# RPA and AI Use Cases in Banking

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Banks have embraced Robotic Process Automation (RPA) to deliver quick and accurate value to their customers. Many of the repetitive tasks/processes such as customer service, retail loans initiation, basic financial advice, and customer communications/alerts, resulting in meaningful customer outcomes and reduced cost transactions. The next step for banks is to improve capabilities of robotic process automation by coupling it with Artificial Intelligence (AI). Banks are implementing use cases with various levels of maturity in areas of loan origination, credit decisioning, transaction monitoring, fraud alerts, KYC process, and reporting. Risk management is also an area where robotic process automation and AI can play vital roles. Risk identification, risk mitigation and risk monitoring with regulations, such as – risk and finance reconciliation, capital adequacy requirements, models risk management, operational risk and conduct risk/responsible lending, are in need of reduction in manual touch points through automation. Regulators have always nudged banks to automate processes to reduce manual touch points and errors. The increased availability of data and analytics also paves the way for new use cases to materialize. The below use cases will provide useful pointers for introduction to RPA and AI tool and solutions.

Hyper automation – RPA combined with AI platform

A US-based global bank has built an RPA and AI platform for contracts management which interprets commercial loans. The solution involved unsupervised machine learning, image recognition, and alert mechanisms to extract about 150 relevant attributes from contracts and review them in a few minutes. The same task earlier consumed 360,000 person hours. This use case establishes that RPA and AI tool can be implemented in processes where human work was deemed to be necessary. AI algorithms can be used in supervised or unsupervised models to drive business outcomes which require high level of human   intelligence to review or flag data anomalies or operational risks.

Hyper automation is the evolution of RPA to include AI. It involves bringing together process automation with integration tools and advanced analytics. This will make tools intelligent enough to learn by themselves and deliver decisions on the job. These tools identify business scenarios and initiate appropriate actions without regular human supervision and interaction. Techniques such as Natural Language Processing (NLP), Optical Character Recognition (OCR), and advanced ML analytics will form the core along with traditional RPA tools and techniques.

Hyper automation coupled with RPA tools delivers capabilities of

| Process discovery | Documents processing | Life cycle automation | Analytics-driven insights |
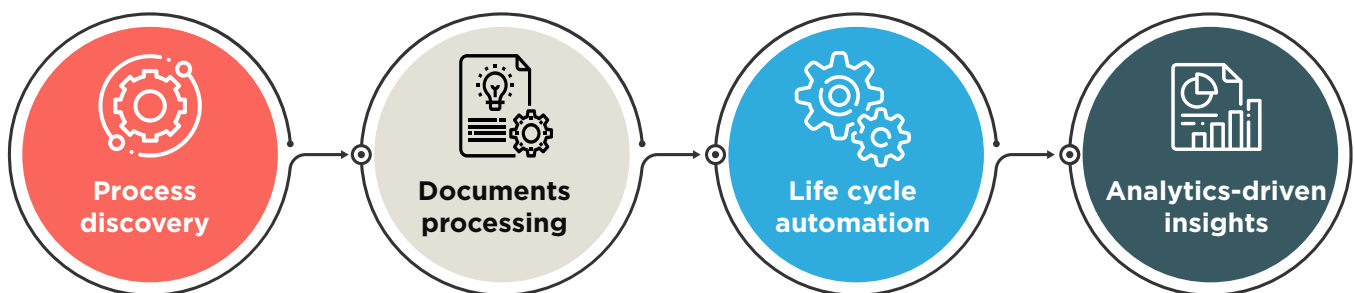
Moving ahead from automation of straight-through processing and manual intensive tasks, hyper automation brings in more knowledgeable processes such as contracts management, cash management, and risk management. The addition of these capabilities sharpens and compliments human decision making process. Gartner in its technology trends for 2020 has described the creation of digital twin, i.e., no one solution can replicate human decision making. So a combination of RPA and AI will drive the next phase of automation and decision making.

RPA-enabled customer service

Chatbots are the most popular use cases of RPA. The next evolution of bots will be to combine existing efficiency with AI. This will help bots to deliver intelligent and insightful responses to customers and bank managers. The advantage lies in eliminating hours spent in querying databases for reports, checking through multiple business rules and documents to provide customers with useful information. There is huge potential to upscale few of the immediate use cases. These include:

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Product customization for customers	Email or direct mail services with fewer on-screen clicks	What-if analysis for pre-approval of loans
Risk profiling-based investments and financial advisory for customers	Initial risk profiling and KYC advisory to customers	Device-agnostic, voice-enabled services for customers across retail and wealth management business
Intelligent alerts system which helps customers to clear dues or stop payments for unused services	Enable retrieval of reports based on keywords or voice-enabled search for mid/senior management	Monitor trends on dashboards and set thresholds and relevant alerts for management

Many niche fintech companies such as UiPath, Blue Prism, Kofax, Pegasystems, and Microsoft etc., have independent solutions and have also tied up with banks to deliver RPA capabilities. Many leading global banks have also implemented RPA solutions. The advantages of introducing RPA, coupled with multiple success stories, will make the banks consider few of these and other uses cases to create a point of difference in the market as well as the minds of customers.

RPA-enabled risk controls testing

The risk controls and thresholds are usually held in the operational risk systems and are regularly run across multiple processes, sources of data, customer interaction, and end-user solutions. Controls are a combination of technical and business checks required at critical interfaces and processes, where data is loaded or transformed. For example, technical controls are used when data is moved as files from one system to another. It comprises of load assurance jobs, job failure detection, reconciliation and control files, file requirements to notify successful transfer, and version controls. Technical controls are generally fully automated and are executed along with their respective jobs. Business controls are used in business rules, data quality rules, and exception rules related to business processes for all the data elements transferred between systems. The business controls are generally semi-automated or manually run at regular intervals.

The risk management teams (typically referred to as the second line of defense or line 2 risk management in governance of risk management function) execute these business controls and majority of these are manually executed. This creates a gap where the controls are often executed post the transaction and the duration of the transaction and tests makes them post curative, i.e., banks are always playing catch up. It is also time consuming for banks to set up the controls as business requirements in plain English have to be coded, validated and certified before being productionized. There is also a gap between application of business rules within the processes which transfer data from one system to another.

RPA and AI solutions provide an opportunity for banks to address these issues:
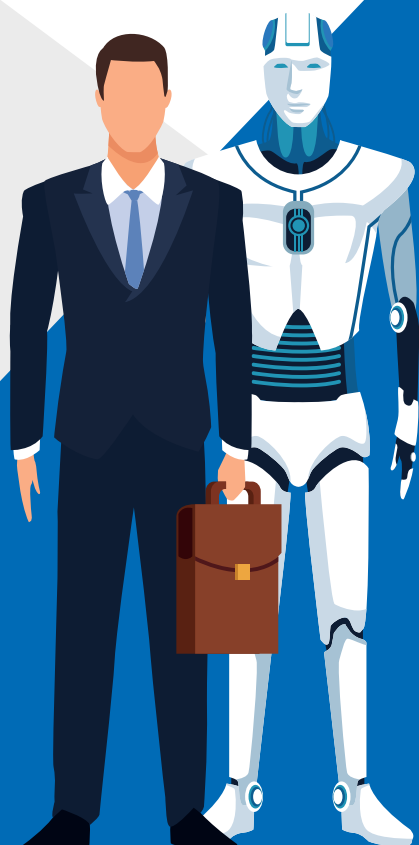
- Map business rules to the processes and data quality rules

- Banks can reduce the duration between transaction and controls

- Natural language processing can be used to convert plain business requirements into semi- or fully-executable code

- Remove or greatly remediate the need for manual run of risk controls thereby satisfying regulatory requirements to reduce manual touch points

- Testing of business and technical data controls without manual intervention and producing reports which can provide insights on controls' effectiveness

- Discovery of new impact areas previously not highlighted to business or IT teams

RPA and AI-NLP can improve accuracy and enable risk management teams to focus on risk mitigation and reporting, rather than controls monitoring. The data is linked to operational risk systems to trigger control deviations and lapses.

RPA enablement for end-user computing

End-User Computing (EUC) solutions are important components of any processes. The commonly accepted definition of end-user computing is of a software, which is not part of the automated data flow architecture of the bank, and is used to fill gaps in data movement between applications. These are quick solutions typically built by business teams in many banks. Most of the EUCs comprise of Excel and MS Access data and questions around EUCs, documentation, and controls are an important part of regulatory submissions for the banks. Regulators have always recommended to reduce the use of EUCs as it poses significant operational risks. It is prudent for banks to move away from EUCs and if certain EUCs cannot be replaced immediately, strong controls and frequent reviews need to be set up.

Banks can leverage RPA solutions to move away from EUCs (Excel and Access data). After thorough study and consultation of the processes, RPA solutions can be introduced into the data flow in place of EUC. Rules can be built to reduce manual oversight and compilation of data and reports for any kind of processes. The banks will also benefit from standardization and rationalization of data management if EUCs are remediated by converting them to RPA. This will definitely benefit the business teams which spend a considerable time and effort in preparing the data, applying transformations, validating multiple sources, setting up controls, and finally injecting them into the existing workflows at appropriate times.

RPA tools for document management and covenant tracking

Much of the documentation, contracts creation, and management in banks for business banking still have manual touch points. Management of collaterals, setting up and monitoring of covenants (covenants have thresholds. Typically, covenants are used like key business performance indicators which a business agrees to maintain while taking loans. If the metrics drop below the agreed thresholds, banks can request for additional security or reduce the exposure), and creation of contracts are some of the important areas where banks spend considerable time and effort. The manual handoffs lead to errors and oversight that prove costly during risk mitigation scenarios. AI-NLP has progressed at a fast pace to solve many of the above highlighted issues. Natural language processing programs can scan through huge volumes of documents. Plain English business rules can be applied on creating, verifying, and monitoring documents. In the event of a crisis due to a downturn, covenants are automatically monitored, triggered and risk mitigation becomes more effective. If natural language processing programs are fine-tuned, it can also help banks to keep a tab on wrong-way risk due to long disruptions in multiple supply chains. Covenants set up with collaterals and thresholds for institutional loans, or share market positions that banks take on behalf of customers can also be brought under the ambit. Using NLP, banks can discover controls they may have missed in the normal day-to-day business. Standardizing taxonomy and aligning data models, lineage, and business process will help banks move swiftly toward AI-NLP and creation of efficient data and process controls. Data analytics and insights can also be programed on top of NLP, providing useful management information reports.

NLP-based gap analysis on regulatory requirements

Risk management teams in banks always face an uphill task of keeping up-to-date with changes in regulation. This is usually done by specialized risk committees which interact with the various regulators to document actionable requirements. NLP can be leveraged in this area. Programing can be done to monitor, read guidelines, and publications from local and global regulators. The NLP will convert the regulatory requirements into actionable statements for the risk committees.

With sufficient data to train and programming of business rules, AI models can perform gap analysis of the existing risk appetite statements, risk policies, and control mechanisms by comparing against the emerging regulations and suggest recommendations or next course of actions. It will still require human review to accept or reject the recommendations but this will certainly enable the managers to focus on specific areas within the regulations that need attention. Fintechs such as UiPath and Blue Prism have developed AI-enabled capabilities to provide agility of understanding new regulations in minimum possible timelines, suggest next actions, cost effectiveness (due to saved man hours), and accuracy of output.

Concluding thoughts

The advantages for adopting RPA and AI-based solutions into the bank's architecture are manifold as seen in above areas of business. Banks have already implemented chatbots for many customer interactions and have realized increased customer satisfaction and retention. A comprehensive consulting and solution-based approach can deliver required results in all the use cases stated above. This leads to process improvements, improved oversight, and relieve many bank staff from paper work and other manual/ repetitive process-oriented tasks, so they can spend more time on sales, customer interaction, and value addition. End-to-end synergies realized by the banks will benefit the functions of the chief risk office, chief data office, and chief information office.

HCL advantage

- HCL 3 Levers approach made of Risk & Control Analysis, Lean Six Sigma and Cognitive Automation for RPA delivers high-end strategic business process automation

- HCL's proprietary frameworks such as DRYiCE™ and Toscana© support drive business process automation for numerous customers

- HCL EXACTO™, developed in collaboration with a leading university in the field of AI is a NLP-based product with image processing, self-learning, semantic information retrieval, handwriting recognition, and structured and unstructured text information reading capabilities

- HCL has undertaken more than 200 automation use cases across different verticals and successfully demonstrated cost savings, process time reductions, improved process controls, errors mitigation, and FTE reductions

- Banking solutions experience across geographies with solution offerings and industry leading partnerships to deliver value-based outcomes and achieve First Time Right

- Data & Analytics Centre of Excellence have varied experience of implementing RPA and AI solutions across industries

- Consulting experience to cover the entire spectrum of business portfolio and data management frameworks, creating business taxonomies for NLP implementations for banks

- Approach based on proof of concepts, pilot programs, and wireframes that helps customer realize value and scope for minimum viable product
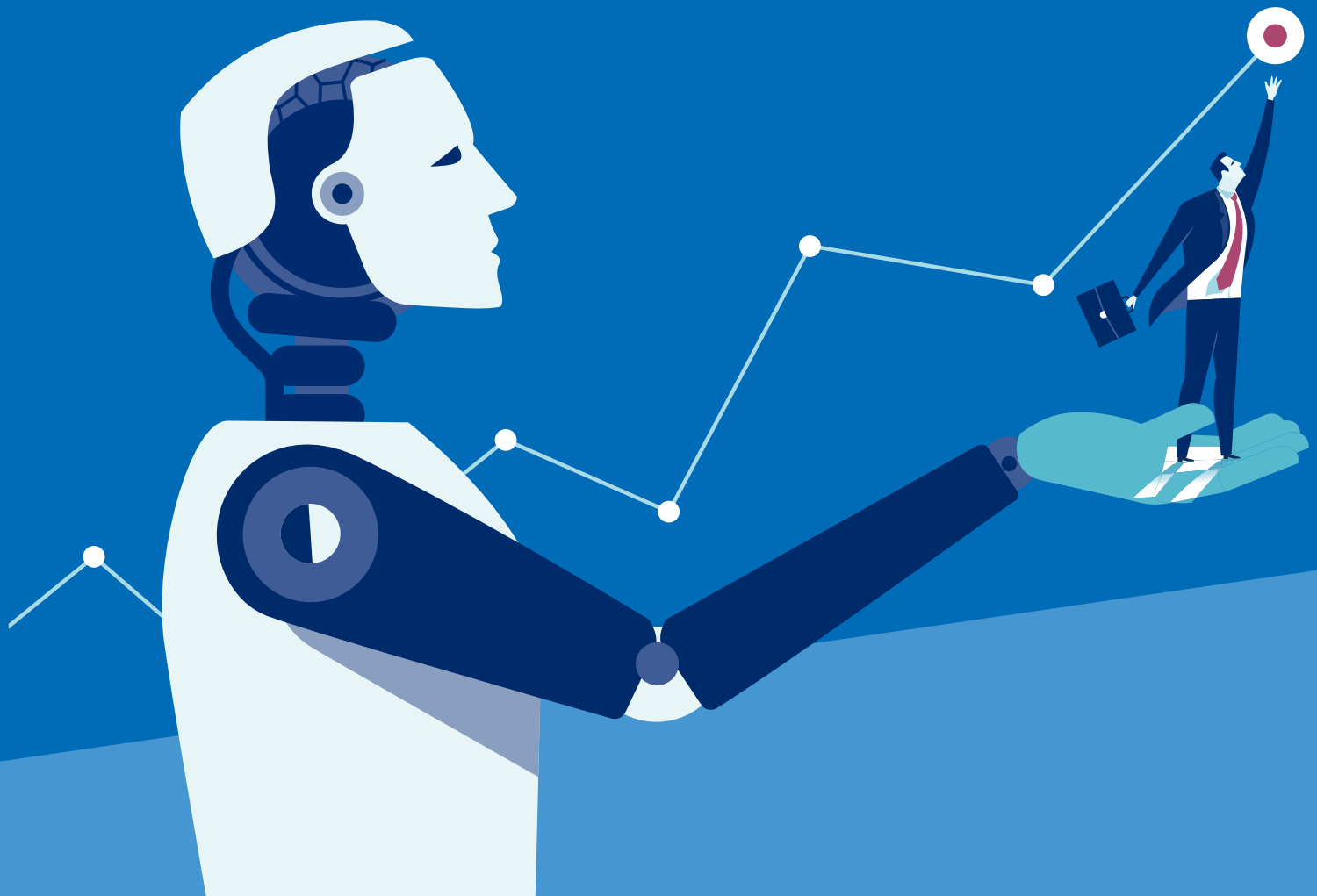
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