Accounting for trillions in assets worldwide, the banking system is a crucial component of the global economy. Banks are just one part of the world of financial institutions, standing alongside investment banks, insurance companies, finance companies, investment managers and other companies that profit from the creation and flow of money. As financial intermediaries, banks stand between depositors who supply capital and borrowers who demand capital. Given how much commerce and individual wealth rests on healthy banks, banks are also among the most heavily regulated businesses in the world.

There are approximately 40+ community banks that have used either Lean or Six Sigma to gain productivity and almost all of them have reported at least some level of success. Anecdotally, banks report savings of between 20% and 40% in their reengineered loan processing and 70% is not out of the question.
Contents

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2. Six Sigma Two approaches
3. DMADV & DMAIC Applicable in bank
4. Benefits of Six sigma in whole Banking Sector
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Six Sigma Approach
SIX SIGMA

Two Approaches

DMADV
- It Increase the Capacity
- With DMADV, the Design and Verify steps deal with redesigning a process to match customer needs, as opposed to the Improve and Control steps that focus on determining ways to readjust and control the process.
- DMADV, measures customer specifications and needs.
- DMADV, a suggested business model must undergo simulation tests to verify efficacy.
- DMADV develops an appropriate business model destined to meet the customers’ requirements

DMAIC
- It Increase the capability
- DMAIC typically defines a business process and how applicable it is
- With regards to measurement, DMAIC measures current performance of a process
- Control systems are established with DMAIC in order to keep check on the business future performance, DMAIC concentrates on making improvements to a business process in order to reduce or eliminate defects
DMADV & DMAIC
Applicable in bank
DMADV methodology consists of the following five steps

<table>
<thead>
<tr>
<th>Define</th>
<th>Measure</th>
<th>Analyze</th>
<th>Design</th>
<th>Verify</th>
</tr>
</thead>
<tbody>
<tr>
<td>The goal of the design Activity That are Consistent with customer demand</td>
<td>Identify CTQs Product capability &amp; Risk Assessment</td>
<td>To Develop And Design alternative, create high level Design And evaluate design capability to select the best design</td>
<td>Detail Optimize the design and plan for design verification this design may require simulation</td>
<td>The Design, set up pilot run implement production process and handover to process owner</td>
</tr>
</tbody>
</table>

The HDFC Bank senior management decided to execute a Design for Six Sigma project to improve the information-gathering process for account setup. The project team followed the Define, Measure, Analyze, Design, Verify (DMADV) roadmap.
Table depiction of DMAIC module for analysis and improvement of processes:

<table>
<thead>
<tr>
<th>Phase</th>
<th>Improvement of Process</th>
<th>Design/ redesign of process</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEFINE</td>
<td>- To identify</td>
<td>- To identify specific or general problems</td>
</tr>
<tr>
<td></td>
<td>- To determine requests</td>
<td>- To define planned result/ apply vision</td>
</tr>
<tr>
<td></td>
<td>- To set planned result</td>
<td>- Explain scope and requests of customers</td>
</tr>
<tr>
<td>Measure</td>
<td>- To confirm a problem / process</td>
<td>- To measure performances according to requests</td>
</tr>
<tr>
<td></td>
<td>- Purify the problem / planned result</td>
<td>- To gather data on process efficiency</td>
</tr>
<tr>
<td></td>
<td>- To measure key steps / entrances</td>
<td></td>
</tr>
<tr>
<td>Analyze</td>
<td>- To develop hypothesis on samples</td>
<td>- To identify &quot;the best practice&quot;</td>
</tr>
<tr>
<td></td>
<td>- To identify &quot;vital minority&quot; of cause root</td>
<td>- To evaluate process design, Adding / not adding values,</td>
</tr>
<tr>
<td></td>
<td>- To confirm hypothesis</td>
<td>- Bottlenecks / interruptions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Alternative ways</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- To purify requests what interviewer wants to hear.</td>
</tr>
</tbody>
</table>
Table depiction of DMAIC module for analysis and improvement of processes:

<table>
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<tr>
<th>Phase</th>
<th>Improvement process</th>
<th>Design/ redesign of process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improve</td>
<td>• To develop ideas for removing the root of cause&lt;br&gt;• To test solutions&lt;br&gt;• To standardize solution / measure results</td>
<td>• To design new process&lt;br&gt;• To check assumptions&lt;br&gt;• To apply creativity Principles of work flow&lt;br&gt;• To implement new process, structures, systems</td>
</tr>
<tr>
<td>Control</td>
<td>• To establish standard measuring for performance &amp; maintenance&lt;br&gt;• To correct problems when needed</td>
<td>• To establish measurements and re-investigate in order to maintain performances&lt;br&gt;• To correct problems when needed</td>
</tr>
</tbody>
</table>
**DEFINE**: Customer satisfaction & loyalty are the deciding factor to bank employee's efforts to achieve higher profits. Six Sigma projects involve defining objectives and opportunities in consultation with bank employees, as well as senior management. There may be an opportunity to improve, based on customers' feedback, complaints or escalation received at management level.

**MEASURE**: In the „measure“ phase of DMAIC, Six Sigma professionals deploy quantitative procedures to collect statistical data in consultation with the business managers and top management. The statistical data is then used for measuring the impact of the various business processes on customer satisfaction. Different processes have different impact on customer satisfaction. It is financially not viable to improve every business process. The measurement of impact of the individual processes helps the banks to concentrate on improving the processes that have the maximum impact on customer satisfaction. In the banking industry, wait times are said to have the maximum impact on customer satisfaction.

**ANALYZE**: Six Sigma professionals analyze the collected data according to predefined parameters to identify the processes that can be improved at minimum costs. The analysis covers every aspect of a business process that directly affects customer satisfaction. For example, a check cashing transaction involves the customer coming to the teller window, the teller receiving the customer's request and the teller seeking a manager's approval for processing the request. These three different, single transactions need to be analyzed individually to ascertain which one has the maximum impact on the overall transaction time. Steps that are time-consuming and need reconsideration or rearrangement are identified and sent for approval.
**IMPROVE** : In the „improve“ phase of DMAIC, Six Sigma professionals apply corrective measures to improve processes that cause problems in consultation with the bank staff and the branch manager. All improvement measures are based on facts and statistics. Advanced simulation tools can also be employed to study the impact of the proposed improvement initiative on business processes. These measures are taken based on the data collected according to the guidelines from top management. Before the changes are finally made, tests are undertaken to ensure that any changes do not affect customers adversely for any reason. A pilot project may be run for testing of results.

**CONTROL** : In the control phase of DMAIC, control systems are put in place to monitor the impact of the improvement initiatives. If a business process is still not performing in accordance to the desired Six Sigma levels, the process is referred back to the „define“ phase. However, if a small problem is affecting the performance, then corrective measures are taken and the whole process is not referred back.
Benefits of Six sigma in whole Banking Sector
1. **Increase Customer Satisfaction:** Due to the existence of several banks, customers have various options to choose banking facilities. By using lean six sigma applications, a bank can enhance customer satisfaction, reduce waiting time for services and provide better and faster services. Lean performance assures that customer problems are addressed timely and possible solutions are sought to resolve their issues and grievances. Proper use of lean six sigma applications assists banks in providing superior services and products that result in higher customer satisfaction.

2. **Increase Profitability and Decrease Costs:** Since the needs and requirements of customers vary greatly, it becomes essential to identify and measure the requirements of customers. By applying lean six sigma approach, banks are able to identify specific needs of each customer eliminating process inefficiencies, and errors and enhance customer satisfaction while offering quality services at the same time. Better services and facilities increase customer retention rate which pays in the long run in terms of increased profitability and reduced cost.

3. **Monitor performance:** The data pertaining to performance of the bank is collected to track how processes within a bank are initiated. The customer waiting time, the services offered, the satisfaction level of customers are measured. The cost associated with customer services and facilities are measured to find out the amount spent on each customer. If the performance level dips down considerably, the root cause of the process problem is identified and solved with possible steps using lean sigma approach.

4. **Eliminate processing delays:** Whenever a bank faces any problem, they are improved and implemented. Problems such as delays in providing any facility such as loan or mortgages have a great impact on the level of customer satisfaction and rate of retention of customers. In order to avoid all these problems, banks employ lean 6 sigma applications to offer better customer services to enjoy better retention rate and increase inflow of regular customers, new as well as existing ones.

5. **Analyze performance and avoid banking errors:** In order to ascertain that improvements are generating efficiencies at all levels within a bank, it becomes important to measure and conduct an assessment of the processes before and after implementation of key measures. In such a case, customer satisfaction level can be measured before implementing lean sigma approach and after taking corrective measures. Besides this, lean performance is employed to eliminate mistakes in calculations, errors in order to provide efficient and up to date banking services to customers.
Improving customer feedback and response processes
Reducing documentation errors & improving accuracy
Improving the reconciliation processes.
Reducing response delays.
Reducing or eliminating invoicing errors
Eliminating the possibility of erroneous data entry
Reducing audit non conformities.
Reducing turn around time (TAT) for various processes,
Reduction of waiting & service time
Reduce electronic financial transaction costs.
Reducing complaints by (First Time Resolution) for complaints/queries,
Enhancing (internal or external) customer satisfaction
Improved customer experience for Net Banking, Mobile Banking & Phone Banking
Increased business in terms of new customer

In the Assets side
Reducing the cycle time to Process a Loan Application (both Mortgage & Personal loans).
Improving the Customer Information gathering processes.
Improving the Credit Evaluation Process
Improving Productivity of loan processing agents
Account Opening
Reducing the cycle time to Process a Loan Application (both Mortgage & Personal loans).
Improving the Customer Information gathering processes.
Improving the Credit Evaluation Process
Improving Productivity of loan processing agents
Other projects in Retail Banking
Reducing the Credit Card Delivery time.
Reducing Bank Statements Processing & Delivery time.
Reducing the errors in money transfer
Improving accuracy, timeliness and completeness of customer communication.
Developing new products (timeliness, business potential)
Case study
• While we all have problems in our loan processing, Lean Six Sigma banks try to fix the problems in a systematic way. If the issue is vacations, backlogs or bottlenecks, a solution might be to create centralized “work cells” with cross-trained personnel that can fill in for other members. Each cell might have an outsourced solution so that a variable cost processing structure can be leveraged in times of heavy workflow. A process might be put in place where loan files are rotated to other areas or branches. Realignment of teams with a load balancing process is said to increase productivity by 15%.

• Then there is the process itself. Entering loan information digitally, then printing the file out only to sign, amend with other information and then scan in again is fairly common. Requiring three sign off approvals where two will do is another classic problem that is common to many banks. Of course, process issues usually stems by treating all loans the same or according to size instead of risk. Streamlining the processes and making so that risk and effort are correlated can usually save banks 25% in processing cost and time.

• Finally, the granddaddy of all loan processing savings comes from the collection, analysis and presentation of loan application data
Case Study: Car loan in European Bank

Purpose: To increase car loans by 100 percent in the first year, and by another 70 percent in the second year.

Pre-Analysis Phase

- A cross-functional team from sales, marketing, and operations was formed to investigate the key drivers of car loan business and market share growth.

- The team created a high-level process map and identified sub-processes and relevant influence factors. The indicators were identified through a series of interviews with many process stakeholders. The process stakeholders did not know about process indicators but they were able to explain what kind of “critical numbers” they looked each month. Some of the numbers could easily be translated into indicators; others needed more effort to become obvious.

Car Loan Project’s Define Phase

After the interviews and after pulling some data from the management information system, at least one reason for starting this project was clear. More than half of the car dealers had not turned over any loans to the bank during the last couple of months. In addition, marketing data told the team that it was much more expensive (about five times more) to acquire new car dealers than to work with existing ones.

Results

- Development of a communication process between sales representatives and clients.
- Development of a monitoring tool to alarm sales in case of inactivity of clients.
- Refinement of the roles of marketing, sales, and operations, resulting in less administrative work for sales personnel in order to give them more time for their first priority – talking to clients.
- Redefinition of internal interfaces to improve communication between departments.
- Production of a marketing handbook to support clients in selling the bank’s services.
Bank of America

Problem faced:
- Inefficient error prone process were costing the money through non value added rework
- Customer satisfaction metrics at lower level
- Lack in customer loyalty

Strategy applied:
1. Increased customer delight with problem resolution
2. More precise control over payments to suppliers
3. Increased productivity of new hires via training
4. Elimination of significant travel expenses
5. Enhancement of enterprise e-mail governance to improve productivity
6. Reduction of credit-risk assessment that was considered biased
7. Elimination of significant numbers of electronic information subscriptions
8. Increased associate retention in key areas
9. Increased collections by reducing abandoned inbound calls
10. Improved ability to detect and prevent fraud at banking centers

Results
- Missing items on customer statements were reduced by 70%
- Defects in electronic channels (ATMs, online banking, etc.) decreased by 88%
- Reduced average cycle time by 15 days
- Non-credit losses, including fraud, were driven down by 28% on a per-account basis,
  whereas the number of accounts increased by more than a million in 2003 alone
- Same-day payments have been improved by 22%
- Deposit processing has been improved by 35%
- The cumulative financial benefits exceeded $2 billion by the end of 2003
- The customer delight metric had increased 25% across the company in 2003
- Six Sigma was generating the same magnitude of benefits at a bank that have been seen in manufacturing organizations

Facts
Ultimate result of this project, which included efforts of many others beyond his own, was a doubling of Bank of America's customer delight metric and a financial impact of more than $2 million.
National Australia bank Case study

Background

NAB business process were documented using multiple tools and standards, with multiple versions of the same process documented by different stakeholders, stored in disparate repositories, with a predominantly functional and product driven focus.

The challenge

1. Simplify its processes and make it easier for NAB to do business with NAB through an integrated and lever gable view of NAB’s (end-to-end) processes.

2. Manage the impact of business change of their processes enabling NAB to:
   • Reduce the cost and business risk of implementing process improvement and regulatory compliance initiatives
   • Reduce the rework and effort in recreation of process documentation; and
   • Avoid duplication and redundancy of process information across the organization.

3. Further objectives were to provide unit managers with the skills to run their business area; reduce waste; and ensure quality output and consistent customer service.

Benefits

• Changes to manual processes allowed nearly half as many staff to be twice as effective
• Reduced risk
• Meeting compliance obligations
• Meeting quality control objectives
• Motivated staff through recognition and reward
• Reduced the rework and effort in creation of process documentation
• Avoided duplication and redundancy of process information across the organization.
Citibank

Benefits

• We cut monthly call backs from 8,000 to 1,000, and we eliminated call backs for 73 percent of the transactions coming in
• reduced internal call backs by 80 percent, external call backs by 85 percent and the credit process time by 50 percent
• This group improved all steps' cycle times from when a customer places an order to product delivery. The group also reduced the credit decision cycle by 67 percent, from three days to one day.
• The group achieved 100-percent accuracy within a four-month period. It also reduced the cycle time of processing statements from 28 days to 15 days.
• Improving the Customer Information gathering processes.
• Improving the Credit Evaluation Process
• Improving Productivity of loan processing agents

Define:
• Choose a key process that needs improvements
• Identify a senior champion, a steering committee, a team leader & facility
• From a team of the best employees from all key units to redesign the process

Measure:
• Map the process as it currently take place
• What are the problem, disconnect and valueless activities that waste time and create customer dissatisfaction

Analyze:
• Confer with colleagues
• Assess the accuracy of your map
• Identify possible solution and foster acceptance of the need of change

Improve:
• Develop a model of the Should be state, which works faster and better than the as is state without requiring additional people or spending
• Establish action needed to make the should be a reality with the guidance of team member

Control:
• Establish Action-item team with member from throughout the organization
• Create a project plan the teams leader manages team through monthly meetings. rewards and recognize accomplishment
<table>
<thead>
<tr>
<th>Bank</th>
<th>Description</th>
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</table>
| Honkong and Shangai Banking crop | • The type of project was undertaken: data Capturing process  
• In a banking data capturing process, it was found that the process yield (first time right %) was only 65%. A Six Sigma project was initiated. A detailed process study led to identification of validated root causes. Alternative solutions were identified and the best one chosen after few hypothesis tests. Within two months the data capture process reached a yield of 85%. By putting in tighter controls, this process yield moved further to 94%.  
• The reconciliations were completed on time. |
| ING direct                  | • Increased Customer Value and Cost/Waste & Defect Reduction  
• It helped to provide, cross functional process with limited historical data, Financial organization harness its employee ceativity and customer focus.  
• Increase customer satisfaction  
• successfully delivered $50 million in cost savings. |
| Capital one                 | • Focused on changed management model, customer focus and change in culture  
• The associates have embraced this new culture of customer focus and a commitment to continuous improvement  
• Improving Market Share of existing banking products.  
• Improving the Branch Banking Processes |
<table>
<thead>
<tr>
<th>IDBI Bank</th>
<th>Six Applied In operation process following are its Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Net profit Up to 34 % to RS 335 crore (from Rs 251 crore)</td>
</tr>
<tr>
<td></td>
<td>• NII grew by 36% to Rs. 1152 crore (from Rs 844 crore)</td>
</tr>
<tr>
<td></td>
<td>• NIM at 2.07 % (from 1.67)</td>
</tr>
<tr>
<td></td>
<td>• Business up to 13% to Rs 3,31,266 Crore (from 2,92,533 crore)</td>
</tr>
<tr>
<td></td>
<td>• Deposit Increased By 12% to Rs. 1,76,282 crore (From 1,35,329 crore)</td>
</tr>
<tr>
<td></td>
<td>• Advances Up by 15% to Rs 1,54,984 crore (from Rs 1,35,393)</td>
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</tbody>
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<thead>
<tr>
<th>Island Savings</th>
<th>Focused on saving time versus money</th>
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<tbody>
<tr>
<td></td>
<td>• Enhanced there Process</td>
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<tr>
<td></td>
<td>• Reducing turn around time (TAT) for various processes,</td>
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<td>• Reduction of waiting &amp; service time</td>
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<tr>
<td></td>
<td>• Reduce electronic financial transaction costs</td>
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<table>
<thead>
<tr>
<th>HDFC</th>
<th>In HDFC Bank, the quality check tool is being applied across the organization</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• It Enhance there Customer deliveries</td>
</tr>
<tr>
<td></td>
<td>• Reducing the time to open an account</td>
</tr>
<tr>
<td></td>
<td>• Reducing errors in account opening process.</td>
</tr>
<tr>
<td></td>
<td>• It helped in cheque collection and time taken for credit approvals on the corporate banking front and in back-end processing on the treasury side of the business</td>
</tr>
<tr>
<td>Company</td>
<td>Type of Project Taken</td>
</tr>
<tr>
<td>------------------------------</td>
<td>------------------------------------------------</td>
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<tr>
<td>JP Morgan Chase</td>
<td>Expenses reduction project</td>
</tr>
<tr>
<td>Swiss bank</td>
<td>operational excellence</td>
</tr>
<tr>
<td>HSBC Holding Plc</td>
<td>process mapping and activity based costing &amp; data partitioning</td>
</tr>
</tbody>
</table>
Why KPMG Six Sigma?
1. A professional 4-day training program offering six sigma green belt certification from KPMG
2. Only Program recognized across 147 countries where KPMG operates at
3. Successfully embraced by More Than 13000+ professional globally
4. Delivered by Senior professionals From KPMG
5. With KPMG Six sigma you become a trained individual
6. Our deployment model is more cost effective than hiring a full time MBB in your Organization
7. Make your Bank brand with KPMG Six sigma