INTELLIGENT OPERATIONS IN THE BANKING INDUSTRY

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1. Introduction

It would not be a misplaced statement to say that banks world over are under pressure to maintain a profitable bottom line. Stringent regulatory reporting and compliance requirements, a challenging market environment, and competition from fintech start-ups have squeezed profit margins for banks and have forced them to look inwards to improve operational efficiency.

In these circumstances, banks are now looking beyond the usual improvement measures which included outsourcing or offshoring; process improvements; deploying lean and six sigma processes, etc. This is where the role of robotics and cognitive technologies for intelligent operations come into play. Through this whitepaper, IBS Intelligence aims to explore the emerging concept of Intelligent Operations, which is driven by the adoption of cognitive technologies in banking processes.

2. What are Intelligent Operations?

Cognitive means psychological processes involved in acquisition and understanding of knowledge, formation of beliefs and attitude, decision making and problem solving. Cognitive computing is the simulation of human thought processes in a computerized system. Powered by Artificial Intelligence (AI), these systems self-learn using data mining, pattern recognition, and Natural Language Processing (NLP) to mimic the way the human brain works and take decisions like humans. It leverages a combination of structured and unstructured data, both proprietary and public, including social media channels.

At its core, Intelligent operations involves deployment of Cognitive systems that equip employees with intelligent, highly contextual data so that they can perform their tasks more efficiently. Such a system is made possible through the integration of robotic process automation (RPA) and cognitive technologies into banking operations.

Banks across geographies have already realized the potential of robotic automation and have invested heavily in this technology. Institutions such as Royal Bank of Scotland and ICICI have implemented RPA and Cognitive technologies, and reported benefits such as reduction in operational costs and lower response time to customer queries. In fact, ICICI Bank reported reduction in response time by about 60%, with a 100% improvement in accuracy.

3. Components of Intelligent Operations

Intelligent Operations typically consists of Automation, Compliance, and Change Management, as portrayed below:
3.1 Automation

In the past, automation required significant human oversight which resulted in very limited value addition in terms of reducing the amount of human intervention. However, automation using RPA, machine learning, and NLP tools is more efficient as it can self-learn and make decisions. By implementing Cognitive Automation, human tasks and judgement can be replicated at rapid speeds.

With ongoing growth in data, scale, and available technologies, businesses are turning to robotic or cognitive automation to help improve quality, scale, and speed of processes.

For a bank, the first practical step to incorporate Cognitive Automation would be to identify the areas where automation can offer an advantage. Banks will need to assess all the tasks performed by staff where a significant amount of time is consumed, and identify which among those qualify to be automated. Banks can then select specific tasks and begin automating them. One such example is the digitization and validation of business-critical data for accuracy and compliance. Many banks have a team of employees to manually validate the correctness of KYC forms and the related mandatory documents, which can easily qualify for automation. Similarly, banks can identify areas where existing expertise could be amplified and augmented with the help of cognitive automation.

Cognitive automation can then be achieved by employing bots to observe the set of activities performed by all the people who work in a process. An AI bot will understand and recognize the pattern of how the employees perform their task, review, reject, or approve in a process. The learning happens over time and it is continuous in nature.

Another application of cognitive automation could be the extraction of information from scanned physical documents. Using computer vision, the physical documents can be automated through extraction, handwriting recognition, and advanced text analysis of facts and events. There are a few intelligent automation software solutions available in the market which can intelligently read any hand-written forms and check if mandatory fields are filled or not. These solutions can read various documents uploaded by users and check for its correctness.

Such applications will ultimately lead to “straight through processing” in many areas of the business. Humans will move up the value chain to provide check and balances to the automated systems, to ensure that subjective decisions and continuous learning is implemented appropriately into the systems.

The application of cognitive automation is increasingly gaining a strong foothold in the banking industry. The below table highlights a few recent industry examples:

<table>
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<tr>
<th>Sr. No.</th>
<th>Bank</th>
<th>Supplier</th>
<th>Example</th>
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| 1      | Axis Bank                   | Gieom    | • In July 2017, Axis Bank chose a proof-of-concept, AI-based solution developed in its accelerator program  
• The solution intends to improve operational efficiency |
| 2      | Royal Bank of Scotland (RBS) | IBM      | • In September 2016, RBS launched an online chatbot, ‘Luvu’, to answer online customer queries  
• Luvu was developed using IBM’s Watson Conservation tool |
| 3      | Bank of America Merrill Lynch (BAML) | HighRadius | • In August 2017, BAML announced plans to implement an AI-based solution, incorporated with machine learning & optical character recognition  
• It aims to speed up receivables reconciliation for large clients |
| 4      | Mizuho Bank                 | IBM      | • In August 2017, Mizuho Bank chose IBM’s AI-based regtech solution, Financial Crimes Due Diligence with Watson  
• The solution aims to reduce financial crime |
3.2 Compliance

Over the past few years, the volume of new or revised regulations has increased significantly, with studies forecasting that banks may have to deal with nearly 120,000 pages of regulations by 2020. In addition to this, banks also have their internal regulations and policies that they need to comply with. Cognitive Compliance systems include adding automation to compliance across its entire value chain. These include Policy Management Systems, Control Management Systems, and Audit Management Systems. Future Policy Management systems will use technologies such as NLP to identify existing policies to be modified based on a new circular, or to auto suggest merging or splitting existing policies for better controls. The Controls Management system can evaluate and rank the importance of tasks based on the activities of the organization and make recommendations on how to address them. With the introduction of cognitive technologies, these systems will gain learning capability, and as recommendations are accepted or altered by people, the system will begin to learn preferences and adjust recommendations accordingly. A cognitive system can quickly scan hundreds of tasks to identify similar ones, suggest common controls, and identify relevant existing controls. These systems are increasingly beneficial for regulated industries like banking because of the rapid increase in regulations. With every use, cognitive compliance systems provide increasingly useful and relevant guidance because it adapts and changes according to the outcomes. These systems use NLP to consume regulatory controls, understand them, and provide guidance. They can also answer questions that are asked in natural language which mimics how a human would respond. The Audit Management System replicates many of the activities that a human auditor would conduct. Typical examples include audits created automatically by the system based on a regulatory change and its impact, auto scheduling audit calendars, requesting and processing evidences, raising non-compliance tasks to stakeholders till its closure. Several other features of a Cognitive Compliance system such as automated KYC validation by using computer vision, using 3rd party open APIs to validate the customer identity, and including blockchain smart contracts to mitigate documentary fraud, further enhances the effectiveness of the compliance team's capability.

3.3 Change Management

Business change is driven by factors such as market conditions, regulatory changes, the need to upgrade the PPT (People, Process, Technology), reduce cost and increase efficiency. Intelligent self-learning systems can understand how organizations change, how one change impacts others, how the change is rolled out to employees etc. These systems learn over time and give suggestions on how to perform effective change management programs from next time onwards. They keep learning even in case of errors to continuously improve their abilities to suggest change programs. Cognitive Change management systems are further enhanced by integrating a Cognitive Knowledge Management systems that work in the background to understand business changes based on changes published to documents, intranet, or other IT applications and create a single view of changes intelligently. It will then indicate these changes to the end user on the right IT application at the right time. Rather than delivering all the change at once, this method ensures that business change knowledge is delivered during every day work done by the employees. This eventually will eliminate the need for in-person classroom trainings or traditional LMS or e-learning systems for operational changes. The Cognitive change management system also continuously monitors how change roll-out affects the organization. It ultimately predicts and provides insights into possible changes required in most aspects of operations, based on the past data of change that the organization has undergone and the present data of how the organization functions. This allows for various parts of the operations value chain to be prepared for tactical and strategic change.
4. Current state of banks’ journey towards Intelligent Operations

Globally banks have acknowledged the benefits of adopting cognitive technologies and making operational automation more intelligent. To get a more realistic picture of the current state of operations in the banking industry and the potential uptake of cognitive technologies, IBS conducted a survey amongst leading banks across countries. The survey revolved around the three components of intelligent operations: Cognitive Automation, Cognitive Compliance, and Cognitive Change Management.

4.1 Automation

Banks typically function by a set of standard operating procedures (SOPs) for every process in each department. IBS Intelligence found majority of the banks to have digitized their SOPs. This is a positive for any bank looking to bring in complete automation of its process or STP.

Currently, about half the processes in majority of the banks that were surveyed, were STP enabled. With all the banks indicating their willingness to invest in automation in the near term, the potential uptake of cognitive automation is very high.

As it stands, RPA and Workflow solutions are popular choices adopted by banks. The responses for adoption of Artificial Intelligence and Custom-built solutions was relatively low. The uptake for AI is relatively slower amongst banks with few challenger banks and tech savvy large banks still experimenting with the application of the technology. In our survey, majority of the players found AI as still a new, untested, or risky proposition.

![Percentage of STP-enabled processes](image)

4.2 Compliance

In an intense regulation-bound environment such as the banking sector, adoption of technology that can easily monitor changes and ensure compliance becomes almost inevitable.

The survey also reiterated this fact. Three-fourth of the banks stated that most of their internal policies and external regulations are already digitized. Most of them also have a framework in place for: applying controls on manual activities on processes, conducting process audits, and visualizing operational control points in various processes, associated mitigation plan, and status of control verification.

![Framework to apply controls on manual activities in a process](image)
However, while applying controls on manual activities in processes, about 80% of the participant banks follow the practice of documenting the controls in the SOP and auditing it periodically, while only 20% of the respondents use a risk control technology solution.

With respect to conducting process audits, it is the audit team that mostly manages the activity. As can be seen from the figure below, about 30% of the banks still follow the practice of generating non-compliance reports manually. While majority of the banks reported using an IT solution for the activity, only 20% of the banks used an IT system which monitors user activity and generates self-assessment checklists, that could lead to reduction in process audits and minimize manual intervention.

Another interesting fact that IBS observed was that most of the banks had over 15% of their staff in document verification, despite all the digitization that they have in place. This is one area where adopting cognitive technology can substantially reduce the need for human resources.

The premise of the above findings may emerge from the fact that meeting regulatory compliance has been an arduous task. It requires understanding of the topic, determining the requirements and impact specific to the institution’s functions. Hence, while banks have adopted IT solutions in meeting numerous regulatory and compliance requirements, the percentage of manual intervention involved remains quite considerable.

On the other hand, a host of new rules and higher regulatory scrutiny is the very reason why some banks have come forward to leverage intelligent technology and have found benefits. A recent example for this is HSBC, that partnered with artificial intelligence start-up Ayasdi Inc. to automate its anti-money laundering functions. As per HSBC, most of the investigation in its existing anti-money laundering investigation process could not accurately detect suspicious activity, leading to significant wastage of resources. In the pilot of this new technology, the number of investigations reportedly dropped by 20%, without reducing the number of cases referred for more scrutiny.

4.3 Change Management

The previous section highlighted the growing changes happening in the regulatory set up and how institutions are having to increasingly cope with the change. In this scenario, managing change effectively is even more crucial, as it requires careful observation of its impact on the specific institution’s functions and internal policies, and prudent application across all processes.
To get a clearer picture of how banks are managing change in such a competitive scenario, IBS asked respondents about the time they take to analyse the impact of a regulatory change on process, technology, and people. As can be seen from the figure below, the percentage of banks analysing the impact of a change within 5 days is quite low. However, this may be directly relative to the magnitude of the change in question. A simple change such as a new document requirement for account opening, may be faster to manage. Often, the change is large and critical, and requires detailed analysis of the consequences, such as the new Goods and Services Tax (GST) in India or the introduction of new anti-money laundering directives AMLD4 and AMLD5 by the EU.

IBS found that most banks communicate or deploy change using both manual as well as automated cascading, and updating of process manuals, as can be seen from the below graph. Also, most banks communicate change when only it happens. This is quite understandable, considering that changes happen so frequently that it is quite difficult to maintain a schedule for communication. Only 10% of the banks maintained a schedule of once a month, to communicate change.

However, the methodology of taking acknowledgment of the change from the internal users, as well as verifying their understanding of the change is quite mixed, highlighting that banks do not really have a clear system for this. It may be done on a need basis depending on the magnitude of the change and its immediate implications.
5. Outlook for Intelligent Operations

The goal of AI / Cognitive computing is to reduce the repetitive work done by humans thereby allowing people to concentrate on more complex and creative tasks that machines can’t handle such as maintaining customer relationships. Banks have acknowledged this opportunity and have already moved in the right direction with the larger banks leading the way in investing in cognitive technologies. Most have started with low hanging fruits such as the less risky and cost-effective RPA solution which compliments workflow solutions perfectly in end-to-end automation of standardized process in banking operations. Early adopters of technology in the banking sector such as a Barclays, Capital One, Citibank, HDFC and HSBC are already experimenting with cognitive capabilities in their operations and have yielded positive results.

Slow but definitive adoption by banks: IBS’ survey indicates that the adoption of cognitive technology will slowly but surely become a mainstay for banks. A large portion of the banks still require manual intervention in many areas of their operations such as document verification, process audits, etc. and are willing to invest in further automation solutions. However, the inherent cautious nature of banks means moving towards bank wide adoption of cognitive solutions may be relatively slow until proven to be commercially viable and cost effective to deploy. Many still prefer to play the wait and watch game in this respect.

Navigating through the hurdles: Deploying cognitive technology in banking operations, while immensely beneficial, still has its hurdles. Navigating through these hurdles is a key for banks to achieve maximum benefits from deploying cognitive technology. The most important hurdle to cross is for any bank is to get a buy-in from key function owners across the organization, especially top management including the CXOs and Head of critical departments such as IT and Operations. Usually such initiatives are faced with resistance from most departments due to fear of job losses and the general inertia associated with any change. In some instances, these initiatives are considered to be the domain of the IT department and don’t get much cooperation from the other departments. In such a situation, technology gets developed in silos and setting up a Centre of Excellence (CoE) team, that is required to deploy the technology across the organization, becomes a challenge.

Strategic Considerations in deploying intelligent operations: A key imperative for banks to successfully deploy and benefit from intelligence operations will be to first upgrade legacy systems. Intelligent operations entail the use of advanced technologies such as AI and RPA and layering these technologies on legacy systems will not allow banks to realize the true benefits of the implementation. In IBS’ survey, most are already on the digitisation path. Other key strategic imperatives include setting up of a business owned Center of Excellence (CoE), selecting the right technology partners, identifying the right processes to automate and ensuring regulatory compliance in each of these steps. That being said, the “one size fits all” approach has long been replaced by custom-build solutions in the financial services industry. Hence, when deciding on the journey towards building a cognitive bank, one must approach with prudence considering the requirements in the long-term, affordability, and benefits that they prioritize.

Successful banks will be the ones who deploy the solution in a holistic manner rather than for individual processes with complete management buy-in and cooperation.

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