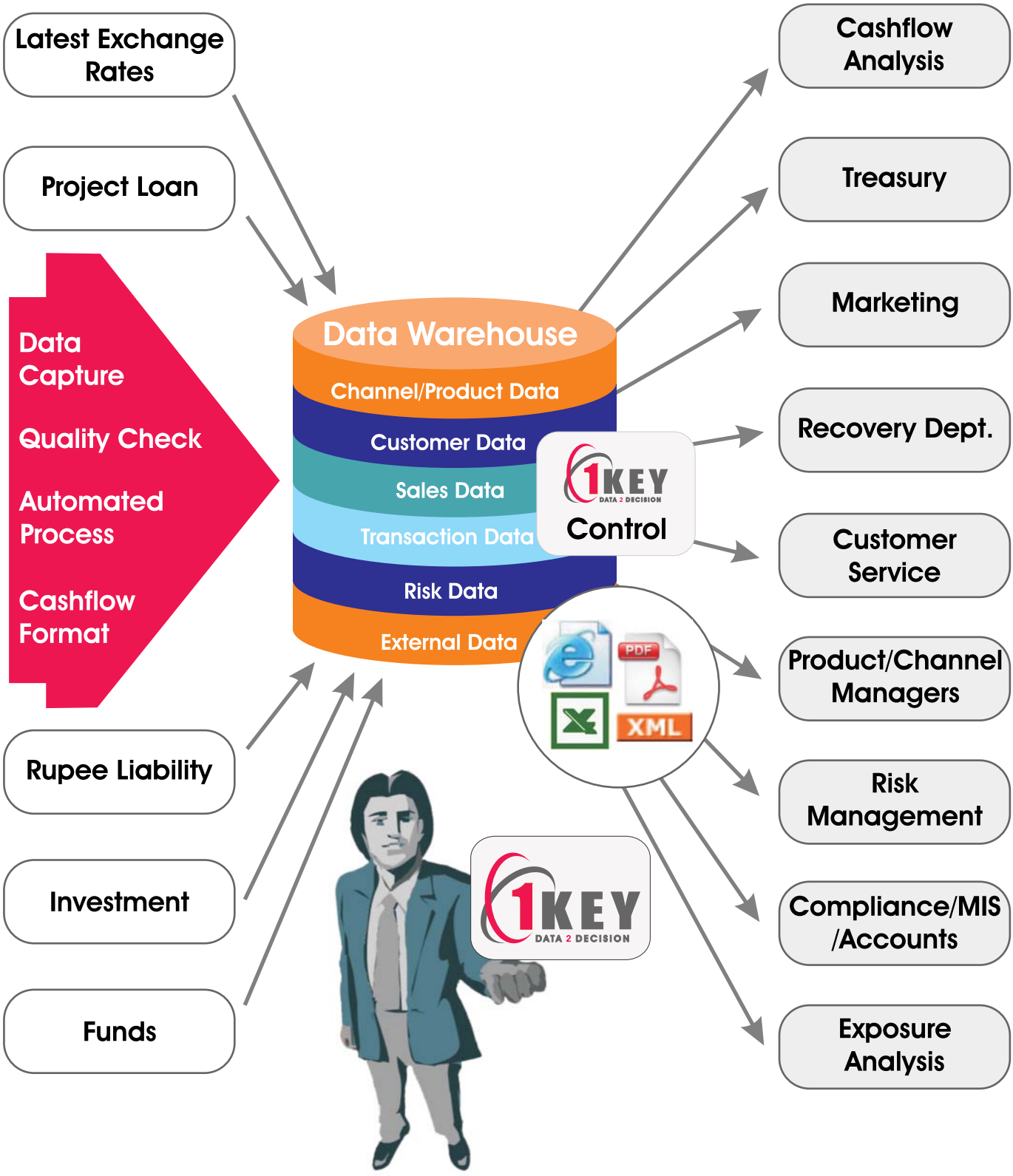
Operational Business Intelligence



Business Intelligence Solutions For Banking

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1. INFORMATION NEEDS OF BANKING ARE UNIQUE

The information requirements of banking business differ from other businesses on account of the following:

a. Banking converts money into information and vice-versa

Modern banking offers a large variety of services. But the most fundamental activity of any bank is 'accepting deposits for purposes of lending'. By accepting deposits it converts money into a piece of information that is commonly known as 'bank balance'. It converts this information into cash at ATMs and its branches.

b. Banking manipulates this information to produce services

The large pool of banking services is a result of various ways in which banks manipulate this information. For instance, banks offer payment services through cheques, drafts, electronic remittance, plastic cards, and mobile phones.

What actually moves is the information, and what actually changes is also the information. It comes as no surprise, therefore, that banks worldwide are the major users of information technology.

c. Like any service industry, banks produce in real time

All services are produced and consumed in real time. When you want to deposit money, the bank produces 'the deposit accepting service' at that point of time. If you want to remit money to another person, the bank produces the remittance service to you by taking your instructions, money and effects the remittance.

When you pay through a credit or debit card at a merchant establishment, card issuing and transaction capturing banks collaborate (with other service providers like Visa acting as facilitators) to produce the payment service at that point of time.

d. Banks are geographically dispersed

Before the advent of technology-enabled alternate delivery channels, banks needed to have 'points of presence' to produce services for their customers near their physical location. Each 'point of presence' has its specific information requirements.

This geographic dispersion, in turn, dictates the 'control structures' in a banking organisation. In India, these are commonly known as 'regional', 'zonal', 'circle', or 'local head' offices. These offices used to depend on the 'points of presence' or 'branches' under their control area for all the management information needs.

e. Banking services have rich variety

The variety of banking services springs from the variety of requirements of their customers. Banks cater to individuals regardless of their financial status or profession, small businesses, industries, and large diversified corporate groups. Each of these customer segments has different needs for banking services.

This variety has given rise to multiplicity of technology solutions in banking. No single software solution today can satisfy even the transaction processing requirements of a large bank.

To produce this variety of banking services at dispersed geographical locations, and to gain the competitive advantage, banks have an equally complex business intelligence (BI) requirements.

2. BUSINESS INTELLIGENCE IN BANKING

2.1 What is Business Intelligence (BI)?

Business Intelligence (BI) is a term coined for technologies and applications employed in data collection, access, analysis and information about an organisation's business. It refers to the use of several financial / non-financial metrics / key performance indicators to assess the present state of business and to assist in deciding future course of action. It is 'actionable intelligence'.

2.2 Evolution of BI in banking

2.2.1 Manual Systems

Even when there were no computers, banks had put in place an efficient system of recording various transactions. Most business transactions took place at branches, which were supplying both management and regulatory reports. These reports were manually consolidated at intermediate controlling offices for eventual aggregation at the corporate level. These manual systems worked well till the scale of operations were relatively small.

2.2.2 Computers for aggregation

As the banks grew in size and expanded geographically, the volume of transactions became quite large. Manual aggregation became both time consuming and error prone. Banks with a large number of branches spread across geographies, began using computers to automate the aggregation process.

Despite these efforts, management information system (MIS) in the banks had the following drawbacks:

- Different views of data (departmental silos)
- Time lag (aggregation held up till each branch has reported)
- Data quality (each stage of consolidation and aggregation was a source of errors)
- Unavailability of customer specific data (customer identity shrouded by product centric record keeping and branch data encapsulation in batch processing)
- Data granularity required for developing analytics (what if scenario, drill down) was not available to decision makers.
- Reporting activity competed with business activity for resources at the branch.
- Data classification rules were not applied uniformly across the organisation, and also varied with time.

2.2.3 Management Information Systems (MIS)

In India, majority of banks began using information technology for MIS. The inflexibility of Cobol programmes and batch processing was soon overcome by powerful desktop systems with rudimentary database systems, which allowed banks to analyse data, once it has been received in manual form from branches, transcribed into machine readable formats and validated. Quite a few of regulatory (which banks termed as statutory in those times) reports were also produced in this way. These earlier initiatives laid the foundations of BI in banking.

2.3 Uses of BI in banking

Business Intelligence tools are being used by banks for historical analysis, performance budgeting, business performance analytics, employee performance measurement, executive dashboards, marketing and sales automation, product innovation, customer profitability, regulatory compliance and risk management. Let us take a look at some of these applications.

2.3.1 Historical Analysis (time-series)

Banks analyse their historical performance over time to be able to plan for the future. The key performance indicators include deposits, credit, profit, income, expenses; number of accounts, branches, employees etc. Absolute figures and growth rates (both in absolute and percentage terms) are required for this analysis. In addition to time dimension, which requires a granularity of years, half year, quarter, month and week; other critical dimensions are those of control structure (zones, regions, branches), geography (countries, states, districts, towns), area (rural, semi-urban, urban, metro), and products (time, savings, current, loan, overdrafts, cash credit). Income could be broken down in interest, treasury, and other income; while various break-ups for expenses are also possible. Other possible dimensions are customer types or segments.

Derived indicators such as profitability, business per employee, product profitability etc are also evaluated over time.

The existence of a number of business critical dimensions over which the same transaction data could be analysed, makes this a fit case for multi-dimensional databases (hyper cube or 'the cube').

Though it is a major requirement, it hardly receives the attention of BI vendors. For sometime, these requirements were bundled as Executive Information Systems (EIS). But the safe, quantifiable world of computers runs up against a wall of unquantifiable abstractions, value judgments and opinions when designing an EIS system. For one, no two executives are alike. And how information is analyzed, interpreted and acted upon is a very subjective exercise. No surprise, therefore, that BI vendor shifted their focus to terra firma of customer relationship management (CRM) which continues to be the centre of their sales pitch to banks today. Even risk management comes a close second.

2.3.2 Performance Budgeting

Indian banks adopted performance budgeting as a management tool in the sixties. The success of the tool depended on historical data on which the current performance levels could be realistically based, and periodic reviews to take corrective actions if there were large variances between budgeted and actual figures. Historical analysis and performance budgeting used roughly the same indicators and the same dimensions, except for resource allocation to achieve the budgeted targets.

2.3.3 Customer Relationship Management (CRM)

As stated earlier, this application is at the centre stage of BI in banking. It is difficult to assess whether it is driven by technology or business. Traditional or conservative

banking business models of Indian banking industry relied heavily on personal relationships that the bankers of yesteryears had with their customers. To that extent, 'relationship' in the present version of CRM is a misnomer. Let us look into the application of CRM in banking, a little more closely.

CRM is an industry term for the set of methodologies and tools that help an enterprise manage customer relationships in an organized way. It includes all business processes in sales, marketing, and service that touch the customer. With CRM software tools, a bank might build a database about its customers that describes relationships in sufficient detail so that management, salespeople, people providing service, and even the customer can access information, match customer needs with product plans and offerings, remind customers of service requirements, check payment histories, and so on.

A CRM implementation consists of the following steps:

- Find customers
- Get to know them
- Communicate with them
- Ensure they get what they want (not what the bank offers)
- Retain them regardless of profitability
- Make them profitable through cross-sell and up-sell
- Covert them into influencers
- Strive continuously to increase their lifetime value for the bank.

The most crucial and also the most daunting task before banks is to create an enterprise wide repository with 'clean' data of the existing customers. It is well established that the cost of acquiring a new customer is far greater than that involved in retaining an existing one. Shifting the focus of the information from accounts tied to a branch, to unique customer identities requires a massive one-time effort. The task involves creating a unique customer identification number and removing the duplicates across products and branches. Technology can help here but only in a limited way.

The transition from a product-oriented business model to a customer-oriented one is not an easy task for the banking industry. It is true of all the banks, Indian or otherwise. It is also true of all Indian banks; private, public, or foreign; and of whatever generation.

A few instances are worth mention here. Head of retail business of a technology savvy new generation private sector bank admits on conditions of anonymity, that there is no 360 degree view of a customer available in his bank. It treats credit card applications from its existing customers in the same way as it does for new customers. A retail loan application does not take into account the existing relationship of the customer with the bank, his credit history in respect of earlier loans or deposit account relationship. And this bank is one of the pioneers in setting up a data warehouse, and a world class CRM solution.

Most CRM solutions in Indian banks are, in reality, sales automation solutions. New customer acquisition takes priority over retention. That leads to the hypothesis that

it is BI vendors that are driving CRM models in banks rather than banks themselves.

Product silos have moved from manual ledgers to digital records. There is not a single implemented model of 'relationship' in Indian banking industry as of today.

2.3.4 Risk Management

Theoretically, banks transform, distribute and trade financial risks in their role of a financial intermediary. However, the risk management discipline as it is known today has its roots in statistical techniques, which require historical data, both internal and external. Statistical models for measurement of various risks such as credit, market, and interest rate depend on the availability, accuracy and amount of historical data for their predictive power.

Though most of this data gets generated out of banking transactions, it needs to be extracted, cleansed and transformed before it can be used in risk measurement models. Most of the risk management in Indian banking industry is regulator-driven.

2.3.5 Regulatory compliance

Regulatory compliance requirements in the banking industry worldwide are on the increase. Basel II, anti-money laundering, Sarbanes-Oxley, and Sebi clause 49 are a few examples. All these regulatory requirements share one common feature - they are data-intensive. Some of these requirements are now quite stringent about the quality of reporting, making the chief executive officer (CEO) and the chief information officer (CIO) personally liable for the correctness of reports.

Regulatory reporting, therefore, requires a properly-audited data collection and collation process.

However, all these BI applications cater to the needs of the top management in banks. But, line managers have a different set of BI requirements, which differ from those of the top management. These requirements constitute 'Operational BI'.

3. OPERATIONAL BUSINESS INTELLIGENCE

3.1 Description

Operational BI embeds analytical processes within the operational business structure to support near real-time decision making and collaboration. This characteristic fundamentally changes the way how data is used, where it exists and how it is accessed. Observes Wayne Eckerson, director of TDWI Research: 'Operational BI merges analytical and operational processes into a unified whole'. This change is rapidly exposing the limitations of traditional analytical tools.

Operational BI helps businesses make more informed decisions and take more effective action in their daily business operations. It can be valuable in many areas of the business, including reducing fraud, decreasing loan processing times, and optimising pricing.

3.2 Key characteristics

3.2.1 Caters to middle management and frontline

Operational BI delivers information and insights to those managers that are involved in operational or transactional processes.

C N Ram, head of IT at HDFC Bank, had implemented a system in his bank, whereby the customer service executives in the branch, got a flash on their screens on the likely requirements of a customer (based on his profile and past transaction behaviour) while servicing a customer request over the counter. The executive at the counter used this information to cross-sell other products to the customer, during the brief period the customer was at the counter. This is an example of operational BI being used to collect and analyse information midstream-running BI tools directly on transaction systems or using enterprise information integration tools to query the data where it lies. 'The ability to get a glimpse of the entire pipeline in and outside of the company is very valuable to the agility of a corporation,' says Chris Thomas of Intel Corporation.

Let us take another example. A loan recovery manager would do well to tailor the language of the demand notice or the phone call based on the total relationship of the customer (and may be his family) with the bank.

3.2.2 Just-in-time delivery

The information needs to be delivered in near real-time (within minutes or hours) for the purpose of managing or optimising operational or time-sensitive business processes. The objective of operational BI is to reduce the time it takes for a line-of-business user or application to react to a business issue or requirement. This elapsed time is known as 'action time', a phrase based on a concept introduced by Richard Hackathorn, founder of Bolder Technology. The business case for operational BI is based on identifying business situations where reduced action times can bring business benefits to the organisation.

For instance, the ability to detect and react more quickly to the fraudulent use of a credit card is a good example of how operational BI can provide business value. By

analysing the history of fraudulent situations, the BI system can be used to develop business rules that signify potential fraud, and operational BI can be used to apply those rules during daily business operations. The closer to real time the fraud can be detected, the less is the operational risk.

However, not all operational BI systems need to be near real-time. Reducing action times to close to zero are is beneficial only in specific types of business requirements such as the fraud example. In fact, operational BI can be classified into being demand-driven and event-driven, the latter being more automated. If the action time requirement is a few hours, business users or applications can use the BI system at on-demand analysis and evaluate the results manually to determine whether any action is required. In the demand-driven case, it is the user who drives the BI system.

But if the action time requirement is two seconds, then on-demand will not be suitable. In this scenario BI systems must track business operations continuously and automatically run analyses to determine whether any action is required. If it is, the business user must be alerted about the situation and sent recommendations on potential courses of action. In case of a fraudulent credit card transaction, the BI system is expected to refuse authorisation. In event-driven BI, business operations and the BI system drive the user. It is obvious that the implementation of event-driven operational BI is more complex than demand-driven BI.

3.2.3 Uses recent transaction data

Data used for operational analysis is frequently accessed before getting loaded into the data warehouse. The latency in a traditional data warehouse implementation results from the batch mode in which it is populated. It is more suited for strategic applications such as historical analysis, risk management, performance management etc. But a dashboard needs to be as close to transaction data as technically feasible. Two years ago, ICICI Bank had decided to implement SAS solutions to address this problem. Commenting on the need, Pravir Vohra, head of the technology management group and retail technology of the bank had observed: 'It takes approximately one week for operational data from various transactional systems to get into the Teradata warehouse'. 'There was a need for a lighter system which could aggregate data on a daily basis, and cater to the internal operational MIS,' he had explained. The bank had licensed SAS Enterprise Intelligence Platform, consisting of ETL Server, BI Server, Enterprise Miner and Text Miner.

3.2.4 Less aggregation, more granularity

In a sharp contrast to traditional BI in which pre-aggregation, with optional drill down to detail levels is a norm, operational BI normally requires more of data granularity to address the needs of the specific operational function it supports. Traditional BI aims at a holistic view of corporate performance, while operational BI is process and user specific. Yet, some operational BI requirements do require aggregated data, such as the lifetime value of a customer, which is required for a directed sales call.

3.2.5 Embedded into business processes

Operational BI is intricately connected to transactional business processes. The extent of this integration depends on the level of implementation. One could use it

to generate operational reports to analyse processes, or monitor them using dashboards and scorecards. In these two levels there is not much of integration. In the other two levels, where operation BI is embedded into business processes either to facilitate them (demand-driven) or to execute other processes (event-driven), it is embedded into the process.

3.2.6 Handles disparate sources and unstructured data

Traditional databases and data warehouses do not take into consideration the increasing use of unstructured data; such as emails, telephone calls, letters, internal notes etc, stored outside these systems, which are of critical value in an operational BI implementation. Another issue that it has to handle arises out of the disparate transaction systems in use in most of the banks. The variety of banking services makes it very complex and often impractical for a single software solution to handle all kinds of transactions. Extracting data from such disparate systems and making use of unstructured data is required to be handled by an operational BI system.

3.2.7 Availability is a concern

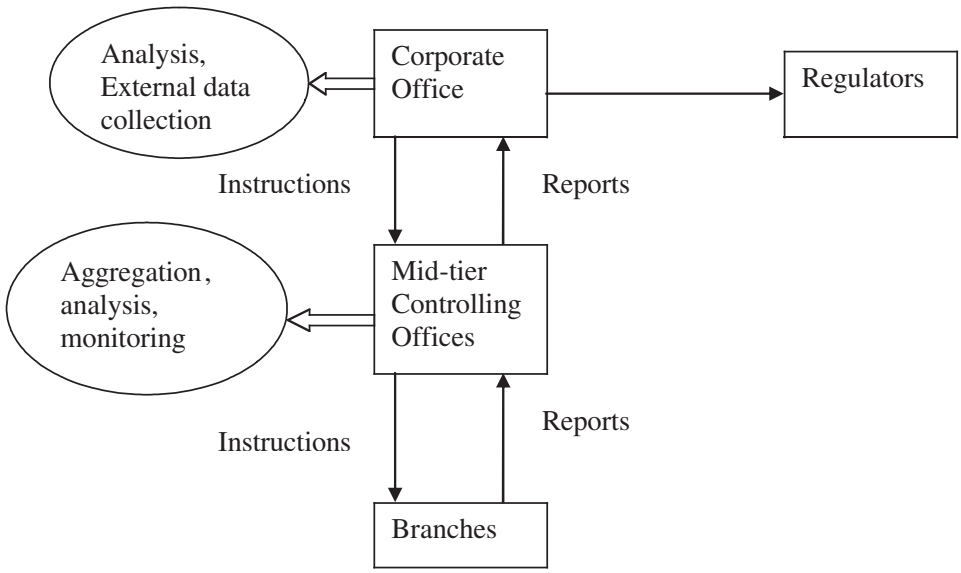
The high level of integration with transactional business processes demand the same level of availability from operational BI implementations that transaction processing systems have to provide. An outage of an operational BI application could have a direct impact on the organization's ability to do business or to service its customers. Therefore, availability becomes a critical issue for operational BI applications.

3.2.8 Requires different architecture

Traditional BI vendors had built their products using proprietary architectures. While these architectures are ideal for strategic BI, they are not suited for operational BI. Because operational BI entails coupling BI applications with operation applications and operational processes, a component-based, service-oriented architecture (SOA) is necessary to fully support operational BI. Service-oriented architecture that lets users access real-time knowledge with a set of service feeds can maximize business agility while reducing complexity. For example, SOA flexibly and cost-effectively supports the midstream, on-the-fly data collection and analysis necessary for operational BI. Service orientation also supports operational BI throughout the business by pushing BI data out to the mobile workforce and enabling workers across the enterprise to incorporate this vital data into their workflow. The straight-through processing requirements in the banking industry necessitate immediate risk analysis, which in turn requires an online BI capability.

4. OPERATIONAL BUSINESS INTELLIGENCE IN INDIAN BANKS

In terms of information flow, most Indian banks had the architecture as depicted in the figure below:



Since all the transaction data was created at the branch level, it was aggregated, transformed, (and sometimes fudged!) by the branch to create reports for regional or zonal controlling offices. These reports were aggregated for onward submission to corporate office, and were also used to monitor performance of the branches by controlling offices. Corporate office used to aggregate the aggregated reports from controlling offices to arrive at the enterprise level data, which was used for regulatory reporting, historical analysis and performance management. Most of the external data was collected only by the corporate office.

This unidirectional flow of data from the branches to corporate office via controlling offices was a direct consequence of the transaction data lying distributed at the branches, regardless of the transaction processing system at the branch (manual, partially automated or fully automated).

It would be incorrect to assume that there was no operational BI in this architecture. Yes, it was unstructured, often incomplete, and highly person-dependent. In some ways, it was more relationship oriented than quite a few of CRM implementations of today. In a recent interview, MBN Rao, chairman and managing director of Canara Bank related an incident when he had passed an unsigned cheque drawn in favour of Bombay Electric Supply and Transport by a customer of his branch, after due diligence to find that he was a well-known physician in the locality. It was an excellent example of operational BI.

4.1 BI for decision support

Technology-led operational BI is sales-focused, that is acquiring a new customer or

selling another product to an existing customer. It does not place an equal emphasis on customer retention. The techniques and solutions of retail business have been put into banking business by BI vendors.

Due to its specific nature, banking business requires BI for decision support.

4.1.1 Environmental data

The profitability of any organisation is largely affected by the environment in which it operates. The process of decision making in every organisation is influenced by the information inputs which it gets from both external and internal environment. Banks need to collect information on external environmental factors such as trends in economy, product development and delivery by competitors, various statutory and regulatory stipulations etc, which have direct influence on their bottom line.

4.1.2 Transaction data

Banks also need to collate voluminous data generated by transactions. Analysis and interpretation of this data provides BI for both strategic and operational purposes. This data, which was earlier locked up in manual books of the branches, is now dispersed over disparate systems. Even the most technology-savvy bank in Indian today, uses different software solutions for different products and services. A credit card issuing software, or a retail loan origination system has weak to negligible linkage with the core transaction processing data. Product-centric approach has not been replaced by customer-centric approach despite the use of technology.

4.1.3 Excel-led BI

Due to this problem, most middle-level managers in banks have no other recourse but to import data from disparate into an Excel sheet for operational BI. While Excel is an excellent analytical tool, it does not have support for data consistency across the enterprise.

Why Excel-based heavy data solutions with MIS reporting should be avoided in principle?

MIS Reporting involves many users. Spreadsheets are essentially single user productivity tools. 1KEY Reporting is designed from the ground up as a multi-user system.

Spreadsheets MIS do not naturally handle hierarchical voluminous data. 1KEY is designed from the ground up to handle forecasting reports at any level, hierarchies, with no need for manual consolidation, ever. It can therefore be performed, more powerfully, in less time.

Spreadsheets MIS cause data duplication and fragmentation. 1KEY gives all users a single, consistent view of the truth.

Spreadsheet MIS systems are inherently insecure. Formulae can be overwritten or changed; it is hard to protect sensitive data. Also, spreadsheets can ‘walk’, together with all that sensitive data!

Spreadsheet MIS systems require extensive manual maintenance. 1KEY Solution will allow you to automate all maintenance of your MIS reporting system, saving you time, hassle and minimizing the chances of errors.1KEY is a robust and proven application, with far more functionality than it is possible or cost-effective to deliver via home grown developments. Why spend considerable time and effort to re-invent a less effective wheel, when this one already exists and provides clearly proven benefits to existing customers? Why delay the benefit stream? You can implement 1KEY and start saving money far earlier than by developing, testing, debugging, re-testing, and documenting a home grown Excel based MIS solution, only to end up with something which is much less functional than 1KEY, and more heavily dependent on key internal developers, who may 'up and leave'.

1KEY framework allows a remote user who is not connected to the data warehouse to get the report loaded with data and enable him to slice and dice the data. This flexibility of remote viewing is possible due to XML technology to export and import the reports with its metadata to the remote user who is not connected to data warehouse.

4.1.4 Purpose-specific BI solutions

Banks have attempted to develop specific internal BI solutions tailored for specific purposes such as classification of advances and provisioning requirements in the past, and now for probability of default and loss given default estimation Similar exercise of data collection and analysis of foreign trade accounts has since been undertaken to minimize the exchange risks. Other specific purpose solutions relate to asset liability management, anti-money laundering etc.

4.2 Core banking solution

Now that most of the major banks in India have adopted centralised transaction data processing, popularly known as CBS which means both 'core banking solution' and 'centralized banking solution'. Except for a few private banks and major foreign banks, bringing all branches under CBS is still a distant dream. Till this complete coverage happens, such banks in India, most of them being large public sector banks, will have to deal with multiple transaction processing systems.

This poses a formidable challenge for BI implementation in these banks. And if that is not enough, there are other challenges to cope with. A core banking solution, by definition, claims only to deal with core banking transactions. It does it using a centralised database, yes, but does not cover all banking transactions. In other words, a CBS is not to a bank what an ERP solution is to the manufacturing industry.

It helps improve service delivery for better customer service, supports online transaction capability offered by alternate delivery channels, and enables anywhere, anytime banking. It also automates tedious tasks such as interest application, standing instructions, charging fees, and reconciliation of transactions. However, it still remains to be seen what and how much role it can play in providing operational BI.

4.2.1 Views of branch managers

'I get all the reports that I need from the core banking solution in my branch,' says Anoop Goyal, chief manager and branch head of State Bank of Bikaner and Jaipur, branch in New Delhi. 'While I get most of the reports from CBS solution at my branch, we do need to resort to Excel for quite a few reports especially for managing relationships,' says Narinder Kumar Bhasin, assistant vice president and branch head, retail banking branch, Axis Bank, New Delhi. But a public sector banker who has been instrumental in rolling out CBS in quite a few branches in his bank, observes on conditions of anonymity: 'There is a general impression amongst the operational bankers at the branches that migration to core banking solution has still not eased the pressure for preparation of statements at branch level. Despite availability of data on the centralized server, controlling offices continue to demand various MIS returns from branches.'

Although the corporate offices of these banks talk about one bank approach doing away with the concept of branch specific banking for their customers under anywhere banking, compilation and reporting of data at the branch level continues even after migration to CBS. The differences in these opinions reflect the maturity of CBS implementation and branch coverage in these banks, as also the information needs of the person giving the opinion.

4.2.2 CBS cannot keep pace with changing BI needs

The BI needs at all levels keep changing. While major reports remain the same, there is always a demand for a fresh report. While developing a CBS solution attempts could have been made to capture as much data as possible in the master formats. However, the diversity, and the ever-changing nature of business requirements makes it very difficult to include all the parameters in these formats. Further, the data structures are quite rigid and it is practically impossible to continuously modify the structure to suit these dynamic requirements. As a result, many a times, the operational staff has to spend considerable time and efforts in collection of data which are not available in the master formats.

4.2.3 Gaps in customer information

The existing master data in legacy systems prior to migration to CBS is not complete and does not match the CBS master formats. Branches are required to scan and update all such data on the centralised server post migration. This task is yet to be completed by many branches in a bank. To facilitate migration, software providers have been called upon by banks to reduce the mandatory data fields in the account opening forms to a bare minimum level to accommodate incomplete historical data and also to facilitate quick opening of the new accounts.

Updation of customer information in such cases requires a one-time effort to plug gaps in legacy data. In addition banks need to put in place adequate processes to ensure that changes in customer data on account of change of address, employer, and contact numbers etc.

4.2.4 Focus of CBS design is on transaction processing

The core functionality of a CBS solution is efficient processing of transactions and not to provide BI. 'If each branch starts firing queries it will slow down the system,' says A K Upadhyaya, assistant general manager (IT), Bank of Baroda. The system is

tuned to run tasks at day-end to produce routine reports. Some banks have tried to use their disaster recovery site to circumvent this problem.

4.2.5 Security Issues

Database security in a production database cannot be compromised by allowing operational personnel to run all kinds of queries. While the interface between an operational BI solution and CBS can be audited, the facility to users to run queries cannot.

Thus, a CBS can, at best provide only a limited BI functionality.

4.3 Data warehouse approach

There are three main reasons for Indian banks to consider the data warehouse approach. One is the existence of multiple transaction processing systems (CBS, TBM, manual), with no possibility in near future to bring all the branches under CBS. Another reason springs from the inherent limitations of the CBS solution on account of its focus on efficiency of transaction processing and support for only core transactions.

Attempts to implement a grand all inclusive enterprise wide data warehouse have met with limited success worldwide and across industries. It is beyond the scope of this report to go into the reasons thereof, but it is well-accepted that it takes quite a lot of time, effort, and money to build such a data warehouse. Often, it is obsolete by the time it gets implemented. Yet, a few public sector banks are attempting such a data warehouse, but these projects are in the early stages.

A few banks are also attempting to implement an enterprise-level general ledger application, which they expect, will solve most of their reporting issues.

4.3.1 Data Latency

As has been explained earlier in this report, traditional data warehouse does not contain recent operational data. Data from various transaction processing systems is extracted, transformed and loaded in the warehouse at regular intervals. The process is mostly run in batch mode.

4.3.2 Data Marts

Function or purpose-specific implementations of BI, such as for risk management, CRM, or historical analysis, are known as data marts. These are faster to build, but lack in integrated view.

The operational BI requirements of most Indian banks at this stage, relate to performance analysis, profitability analysis, executive dashboards and managing customer relationships.

4.3.3 The cost aspect

Investment in any BI solution depends on the desired benefit. The level of technology implementation, extent of disparate data sources, business requirements and the time required to implement are some of the considerations that drive this investment.

5. IS THERE A WAY OUT?

Upadhaya thinks that regional or zonal offices can be provided with a copy of the slice of production database pertaining to their branches. These offices can use a light-weight, low-cost BI solution to analyse this data, create reports, and produce a dashboard. Such an implementation would be both low-cost and near real-time. In fact, Rajeev Panikath, vice president, Axis Bank has tried with great success such a low-cost BI solution to overcome the limitations of the CBS solution.

Operational BI proves a smart investment from both the business and technology perspectives. By taking the guesswork out of operational decision making, banks can link decisions directly to critical business information and make decisions on the fly throughout the enterprise. Operational bankers of the future will need real-time data to do immediate risk analysis for each transaction. Those decisions can be based on information pulled in from a wide variety of data sources, both structured and unstructured. By applying analytic solutions at the operational point of pain itself, banks can derive immediate business advantages. This is the promise of operational BI.

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Indian Banks' Association

Indian Banks' Association, formed in 1946, is an advisory service organisation of banks in India. It serves as a co-ordinating agency and a forum for its 156 member banks to interact in matters concerning the banking industry. For further information on IBA, contact:

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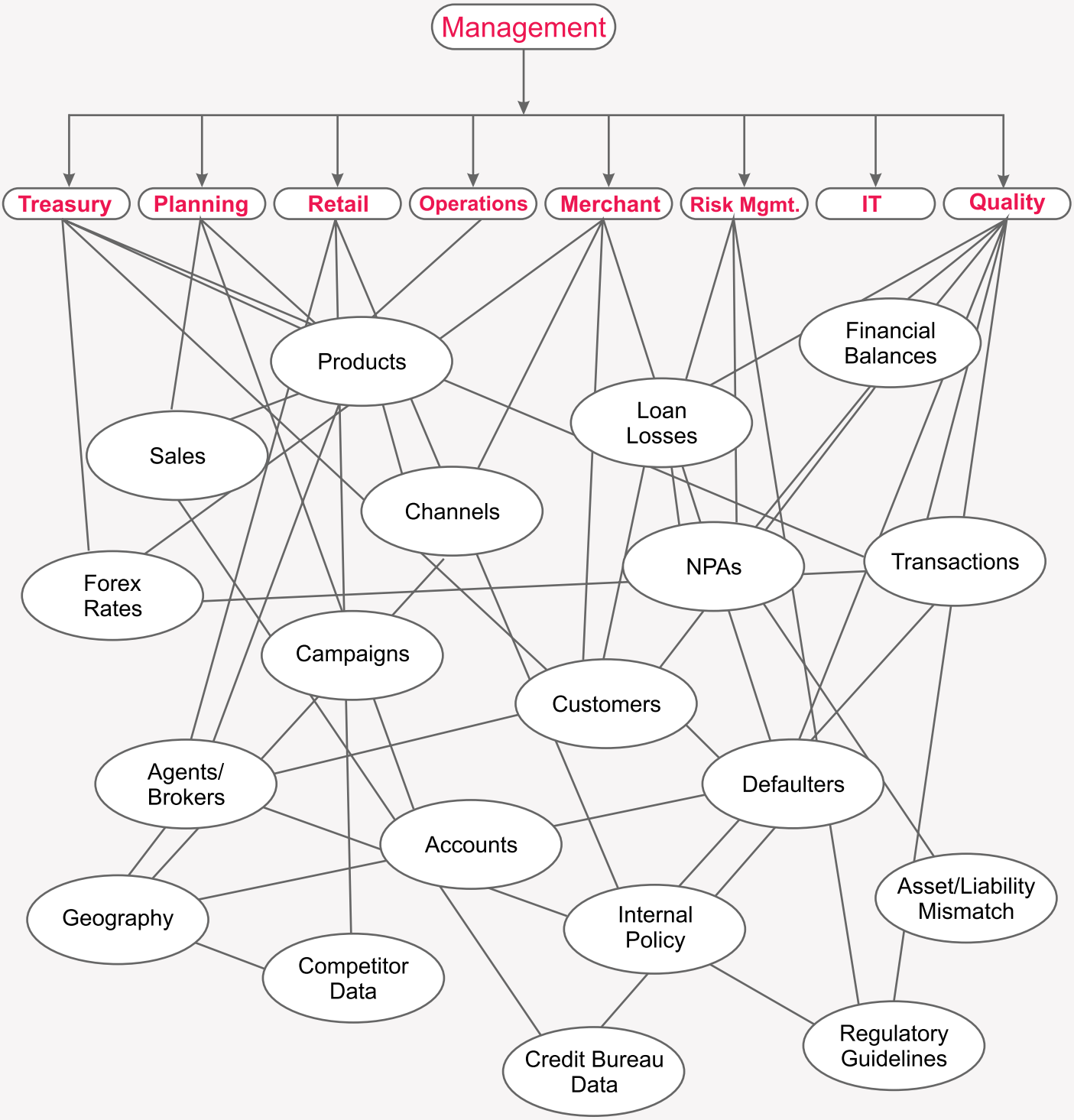
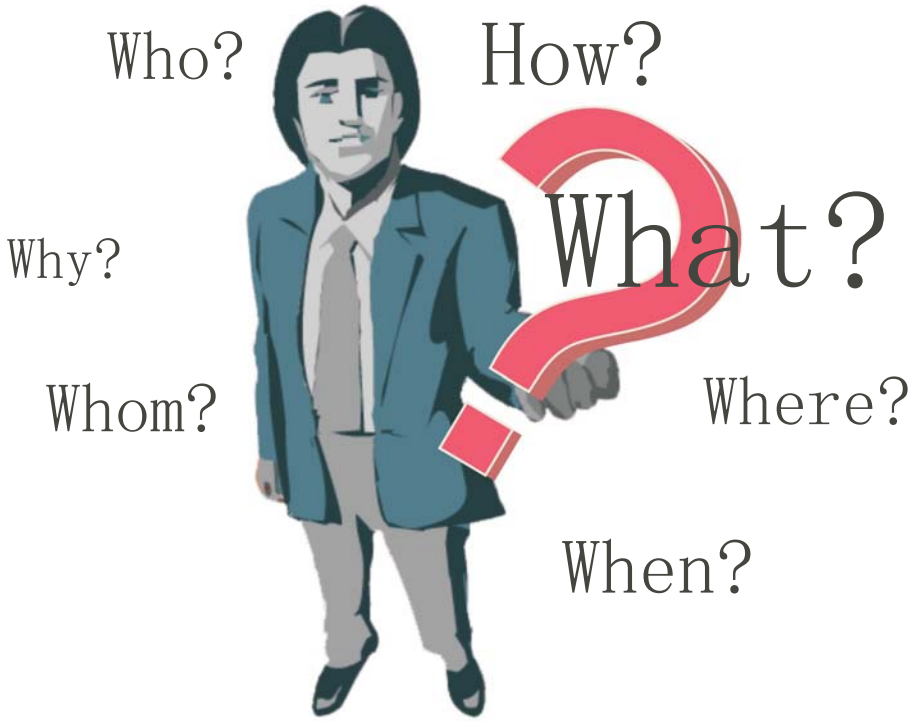
Banking Data Complexity



Solution

MAIA Intelligence

Banking means enormous transactions & data, attracts too many queries



Operational Business Intelligence Solutions For Banking

1KEY
DATA 2 DECISION

1KEY is a tool developed in Microsoft .Net technology. The tool talks and connects to all types of software irrespective of the backend. 1KEY lets software users and developers to create dynamic reports quickly and easily. Today MIS analysis of any data is most important aspect of business. If one could derive desired decision making information out of the business data, then only the data is worth its value.

1KEY is catering to the needs of modern edge & competitive business. There are businesses which has got all the information in the form of data, still they are spending maximum time in analyzing data.1KEY can help you to analyze any type of data and derive meaningful information, resulting in faster, accurate & profitable decision.

1KEY enables to slice & dice the data and to make it more significant, serving micro & macro level analysis. It virtually makes your data speak to you.

Features

- Easy to Use, Maintain and Deploy
- Extensive Scalability and Extensibility
- Comprehensive Security
- Integration with any application
- Scalability to meet end customer requirements
- Quick start wizards for installations
- Tabular & Free-style Reports
- Drill-down and Drill-through Reports
- Complex Reports with Sub-reports
- Data Grouping & Regrouping
- Distributed Data Retrieval
- Interactive Sorting
- Codeless Parameter Page Builder
- Interactive Paging Export to Excel, XML and HTML
- Dynamic Expression and Query Builder

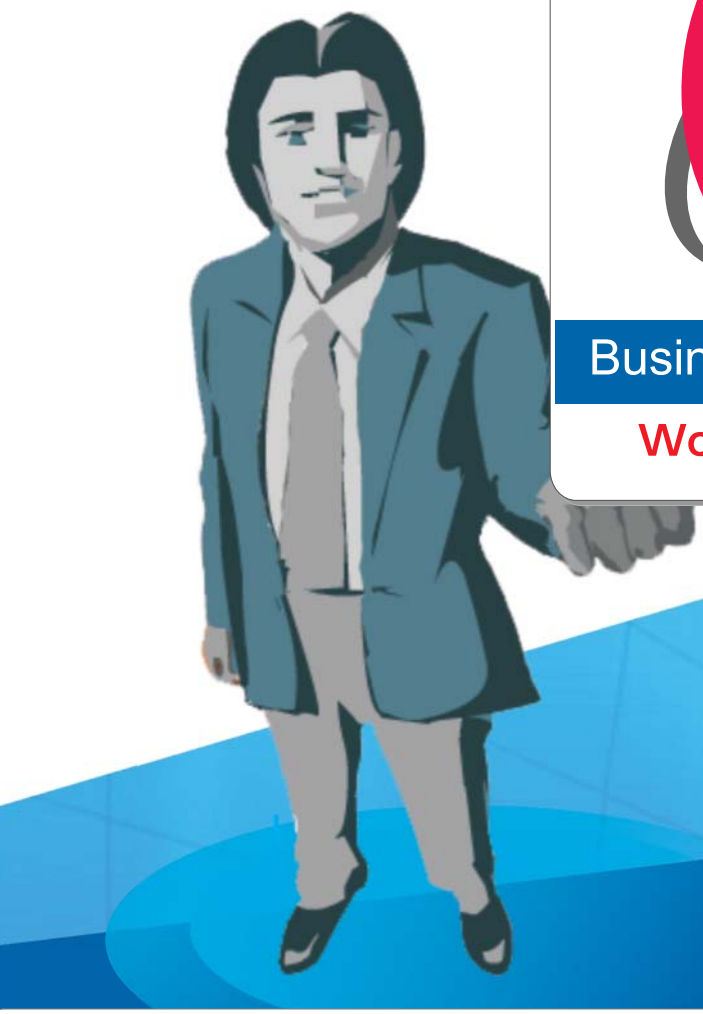
Benefits of 1KEY

- IT hours spent on more productive projects.
- Complete freedom for end users in variety of reports.
- Business users having reliable information.
- Reduction in analysis time for business users.
- Improved accuracy in decision-making.
- Improved efficiencies and streamlined operations.

Call For Demonstration **Cell:** +91- 99204 33535, **Email:** sales@maia-intelligence.com

MAIA Intelligence

ON DEMAND MIS



1KEY
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Business Intelligence Reporting Tool

World Class BI at Indian Cost

- **Decision Support System**
- **BI Solution for all CBS (Core Banking Solutions)**
- **Connects to Multiple Databases**

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