FUNCTION OF ARTIFICIAL INTELLIGENCE & ROBOTICS IN THE FUTURE OF BANKING

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Robotics as we know, is taking over some of the key functions of human beings. This could be from manufacturing automation to supporting medical doctors in a major brain surgery. Over the years Robots have evolved and are now playing a major role in streamlining and mimicking human ways. It is not a matter of “if”, but “when” Robots will rule the world.

Robotic Process Automation (RPA) is a technological revolution, just like the industrial revolution of 1800s. This revolution will change the way humans work in the future. RPA is defined as the “use of Artificial Intelligence (AI) and computerized learning and ability to manage standard, repetitive, high volume tasks.”

This changes the traditional physical labour intensive work to digital automated labour.

The traditional way…

Traditionally, RPA refers to automation that interacts with a computer-centric process through the software user interface supporting the process. This integration might not have happened between systems for various reasons from different technology stacks or business owners to competing vendors. That burden then falls on your operational staff who, for example copy, paste and modify data across systems to deliver the intended output of the business process (also known as swivel chair process). Automating through RPA, where a typical human operator’s tasks will be mimicked, is non-intrusive and requires no changes to the underlying IT systems and can be implemented rapidly at a very low cost. However, this new technology is not without its pitfalls and it is only recently that this technology became enterprise grade.

RPA focuses on

- Operational efficiency through consistent speed and precision (can work 24/7/365 with no complaints/leave/ strikes).
- Reducing labour and related costs.
- Standardization (better alternative to performing boring/ repetitive/ rules-based tasks).
- Lasting transformation – permanent solution for a continuous problem and RPA is able to deliver a faster, cheaper and accurate solutions for any industry.
- Freeing-up human resource to focus on more strategic roles.

**ROI to RPA**

Not all processes are ideal candidates for RPA. Traditionally high volume, repetitive, deterministic processes and low variance processes are the best fit for RPA.

To recommend a solution, it is important to first understand the strengths of a Robot and human respectively, where there are certain actions that humans are bound to perform better than a software Robot. By doing so, it will be possible to merge their strengths and create a unified process, re-engineering a combination of both human and automated actions to create a high value approach to solving business processes.

<table>
<thead>
<tr>
<th><strong>HUMAN</strong></th>
<th><strong>ROBOT</strong></th>
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<tbody>
<tr>
<td>Interact &amp; socialize with customer</td>
<td>Perform routine tasks done on a PC</td>
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<td>Creatively do new designs</td>
<td>Follow mundane &amp; routine processes precisely without error</td>
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<td>Intuitively decide the best approach, long &amp; short-term</td>
<td>Process large volumes of data to provide insights</td>
</tr>
<tr>
<td>Define new formulas &amp; workflow paths</td>
<td>Make well defined complex calculations instantly</td>
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<tr>
<td>Bypass multi-pronged verification system</td>
<td>Logging into web/ enterprise applications</td>
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<tr>
<td>Extracting dynamic data from the web</td>
<td>Scraping pre-defined data from the web</td>
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<tr>
<td>Identifying solutions that can enhance the process</td>
<td>Connecting to system APIs</td>
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<tr>
<td>Identifying trends, creating business plans etc. after extracting data</td>
<td>Extracting &amp; reformatting data into reports or dashboards</td>
</tr>
<tr>
<td>Handling dynamic data migration</td>
<td>Handling well defined data migration</td>
</tr>
<tr>
<td>Creating custom reports and status updates relevant to the situating</td>
<td>Inserting predefined status updates based on a primary sorting value</td>
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RPA performance

In order to adopt RPA into a stable model for an enterprise, taking a 3-stage approach is recommended. This focuses on range of applicable RPA features from the most linear features that deliver the greatest ROI to the most cutting-edge technology that is not yet completely defined.

1. The first is structured RPA, which can easily automate swivel chair processes, where data should be manually entered into one system and then the same data should be entered into another system that requires interaction with many applications in order to complete a business process.

2. The next is enhanced RPA, where intelligent tools use machine learning to build a process related knowledgebase in order to automate processes.

3. The last is cognitive RPA, which provides greater business value by automating processes with the use of advanced machine intelligence, natural language processing, big data and real time analytics.

<table>
<thead>
<tr>
<th>RPA Category</th>
<th>Basic Process Automation</th>
<th>Enhanced Process Automation</th>
<th>Cognitive Automation</th>
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</thead>
<tbody>
<tr>
<td>• Rules Engine</td>
<td>• Process Mapping</td>
<td>• OCR: Processing of unstructured data &amp; base knowledge</td>
<td>• Artificial Intelligence</td>
</tr>
<tr>
<td>• Screen Scraping</td>
<td>• Business Process Management</td>
<td>• OCR: Built-in Knowledge Repository</td>
<td>• Integration of Virtual Assistant</td>
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<tr>
<td>• Workflow Execution</td>
<td>• Screen scraping data collection</td>
<td>• OCR: Monitoring Dashboards for RPA Tools &amp; Processes</td>
<td>• Natural Language Recognition</td>
</tr>
<tr>
<td></td>
<td>• Workflow Execution</td>
<td>• OCR: Ability to work with unstructured data</td>
<td>• Self-Optimization / Self Learning</td>
</tr>
<tr>
<td></td>
<td>• Process Mapping</td>
<td>• OCR: Pattern Recognition</td>
<td>• Digestion of Super Data Sets</td>
</tr>
<tr>
<td></td>
<td>• Business Process Management</td>
<td>• OCR: Process Optimization</td>
<td>• Predictive Analytics</td>
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<td></td>
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<td>• Hypothesis Generation</td>
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<td>• Evidence-based Training</td>
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(VirtusaPolaris Robotic Process Automation)
The common challenges of RPA

• **Immaturity of RPA technologies and providers**
  Different RPA tools have a varying degree of maturity in different automation tasks. Some are more suited to general process flows, while others are more suited to technological operations for example. In addition, some of these tools do not perform as marketed when it comes to process detail.

• **Visibility issue**
  When multiple software robots are running different applications, it becomes difficult to have a transparent view to identify which robot is executing what. Ideally, in RPA scenarios the automation runs silently in the background; therefore, owners are granted less opportunity for monitoring and control.

• **Different underlying IT systems with lack of integration**
  While RPA applications face challenges in automating many types of applications, which can change overtime with advances in technology, most of them have mechanisms of extensibility to allow for integration options that the product does not presently support.

• **Inconsistent and non-standard business processes**
  When applying RPA, one of the most challenging stages are where inconsistent or nonstandardized processes are met. At these instances, the best approach is to drive a flow of process optimization.

• **High demand for intelligent RPA**
  Cognitive RPA requires artificial intelligent capabilities where advanced methods of pattern recognition, machine learning and natural language processing are needed.
• **Mimicking human being**
Replacing the intelligence, decision making and communication skills of a human (Enabling the automation of more complex processes with artificial intelligence software)

**Emotional aspect**
Are human beings at risk of being replaced?

**Jobs at risk due to RPA**

- Claims or loan applications processing
- Customer service agents, who undertake transactions/ basic support behind the scene, but do not speak to customers directly
- Compliance reporting
- Entry-level accountants, doing low level transactional work such as end-of-month closure • Abstraction and indexing documents

- Credit card processing/ bank account opening without human interaction
- Customer care with advanced automated technology, allowing voice recognition and speech pattern to replace call centers

**Case study: process automation for a leading bank (from virtusa polaris)**

**Problem Statement**

A leading bank deploys an army of data entry operators to perform mundane, repetitive yet critical work. Performance and accuracy varied across teams and changes in policy/ processes required extensive training.

**Automation**

- A virtual workforce of Robots were utilized for “Client Data Capture,” “Account Creation” and “Account Setup” across its world-wide network.

- Data was extracted from multiple Excel Files and submitted to core banking application where the Robot interacted with dozens of screens.

- During the account creation process, the Robot automatically routed applications for relevant approvals and also sent out email notifications to the said approvers, requesting them to take timely action.
Outcomes

• Significantly minimized low-skilled manual intervention in the marker/ checker procedure for account creation and thereby;
  
  a. Increased accuracy and enabled consistency across BUs
  b. Eliminated the need for training
  c. Faster processing time

• Automation improved processing times significantly while permitting transaction volumes to rise to “unlimited” numbers

Artificial Intelligent (AI’s) Disruption of Banking and Financial Institutes  
AI’s disruption of banking and financial institutes is inevitable, resulting in the alleged mass closure of banks and unemployment of financial services professionals in the next 5 years.

Financial services are indeed about to be disrupted everywhere in the world and transformed by a tsunami. The disruption will be the combination of artificial intelligence and automated banking by machines – for better or worse.

The promises of AI and robotic banking are impressive. The ability to have core banking functions run entirely by machines that automate functions and learn to self-improve will transform bank back offices and systems. If combined with the ability to interact with customers – including learning their typologies and meeting their banking needs – the potential is incredibly powerful and lucrative. According to an article in Banking Technology, Sweden’s national bank has an application that already handles more than 30,000 customer conversations per month, resolving their issues 78% of the time. AI and robotic banking let banks eliminate bank tellers and customer service employees, and therefore, help minimize physical infrastructure.

Financial services, as a whole, will save billions annually when AI and robotic banking – technologies that are more efficient and less expensive than humans – are used to provide services to customers. Most banks will tell you that many of their customers hate going into a bank branch, especially millennial. Robotic banking solves that problem, it lets customers avoid the in-person banking experience and bank online 24/7 with access to problem-solving services wherever they happen to be in the world.

AI and robotic banking have a potentially game-changing role in the daily work locating and recovering assets from people who have defrauded banks. AI technology can also be used for predicting terrorist financing and black money activities and preventing fraud, thereby providing huge societal benefits.
For financial services to realize the promise of AI, the technology must be introduced in an inclusive manner that embraces responsible innovation.

The biggest peril of AI is that it will cause unemployment. In financial services, McKinsey predicted that AI and robotic banking are expected to displace 110 million full-time employees by 2025. Banking sector needs to address this, to align with the new tech-centric economy.

Many global banks are shutting down hundreds of bank branches due to AI and robotic banking, forcing their customers to bank online. The elderly and visually impaired cannot often bank online because of visual impairment issues or a lack of sophistication with technology. Many poor people/villagers do not have computers or the internet access or modern smartphones that enable them to download apps to bank online either. Many people that are paid in cash lose financial services when their bank branches are closed because they have no way to deposit their cash salaries. Technology should be designed to cure financial inclusion, not cause it.

As with all new technology that is online, AI and robotic banking being deployed in the economy increases vulnerabilities to cyberattacks, raises difficulties in ascertaining the identity of an attacker, facilitates the introduction of foreign intelligence systems into banking through technology, increases the risks of accidents and increases liability for financial institutions. The reliance on AI and robotic banking for autonomous decision-making by banks may compromise financial infrastructure and poses a national security risk to any nation.

The way to marry the promises and the perils of AI and robotic banking in financial services involves regulators, bar associations, law enforcement, technology giants and the financial services sector coming together to map out a common strategy to create leading AI technology in an inclusive manner that incorporates constitutional values and provides responsible banking services to everyone.

**Conclusion**

As we enter the next era of the digital revolution, RPA is fast finding itself at the forefront of driving rapid industrial growth and transforming businesses as a result of its quick implementation approach geared towards low cost and rapid increments in accuracy and efficiency. Thus, organizations should be aware of the broader spectrum of robotic process automation and select the most suitable business processes to be automated.

Cognitive RPA is making a breakthrough where the gaps of traditional RPA are overcome, and helps to optimize the current methods using cutting-edge technologies such as Machine Learning, Natural Language Processing and Autonomics. RPA not only provides cost benefits but also rapidly improves the processes in the organization with better quality, accuracy and reduced time to market, which generates sustainable benefits for organizations in this competitive era.
References

[1] BluePrism corporate

[2] Celaton case study

[3] Automic case study
