

WHITEPAPER

Process Automation

An Effective Pathway to Optimization



In collaboration with

[expleo]

 **IBSintelligence**

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1 INTRODUCTION

Process Automation has captured the imagination of Business & Technology users across industry segments and geographies. In 2019 alone, the Robotic Process Automation & Intelligent Process Automation (RPA/IPA) industry was noted to be worth US\$ 1-1.2 Bn in revenue, with 25-30% coming from the BFSI sector. Further, the revenue is expected to grow at a CAGR of 30-35% for the next 3-4 years.

The historical view of BFSI process automation, however, highlights the role of Financial Institutions in the evolution of technology, with marked stages of sophistication. Driven by cost-effective technology and rising labour costs, process automation has evolved over

the last few years. Initially, automation was limited to mundane processes, which gradually moved towards decision-making systems and has continued to evolve with cognitive automation that consume unstructured data.

Below is a brief overview of the evolution of enterprise process automation over the last few decades. It is to be noted that while some aspects such as automation of branch transactions through ATMs is specific to banking, the overall evolution stages are similar within the BFSI sector.

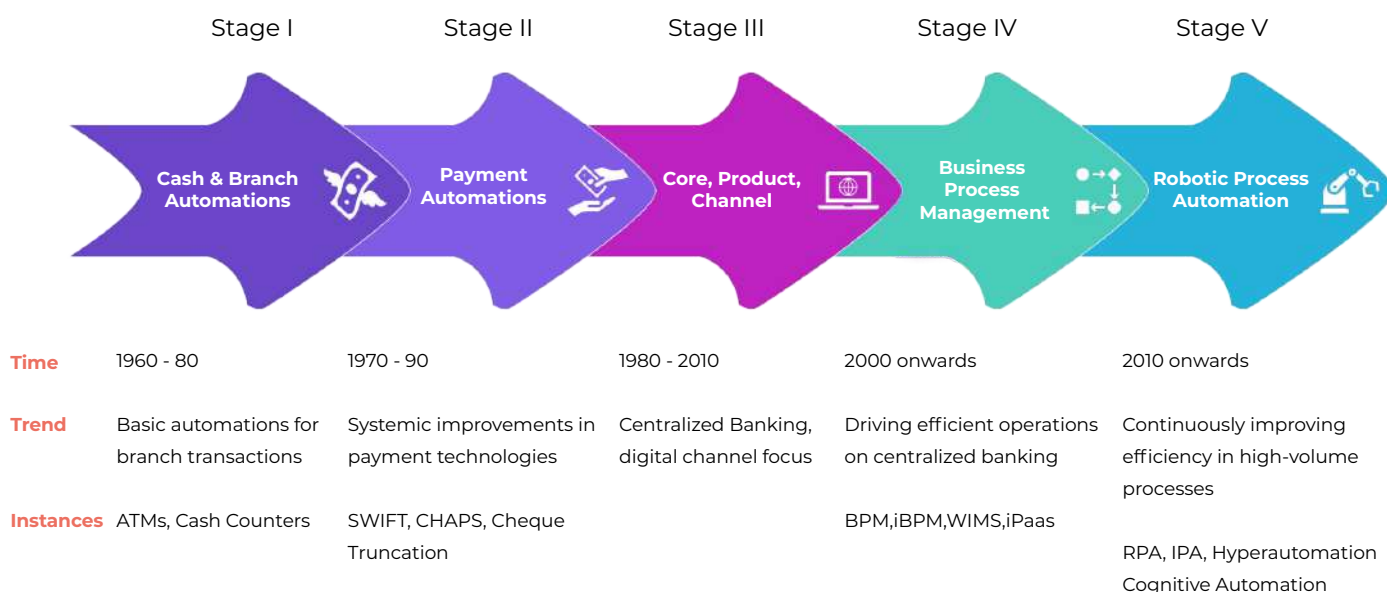


Figure 1 – BFSI Process Evolution stages – initial stages continue to evolve

From Figure-1, the first two stages covers mainly the FI's customer-facing operations, third stage automation is to do with broader operations. Further the third stage saw the FI's front/middle/back office staff moving their work, and even customers moving their transactions onto an Enterprise Architecture (EA) – a complex inter-connected arrangement of a central core system (core banking/core insurance), specialized product processors and customer-facing channels. This stage required a mindset shift for most FIs, placing much higher importance on Operations & Technology. EA evolution continues to happen in 2 ways – one, through vendor-delivered feature upgrades, and second, through FI-demanded global/regional/local customizations. These are in-turn influenced by underlying trends – some key ones being millennial customers' penchant for online activity, and emergence of regulatory technology and insurance technology (RegTech, InsureTech).

Although this stage was fundamental in BFSI Process Automation, it has its own set of challenges. First, it

makes operations a complex multi-system activity with manual and automated aspects, requiring sophisticated documentation & training. Second, improvements on EA are often controlled strictly through a CXO-level committee with formal business case approval processes – this takes longer and sacrifices some quick wins.

Fourth stage automation, such as Business Process Management and Workflow Management software, soon emerged in an attempt to augment the EA approach and simplify complex operations by taking a end to end view of business processes. IT teams were also creating smaller applications to deal with organization-specific challenges – calculation, recon, file handling, notifications on dotnet/java in-house applications. Bridging such an architecture continues to be a strong business case for RPA.

These continue to evolve into integration platforms such as iPaaS, bridging on-premise applications to cloud and vice-versa.

BPM significantly enhances employees' lives on the EA, providing a standard way to interact with the complex underlying architecture. BPM is an excellent platform to standardize & automate platforms – often packaged with a business rules engine and parameterized automation capabilities. As expected, BPM today forms a bedrock of all process automation, as even RPA and IPA are generally deployed not to replace, but to enhance BPM capabilities.

Where BPM would be used to discover, model, and optimize, RPA and IPA would be then used to automate optimized processes. RPA/IPA, seen this way, become an important and natural implementation tool in the BPM arsenal. This also make RPA a top-down management driven mature architectural choice.

However, many organizations also propagate a wrong perception of RPA/IPA as stand-alone software. They use RPA to either prototype new ideas or as a stop-gap arrangement/band-aid to their enterprise architecture. In the authors view, using RPA in a ad-hoc manner creates more problems than it solves. What is required is a holistic approach with a clear vision.

While RPA/IPA has drawn much attention, enterprises struggle in design of implementations which are sustainable enough to bring broad spectrum benefits. This whitepaper explains one such sustainable implementation approach which is also agnostic to the technology selected by the FI.

2 ENTERPRISE APPROACH TO AUTOMATION

Evolving from a people-driven institution into a process-driven institution is often a key strategic goal, with a focus on optimizing human intervention for maximum impact. The pathway involves Process-Data-Technology combining in powerful ways, making operations leaner by:



Business Resilience, an aspect highlighted by the pandemic induced wide scale work from home arrangements, has now become a key driving force for RPA, especially for service operations.

However, enterprises face challenges in this transformation due to the different priorities of internal stakeholders.

Business Team prefers quick response from middle and back-office units, ensuring that the customer appreciates the fast Turn-Around Time (TAT), driving crucial word of mouth recommendations and helping the front office pitch additional business. Hence Business Team prioritizes sales and service process automations, including onboarding and e-KYC.

Operations Team prioritizes process automation for niche or mundane activities. Such automations are often co-developed with internal IT teams, or as customizations on existing platforms.

IT Team prefers automations that are architecture driven and integrated with surround systems. As financial institutions are sensitive about their EA, they may treat any architectural change as capital expenditure and a long-term investment. Thus, such changes require formal approvals and change management processes, reducing quick-win opportunities.

According to the industry experts, an **Agile Product-oriented** approach reconciles the above perspectives by focusing on innovative technologies for process automation. Further, as product owners are in-charge of product features and of studying customer needs, wants and complaints, a product approach ensures prioritization of automations most relevant to customers and also feasible for the product.

Such an agile product-oriented approach helps with prioritization, dynamic implementation and continuous visibility, bringing the most benefit to the enterprise.

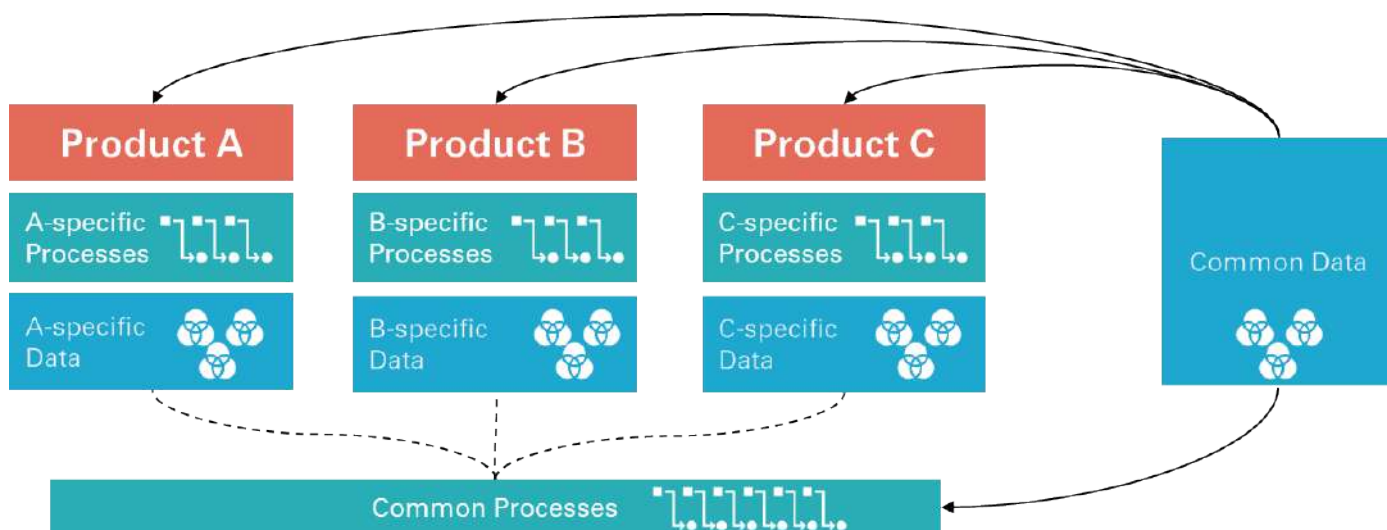


Figure 2 – Complexity of interconnections between Products, Processes, and Data

Further, while a product-oriented approach is believed to be the right approach for process automation, it is considered to be only a first step in the right direction. There are a few key elements that are required to implement the above agile product-oriented approach for an enterprise:

1. Product Prioritization:

a. Key product identification: A simple Pareto analysis (80-20 rule) is one approach for product prioritization. Parameters used could be Revenue, Transaction Volume, Profitability, or Customer Complaints.

b. Strategic products inclusion: Adding strategic products to such a priority list is essential.

2. Process Prioritization: Process automation should be scoped for common processes that have wide-ranging impact, as well as for product-specific processes, which have a targeted impact.

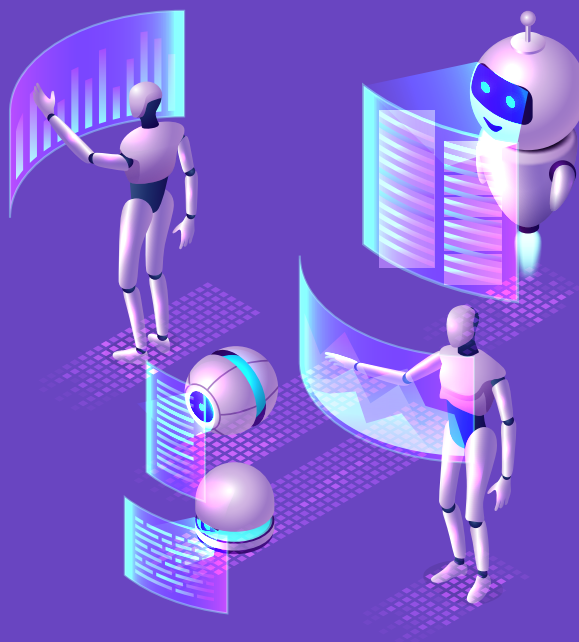
3. Data Optimization: Automation readiness is critically dependent on the availability of golden source data. Financial Institutions spend a lot of effort on availability of data sources for successful process automation. The need to capture data from automated processes in a structured manner also plays a key role in areas such as predictive analytics.

4. Technology Enablement: Technology underpins the availability of data in real-time, as well as the movement of data through appropriate channels. In these cases, financial institutions should plan the availability of relevant and futuristic technology, such as APIs and distributed database, for successful automation.

5. Solutioning & Automation Build: Typically performed by a cross-functional team including Business, product, and in-house automation team or industry-leading automation platform.

6. Change Management: Financial Institutions should plan documentation & user training to transition impacted staff into a new automated state.

Of the above mentioned 6 elements, the **process prioritization, data optimization and technology enablement** act as basic building blocks to successful process automation journey.



2.1 PROCESS PRIORITIZATION FRAMEWORK

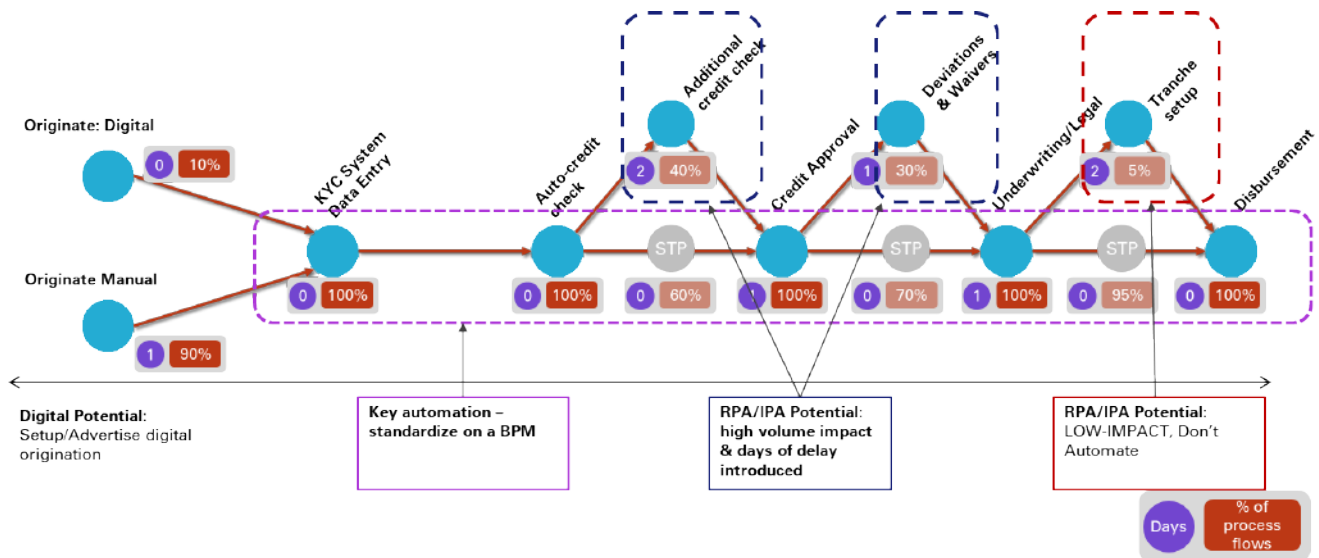


Figure 3 - Illustrative Process Mining: Loan Origination

Standardization of common processes: Common processes take longer to automate due to the complexity of change acceptance by multiple stakeholders. The first step is to identify overlapping processes such as outward fund transfer, inward fund transfer, claims settlements, settlement & reconciliation. These may be ERP-related processes and preferred candidates for BPM transition. Following are the key to standardization of common processes

- **Centralize** processes from distributed processing to a controlled environment.
- **Standardize** processes by mapping common process steps and product-specific process variations. A quick approach to standardization is to seek an in-principle agreement from all impacted areas on the common steps and capturing any product-specific steps through a process variation framework. A cross-functional Business Process Re-engineering (BPR) program is an effective way to achieve standardization.
- **Scope** for automation of common steps and major process variations.

Prioritization of Product-specific processes: The next step is to take product-specific operations and prioritize them for maximum impact. This part of process prioritization is critical for Business users & Customers. The essential components of a structured approach are Process Metadata Capture, Process Mining/Analysis, and lastly, Process Maturity.

- **Data of Process:** To measure is to manage. Metadata management involves defining, capturing, and monitoring process metadata. Process metadata includes vital indicators such as the number of process

steps, time taken per step, manual interventions, process variations.

- **Process Mining:** The next step is to use Process Metadata to derive insights that may help in delivering customer delight and saving costs. For example, figure 3 illustrates a process mining approach for loan onboarding. It shows multiple origination options and process variation steps for credit checks, credit deviations & tranche setup. A process mining by turn-around-time and volume by process step shows that “Additional Credit Check” and “Deviations & Waivers” are the major process variations in the Onboarding process. However, “Tranche Setup” is a minor process variation, and only occurs 5% of the time. Taking a volume-prioritization approach would dictate the prioritization of the first two and leaving the third manual. However, the prioritization can be altered basis other available metadata – for example, the presence of significant customer complaints on the tranche setup step.

Every aspect of process mining has a technology implication: The primary process – without process variations, should ideally happen over a BPM-equivalent software to gain a default level of process maturity. Major process variations are typical first-candidates of a Robotic Process Automation or an Intelligent Process Automation.

- **Process Maturity:** Process maturity involves setting up a continuous improvement program such as Lean Six Sigma to put identified processes on a feedback-driven improvement path. Mature institutions have started thinking of process maturity as not straight-through automation, but as automation validated by human intervention invoked at the right place, at the right time.



Use Case #1 | Consultation & Validation

Initial Context: Large Asian composite insurer embarking on an enterprise process automation journey, needed to prioritize Key Business Processes including gap identification. Also required review of automation design and technical support, functional testing of the processes automated. Implementation support of BOTs including necessary rehearsals and sign-off.

How Expleo helped: Business Analysis Consultancy Services with strong Domain and Application knowledge. Consultant identified and prioritized automation processes, identified gaps in process vs requirement documentation. Technical Consultancy services with RPA tool knowledge on Queues tagging, data initializing and exception handling. End-to-End functional RPA testing using certified RPA consultants. Implementation dry-run support and commission sign-off.

Benefit: 100% Functional and operational coverage. 2X faster implementation compared to silo'd approach because consultant brought domain expertise.

2.2 DATA AS OPTIMIZATION LEVER

People can rely on contact networks for accurate decision-making data, but process-driven institutions need to rely on consistent reusable data. Golden source of data is a crucial concept in the data world. From that perspective, following two areas are critical to achieve this across products & services, departments & systems:

Metadata: Metadata helps understand crucial aspects of data (e.g., data age, data quality, frequency of update) and will help prioritize/manage it. Metadata understanding is vital for data architecture design. It helps design golden source reference data that should be made available real-time or stored in long-term storage such as a Data Lake/Data warehouse.

Data Protection: Protected Usable Data is a by-product of good data security and privacy measures. Data security ensures integrity of data, making reliable data available to authorized parties. Key security measures include

- Encryption
- Network Security
- Access Control
- Multi factor authentication
- Activity Monitoring
- Breach Response
- Data Loss Prevention/Cloud Access Security Broker

2.3 TECHNOLOGY AS ENABLER

Enterprises embarking on an RPA/IPA journey are advised to first benchmark their existing technology roadmap. Through such an exercise, some enterprises may find they are better off replacing an ailing underlying system, over implementing a RPA/IPA swarm. Accordingly, Industry experts advise a full Enterprise Architecture validation, Enterprise Technology Roadmap validation and Tech stack validation be conducted before identifying scope of an RPA/IPA swarm.

The technology landscape for process automation consists of a large array of data and process-specific tools, and is evolving as fast today as a decade ago. Some areas of technology enablement have matured into platforms for continued innovation – key among these are Data Warehouses, Middleware and BPM.

Technology for Data: Data tech requirements usually overlap with key compliance requirements for an FI including audit and retention. In-vogue technologies in the data management sphere are

- **Reference Data Management |** Helps maintain data architectures by treating data as an asset
- **Middleware |** Used to push and pull information efficiently real-time

Data Privacy respects an individual's rights and is concerned with handling, processing, storage and usage of personal information – it helps identify and control sensitive data. Key privacy measures include

- Discovery and classification
- Data Subject Access Rights definition
- Alerting
- Regulations
- Contracts
- Policies

Process of Data: Ensuring high-quality & reusable data is a task in itself. Financial institutions have started opened up positions such as “Chief Data Officers” to set governance, policies & standards around data.

Data standards define an institution's approach to input, update, storage, transmission, and end-use of data. Key topics include Data capture methodologies, Data versioning, Interpretation & translation, timely Profiling, Maintenance & Remediation across sources. These are critical steps needed to make golden source copies to be used by multiple systems & institutions.

- **Data Lakes, Data Warehouses |** Store golden sources and transactional/historical data

- **Extract-Transform-Load tools |** Move data efficiently between systems during ongoing transformations or to create analysis sets efficiently for business use

Technology for Process: In-vogue technologies in the process management sphere are:

- **Business Process Management:** They are used to connect systems to optimize human intervention and eliminate inter-system inefficiencies

- **Robotic Process Automation:** Generally used as point solutions on top of an existing BPM framework. Focusing on automation of specific processes

- **Intelligent Process Automation:** Generally used as an assistive technology to support BPM/RPA – such processes can improve themselves by leveraging metadata and doing process mining themselves. Thus, most supportive in an institution's efforts of continuous improvement and predictive analytics



Use Case #2 | eKYC

Initial Context: For a large bank in Southeast Asia, Customer's demographic details from KYC documents were provided in both machine and handwritten form. The documents provided were not uniform therefore typical OCR and extract programmed methods would not suffice.

How Expleo helped: Bot deployed to automatically pick the Customer's scanned documents from a secured file server. Microsoft Azure computer Vision OCR and ICR API services used to parse the customer details. Bot converted the MS Azure CV API responses to structured data and entered customer demographic details into the customer and/or account origination systems.

Benefit: 95% accuracy in OCR. 80% accuracy in ICR. Eliminated data keying errors. Increased processing capacity through time savings. 24/7 Real-time processing.



Use Case #3 | Loan Payments Processing

Initial Context: A leading Southeast Asian Bank's branches performed manual meticulous processing of request files for Loan payments processing (Scheduled/Unscheduled), and interest rate changes. A key daily task was centralized reconciliation of information received in file against demand and create demand request if not present already in the Core Banking system and processing the payment.

How Expleo helped: RPA Bot designed to monitor a centralized mailbox for the loan payment and interest rate change files. The bot downloads the file once received, standardises the file format, enters the received information into CBS and generates the customized execution log.

Benefit: ~ 85% time saved due to automated reconciliation. Exception records are notified to users along with screen shot. Removal of manual keying errors. Real-time transactions processed 24/7. Automated email notification on process completion

3 KEY CONSIDERATIONS FOR IMPLEMENTATION

Once process flows have been evaluated as per the process prioritization matrix, automation solutioning can commence. The two main types are Rule-based automation, including Macros and Robotic Process Automation, and Cognitive automation, which includes Assisted Automations and Cognitive Computing.

An institution needs to identify accepted automation categories based on automation goals and innovation appetite.

Rule-based solutions can help with most automation use cases. Macros work well for many reporting use

3.1 CENTRE OF EXCELLENCE

For any organization taking an enterprise view of automation, setting up a CoE is an essential step to make process automation successful. Without such a CoE, process automation implementation may become siloed quickly and miss out on enterprise-wide change management controls, dampening success.

Governance-wise, CoE requires pre-approved enterprise budget for automations, with express lite-business case approvals charged to business codes. Early adopter institutions are moving towards a framework-driven swarm of automations – where a small business process

“We run a Centre of Excellence with 30+ bots in production. Majority of our input is received by email. Due to regulatory requirement, this data needs to be 100% accurate. The automation helps in extracting fields and creates records at the backend, which has drastically improved cycle times with enhanced efficiency. We continue to evolve our arrangement towards intelligent process automations, with our aim to automate more redundant and time consuming processes and drive accuracy.”

-Shaju Rawther, Senior Manager-IT, ICON plc



cases but are prone to system crashes and difficult-to-debug glitches. RPA is a much more controlled and well-managed environment compared to macros, so firms would prefer RPA for time-critical or high priority processes. Cognitive Solutions enhance existing arsenals of automations, by adding layers such as Virtual Personal Assistant, Natural Language Processing, Optical Character Recognition, Automated Process/Task Discovery.

orchestration team frequently evaluates performance and business case relevance of automations. The central automation orchestration team could be in-charge of governance, sunsetting unnecessary automations, and proposing/accepting new automation proposals based on clean metadata from existing enterprise processes. Such enterprise implementations could evolve similar to Cloud orchestration and DevOps orchestration, where a small but versatile team manages hundreds of servers/instances.

3.2 KEY DIFFERENTIATORS – HARD ASPECTS

Some key differentiators are emerging for large scale deployment of IPA/RPA:

- **Choosing right processes:** Processes increasingly prioritized based on objective framework built on underlying process/data/tech aspects, rather than on a subjective basis
- **Smart Automations:** Use of AI elements becoming the norm for Automation solutions. Intelligent, data-driven, continuously improving automation
- **Leveraging Cloud:** Leading suppliers offer SaaS-based delivery models. SaaS allows for a more cost-effective and scalable model of RPA deployment
- **Automation Marketplace:** Suppliers collaborating with other FinTech solution providers. Offering financial institutions, a complete automation solution through a marketplace approach



Use Case #4 | Medclaim

Initial Context: For a leading Indian healthcare insurance provider, claim processing staff identify and classify the claim templates received based on the hospitals. They extract data from the scanned documents of Hospitalization and Medical bills having machine and handwritten data. The bills were not uniform therefore typical OCR and extract programmed methods did not suffice.

How Expleo helped: Bot created to automatically download the forms from email and classify data based on hospitals. Microsoft Azure computer Vision OCR API services was used to parse claim details. Bot converts OCR API responses converted to structured data, and enters claim details into the Medclaim application and further processes the claim.

Benefit: 95% accuracy in OCR. Increased productivity, eliminated manual data classification. Eliminate data keying errors. 24/7 Real-time processing.

3.3 KEY DIFFERENTIATORS – SOFT ASPECTS

For a successful rollout of enterprise RPA/IPA, Institutions need to overcome the below people-specific aspects:

- **Need to Create Visibility:** As automation processes may run in the background, there’s a risk that the team may take performance for granted, or worse, underestimate efficacy. Demonstrate continued relevance of investment through dashboards, alerts, audit logs, analytics for automated processes, and frequent communication of value-added
- **Need to Protect Investments:** Upfront costs, such as consulting & implementation, should be thought through and factored into the business case. To contain overruns, project recurring costs as well to obtain Total Cost of Ownership over multiple years, e.g., configuration, customizations, maintenance & AMC
- **Need for Change Management:** A change management process helps ensure controlled change. Standards such as ADKAR (Awareness, Desire,

Knowledge, Ability, Reinforcement) give internal and external stakeholders the much needed comfort that an RPA/IPA change is good for them and will be conducted in a way that enables them do more

o **Need to manage inhibitions:** Stakeholders may have apprehensions about the security & integrity of systems, and thus a resistance to change due to concerns of intrusion. Need to position automation as secure extensions of existing processes

o **Need to manage perception:** Automation’s public perception is as a catalyst to reduce costs and jobs. Need to position automation as a differentiator, allowing staff to do more value-adding work

4 PROCESS AUTOMATION MATURITY MODEL FOR SELF-ASSESSMENT




Automation Maturity	Limited	Moderate	Standard	Mature	Leader
 Process	Manual processes	Highly customized processes	Workflow/ BPM enabled	RPA Enabled	Automation & AI Enabled STP Enabled
 Data	<ul style="list-style-type: none"> ▪ No data standard ▪ Hard copies & Files over email 	<ul style="list-style-type: none"> ▪ Systemic Golden Sources ▪ Manual transfer between systems 	<ul style="list-style-type: none"> ▪ Multi-system golden sources ▪ Push/Pull from individual systems 	<ul style="list-style-type: none"> ▪ Golden Sources for workflows ▪ Push/Pull using services 	<ul style="list-style-type: none"> ▪ Golden Sources for organization ▪ Push/Pull using services
 Technology	Papers Emails	Siloed systems Product Processor Core System Other Point Sys.	Systems connected via BPM	BPM with some activities RPA	BPM+RPA+ cognition+ machine learning

Figure 4 - Automation Maturity Framework Prototype

Understanding as-is process automation maturity is a prerequisite before embarking on an enterprise implementation of RPA. Enterprises may follow the model of the above figure to self-assess their automation maturity. Most Financial Institutions would meet the criteria for “Standard” maturity and would aspire to become “Mature” or “Leader.” However, many non-financial institutions are still in Moderate or Limited maturity.

Transitioning from one maturity level to the next often requires a mix of upskilling, tooling changes, data standardization, and innovation approaches – all at an enterprise level. Hence each maturity jump is a complex one and should be managed in a structured way for good results.

As an example, a full-service bank transitioning from Standard to Mature would first require golden source data to be available as a push/pull service ideally through a real-time middleware. But if a real-time middleware is not present, golden source business data should be at least published real-time for all systems in a workflow. Second, bolt automation capabilities on top of existing BPM: the bank should setup RPA bots which work on the BPM replacing human steps. Third, the impacted personnel should be trained on using the RPA effectively including handling process variations. Fourth, RPA-monitoring should be done at high frequencies (real-time exception escalation, daily and weekly status monitoring).



Use Case #5 | Test Automation – Mainframe automation ecosystem

Initial Context: Leading Credit Card issuer faced shortcomings of traditional automation. Current solutions didn't span across the ecosystem covering UAT: Web, Windows, Mainframe, PDF, Email, MS Excel and MS Word. Inability to track E2E Test Case continuity across days. Batch runs and lengthy functional workflows took more time for execution. Need to test multiple data variations to ensure quality.

How Expleo helped: An Automation Framework was developed using RPA tool (Framework is tool agnostic). Reusable objects were created as components and exposed as web Service using Soap UI. Handled integration of multiple technologies/ components in single flow across multiple day execution. Third party system responses were automatically validated

Benefit: Reduced end to end execution time by 70%. Customized execution results. Removal of manual errors. Test continuity across dates. All data variations are covered.

5 CONCLUSION

A truly enterprise approach to automation leverages a protected & usable data architecture, feeding into a process mining framework, which provides inputs on tools to be use for different types of automation. RPA/IPA are an important addition to a BPM toolkit, with RPA especially used as a key tool for business agility and resilience. IPA is cognitive and often used for unstructured data analysis, and to enhance capabilities of an existing set of RPAs. However, institutions need to manage human and cost elements to set up a genuinely value-adding Layer of enterprise automation. With a structured approach taking an enterprise view of Processes, Data and Technology, RPA and IPA can play a key role in this digital transformation.

For further information visit : <https://expleogroup.com/service/quality/process-automation/> or
email : customersuccess.esl@expleogroup.com

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