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Hyperautomation- The next frontier

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Foreword from CII



It is clear that Robotic Process Automation (RPA) is one of the highly discussed areas of automation right now. RPA is a productivity tool that allows users to configure one or more scripts to activate specific keystrokes. These scripts overlay on one or more software applications and mimics actions within the well-established IT process. The actions could be

manipulating data, exchanging data among applications, generating responses, etc.

There are many misconceptions around RPA like it will solve all automation needs. We must understand that implementing RPA alone will not yield results. Moreover, automating a bad process does not make it better. Instead, it will speed up the bad process.

Generally, RPA is implemented as a non-invasive integration method to automate routine, repetitive, predictable tasks. Also, before we decide on implementing RPA, we need to ask ourselves whether the process is optimized for automation or not. We have to perform process quality check before actually evaluating it for automation readiness evaluation and actual RPA implementation.

To summarize, we should only look into RPA if our IT process is well established, time scheduled, and all applications have structured data. Even though the RPA technology has tremendous hype, its adoption is low in India especially due to aforementioned challenges. However, the number of initial success stories, both with large-scale adoption and smaller, more targeted projects, is quite encouraging particularly in financial and insurance industries.

Even though RPA may provide quick returns as a non-invasive form of integration, it becomes challenging as processes are not always simple, routine, repetitive and stable. The real

challenge will be to scale beyond few initial low-hanging fruits of routine processes because complex processes require multitude of tools.

Process hyper automation is an approach in which organizations identify, evaluate, and automate as many established processes as possible through standard approach. Hyperautomation is orchestrated use of multiple technologies, tools and platforms like artificial intelligence, machine learning, event-driven architecture, RPA, intelligent BPM suits, etc., to automate the business processes.

Going forward organizations who have successfully implemented RPA will introduce Hyperautomation for operational resiliency. Hyperautomation is inevitable. Everything that can be automated will be automated. Market pressure to improve efficiencies and agility are pushing organizations to adopt such technologies.

In planning your automation journey, it is very important to have purpose and desired business outcomes well defined. For successful adoption of Hyperautomation, organizations should

1. Define the purpose and Identify the use cases with expected key business outcomes in terms of revenue, expenditure, and business risks
2. Optimize the existing processes and standardizing data inputs and decision logic
3. Identify relevant Hyperautomation tools
4. Implement process automation with AI as augmented intelligence.

I hope this reports provides you foundation on Hyperautomation technology and gives you direction while navigating your organization towards digital transformation.

D Ramakrishna

Chairman, CII, Andhra Pradesh

Foreword



The year 2020 has been a period full of socio-economic disruptions for the human race. We have witnessed a major shift in perception towards technology across businesses and a major segment of the consumer fraternity globally. Steering through the unprecedented times, there has been a

significant need to streamline the ways of working, along with interoperability of technological innovations across industries and organisations.

One of the more interesting phenomena is that technology has just not aided these efforts significantly but also helped standalone platforms integrate and communicate seamlessly, providing the much-needed distancing for human users.

Each of these technologies is immensely self-sustaining and provides a diligent framework for both B2B and B2C users, revolutionising their user experiences. However, these technologies also have basic limitations that has often been a major question for service providers and product makers.

Hyperautomation, one in all and all in one, is a wise amalgam of leading technologies, such as Artificial Intelligence (AI), Machine Learning (ML), RPA, and advanced analytics. This facilitates a wide segment of enterprise-level users in harnessing the best of virtual workforce, which is both immune and intelligent.

Hyperautomation offers a complete package to user groups by enabling the discovery, design, build, enhancement, and self-learning features for a wide array of use cases across functions and domains.

Powered by faster scalability, ROIs, implementation speed, and interconnected platforms, this technology is the next frontier to look up to as a one-stop solution for organisations globally. Above all, the very essence of hyperautomation lies in the humble conjugation of technologies, just as humans, to thrive, evolve, and overcome individual limitations, and make the world a better place.

I hope this report provides an enriching perspective to the less explored technology.

Nitin Agrawal

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Hyperautomation – The next frontier

RPA had been launched in the late 1950s, with the development of ML by Arthur Samuel (1959). In its nascent stage, RPA was a standalone concept of virtual workforce with specific application areas and pre-defined capabilities. However, rules were just not enough to justify the raging requirements of the real world. To sustain and grow in the age of Industrial Revolution 4.0, the very concept needed an innovative jolt.

'Evolution before extinction', a mantra that led to dynamic integration of RPA, along with AI and ML, bringing together one of the most disruptive technologies of current times under a single umbrella. The strategic amalgam gave rise to what we know as hyperautomation. Offering organisations to digitally transform their ways of working and lay down a strong foundation for areas of innovation of the future, hyperautomation thrives to live by the saying – 'Today's Disruptive is Tomorrow's Stable.'



Introduction

What is hyperautomation

Hyperautomation refers to a combination of complementary sets of tools that can integrate functional and process silos to automate and augment business processes. Hyperautomation brings together several components of process automation, integrating tools and technologies that amplify the overall ability to automate business processes.

It starts with RPA at its core, and expands the automation horizon with AI, process mining, analytics, and other advanced tools. The integration of these multiple

technologies enables end-to-end process redesign, automation, and monitoring, delivering much greater value and impact.

Hyperautomation provides several benefits over other automation technologies. These include automating processes at a quicker rate; using advanced analytics; offering increased employee satisfaction and motivation; assigning a workforce for value-added tasks; sharing accurate insights; ensuring enhanced compliance and reduced risk; and enabling greater productivity and increased team collaboration.

Simple and agile

Hyperautomation does not just refer to implementing tools to manage tasks. It also requires collaboration amongst humans who are decision-makers, and can use technology to interpret data and apply logic.

For example, imagine a case of social media and customer retention. A business can rely on tools that use RPA and ML to produce reports and pull data from social platforms to understand customer sentiment. Reports will be generated, and information will be readily available for the marketing team. However, it will then require the marketing team to use these insights, and consider what types of campaigns, promotions, and incentives should be incorporated into a business plan to hold onto satisfied customers and address the concerns of those who feel dissatisfied.

What is in it

This report outlines the details around the concept of hyperautomation. It details the technology's history and origin, its standard definition, key components and fundamentals, comparisons, market value, and forecasts. The report helps readers in intercepting the right set of information about the relatively new technology, and its advantages and limitations, along with an overview of the peripheral technology spectrum it involves.

It also includes insights, quotations, statistics, and summaries from global platforms and distinguished members from socio-economic and technological forums. These have helped in supporting various aspects of the technology from techno-functional aspects.

Analysis of conventional RPA and its limitations

RPA is one of the most highly discussed and adopted automation technologies across industries and geographic markets. This disruptive technology has evolved the way organisations work and operate. Although RPA's advantages are widely known, some of the key gains to be acquainted with are mentioned below:

- Decreased cycle times and improved throughput
- Flexibility and scalability
- Improved accuracy
- Effective utilisation of resources

To embrace more digitised ways of working, many organisations have adopted robotics to automate repetitive processes. Now those organisations are seeking to scale these solutions with AI to go beyond the routine to be innovative.¹

Over the next three years executives expect automation to increase their workforce capacity by 27 percent—equivalent to 2.4 million extra full time employees.¹

“The market for automation technologies, such as RPA, is growing at 20 percent per year and is likely to reach US\$5 billion by 2024”.¹

Although RPA offers many benefits and has become a must-have for organisations, a few limitations prevent the technology from being at its finest. According to market research and the collective insights gained from the industry's top analysts, vendors, and customers, a few of the key automation limitations confronting enterprise executives in 2020 are mentioned below:

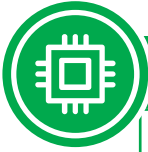


Limitation #1 - Identifying the right business processes to automate

As RPA gained traction and began to be viewed as a technology and the next phase of business process evolution, the procedure to identify business processes for automation is not usually thorough. Due to which in many cases, a few criticalities of the processes are missed during the evaluation phase. This later caused challenges to overall automation. Such criticalities are difficult to determine due to high manual involvement, which can lead to numerous flaws for the same process.

Most organisations looked at capacity creation as the key advantage and consideration to determine a business case. This was mainly due to the high ROI expectation linked to workforce release, which is not right. With this mindset, the majority of the automated processes led to failure as they were not amenable for automation but were still automated as they were highly manual. Instead, ideally the ROI should be realised by making business processes more reliable, quicker, and better. This will free up employees' time spent on performing these mundane and repetitive tasks, allowing them to focus more on critical, high-value deliverables directly linked to business objectives.

Detailed visibility to the business process is critical in determining the business case for its implementation. Hence, the challenge for the enterprise executives sponsoring their RPA business cases is to determine processes that need automation. This can drive ROI and carry value in automation, instead of just their amenability percentage.



Limitation #2 - Scaling digital process automation programmes and operations

According to research and publications, the majority of enterprise automation initiatives have not scaled. Although large organisations have abundantly invested in automation software (whether it has been process discovery tools, RPA vendors, or a combination of both), scaling their automation programmes is still a challenge due to the absence of an enterprise-wide charter and automation strategy. Most organisations do not have a well-established centre of excellence for managing their automation programme, resulting in non-uniform information flow and strategy adoption. Even organisations with a centre of excellence face challenges in socialising and ensuring their guiding principles. These challenges make it difficult for organisations to scale programmes to different functions and regions. For example, inconsistency in factors for evaluation of business case can lead to acceptance and rejection in different geographies for the same process.

Hence, establishing an automation centre of excellence is critical for an organisation to standardise a framework for deployment while ensuring that the technology initiatives drive value on the basis of their business case.



Limitation #3 - Accounting for regulatory and enterprise constraints, i.e., conflicting initiatives

After implementing their digital workforce, large organisations often realise that their expectations are misaligned with both enterprise constraints and visibility into critical business processes. Automated business processes tied to evolving touchpoints, controls, or decisions have to be pulled from production, re-analysed, and then modified before they can be operational again.

Parallel or conflicting digital initiatives have a major impact on digital transformation initiatives and related ROI. With the accelerated advancement in technologies, organisations want to accelerate the implementation of their digital programmes to use different capabilities. Hence, in some cases, a wide range of technological initiatives are being worked out to achieve a desired goal. We have observed these initiatives often end up in a conflicting stage wherein either of the technology initiative is barred to keep another. For example, assume there is a process transformation initiative in progress using BPM capabilities. At the same time, there is another initiative targeted to automate one of the processes of the same function using RPA. At some stage, the automated process will no longer be of use due to the workflow or other changes brought in with BPM.

This does not only lead to re-work, but also limit scale. Executives need to find a way to better connect their critical business processes with digital initiatives and evolving regulations.



Limitation #4 - Effectively governing and monitoring automation

As already mentioned, the biggest challenge prohibiting large organisations to gain from their RPA efforts is their inability or difficulty to apply automation at scale. A root cause for this is observed to be how the automation projects are governed.

Different isolated teams and functions are taking ownership of separate business processes to automate. With this distributed set-up, tracking their automation programme effectively is a challenge for organisations. Various challenges lead to this difficulty that include no uniform technology stack utilised (i.e., different RPA tools for different functions or initiatives, friction between functions, and their corresponding application environment).

Due to the lack of an effective governance to assess and analyse automation programme, organisations are unable to target improvement areas. This in turn leads to low business user satisfaction. For example, assume a business processes are automated for different regions of the same function and one of it is not being executed per expectation. Lack of visibility to the process in other regions due to a difference in technology stack or environment would lead to the shutdown of the inefficient process (which could have been easily avoided with a proper governance platform).

This is creating significant dependencies and bottlenecks, leading to limited agility and effectiveness.



Limitation #5 - Optimising business processes before automating them

Straightforward automation of business processes eliminates the opportunity to make processes better by identifying inefficiencies. This challenge is critical to the success of any RPA implementation.

We see several reasons why process mapping, analysis, and redesign work are essential to an effective RPA implementation. The existing business process is often overly complex, with unnecessary steps that could be eliminated before RPA is implemented. RPA involves the codification of business rules. However, in many cases, business rules have not been examined for many years and do not make sense in the current environment. In addition, existing business rules are sometimes described as requiring judgment, although they can be turned into more-accurate and more-consistent algorithms for better, more-consistent decision-making.

With changes such as those mentioned above, a process optimised and automated using RPA can be efficient and effective than that automated but otherwise unchanged process. Redesigning processes while implementing RPA can have a negative impact on overall time and cost of the initiative. However, the ROI can be as great or greater when compared with RPA implementations with no process change. Along with ROI benefits, holistic process improvement enhances overall business user experience. It not only focuses on a single part of the process but also on upstream and downstream activities.

Emergence of hyperautomation

Industries have witnessed some of the major fundamental changes in the past that led them to reconsider and further forced them to re-invent their ways of working to adapt and evolve with the changing times and trends. Fueled by innovation and taking steady steps towards technological growth, these disruptive events have been instrumental in shaping methodical changes across the world and developing industries.

The first industrial revolution or the proto-industrialisation period, powered industries and improved production capacity by introducing mechanisation. The second one, almost a century later, made way for massive technological advancements in the industries that helped the emergence of new sources of energy, electricity, gas, and oil.

After mastering the Mega, they were keen to explore the Micro. Thus, the third revolution brought forth the rise of electronics, telecommunications, and of course computers; devices that accelerated industries' growth like never before.

And Industry 4.0 is the latest age that has exponential potentials. It is pushing new limits for industries to develop

and evolve with every passing second. Klaus Schwab, founder and executive chairman at the World Economic Forum, in his article, 'The Fourth Industrial Revolution: what it means, how to respond', quotes –

"The Fourth Industrial Revolution, finally, will change not only what we do but also who we are. It will affect our identity and all the issues associated with it: our sense of privacy, our notions of ownership, our consumption patterns, the time we devote to work and leisure, and how we develop our careers, cultivate our skills, meet people, and nurture relationships. It is already changing our health and leading to a "quantified" self, and sooner than we think it may lead to human augmentation. The list is endless because it is bound only by our imagination."

Industry 4.0, a global phenomenon triggered by a pool of technologies of the modern world that have edged their ways through the needs of users and evolved over the decades as a result of consistent efforts and humble collaborations. These technologies have thrived the long list of requirements, while standalone, and are ready to unite together to overcome the limitations poised by the changing times.

Leading technologies in 2020 - Fundamentals of hyperautomation

Based on a report published by Deloitte in 2019, AI, ML, and intelligent automation are amongst the top 10 Industry 4.0 technologies that have the most profound impact on major organisations globally.ⁱⁱⁱ

AI

AI – It enables organisations to become Insight-Driven Organisations (IDO), which rely on the fundamental building blocks of people, process, data, and technology (using an analytics strategy). Strategic and tactical options are assessed to address key data and analytics issues, risks, and opportunities, as well as define the AI strategy in support of new business models and realise improved business outcomes.

Advanced analytics

Advanced analytics - The power of data lies in the way it is interpreted. We work with organisations across a wide range of industries, in critical parts of their business, to empower data through analytics. Analytics supports decision-making in the business domains of customer, supply chain, finance, workforce, and risk, where we identify actionable insights through ML, predictive modelling, and text mining.

Intelligent automation

Intelligent automation – It is used to increase focus on high-value business activities by implementing automations to emulate human actions, engagement, interactions, and judgments; using robotic and cognitive technologies; and improving workforce productivity and process effectiveness.

Information management

Information management – It involves a business-driven approach to designing and implementing next-generation solutions and processes that support businesses globally to better manage, protect, share, and innovate using their data. Organisations can design, develop, experiment, and operationalise effective Enterprise Data Management (EDM) solutions to drive automation, advanced analytics, and digital capabilities.

However, each technology driver may have limitations as it continues to evolve and improve with time.

With strategic goals to reap the potential of each technology, revisit limitations, and deliver with best of the amalgam, hyperautomation positions itself as a discreet enabler to the wider spectrum of automation technologies.

Hyperautomation - Reimagine automation, redefine work

Hyperautomation is no more about mimicking rule-based tasks performed with RPA. Conventional automation or RPA was a foundation stone that has made way for users to explore

the broader meaning and greater abilities of automation. It is about seamless interoperability of utilities and industry applications.

One of the key differentiators of hyperautomation is its ability to loop humans into the process. Using collaborative intelligence, technology and humans work together. Employees can begin to train automation tools and other software. Through ML, they can get to a state of AI-enabled decision-making. With hyperautomation, companies can begin to reimagine work typically done by employees using technology.

Some of the celebrated potentials of hyperautomation

01

Workforce enablement - Harnessed with the power of hyperautomation solutions, employees can automate many processes within their roles and get more done faster with the resources available to them. Minimising manual tasks enables them to focus more on impactful work, such as planning and strategy.

02

Employee upskilling - With automation no longer relies solely on IT, any business user can become an automation leader within their own department, benefiting both tech- and non-tech minded employees.

03

Systems integration - With hyperautomation, a company's clunky on-prem technology and disparate data systems can communicate seamlessly.

04

Digital agility - When every form of automation works closely together, a company can move past the one-off benefits of a single technology to a state of true digital agility and flexibility at scale.

05

ROI - Using key analytics, businesses can track the exact ROI realised (based on the processes automated, departments optimised, and time and money saved every week, month, and year).

Hyperautomation – Roots to shoots

Hyperautomation is relatively new while the notion of intelligent automation has been around for a while now. Given its phenomenal growth and adoption, its growth and market insights are impressive and promising.

Per Coherent Market Insights, the global hyperautomation market is anticipated to grow at a CAGR of 18.9 percent during 2020-2027 with extensive digitalisation of traditional manufacturing plants being the primary contributor to growth. Based on forecasts, hyperautomation is expected to pool a global market cap of US\$ 9.98 billion by 2022.ⁱⁱⁱ

Per the survey conducted by Deloitte, executives estimate that intelligent automation will provide an average cost reduction of 22 percent and an increase in revenue of 11 percent over the next three years. However, those organisations scaling intelligent automation say they have already achieved a 27 percent reduction in costs on an average from their implementations to date.ⁱ

Some of the sectors that are most likely to see a disruptive impact of such technologies are healthcare, insurance, travel, and tourism, and arguably the largest single employer in most countries — the government. These sectors have a preponderance of disparate legacy systems, myriad intermediate players and processes, and some form of an intelligent cognitive input required in decision-making and delivery. These factors together make these sectors quite attractive for hyperautomation.

This poses an interesting dilemma. On the one hand, the speed of delivery for goods and services will significantly improve with consistently reliable results (after adopting such technologies). However, on the other hand, the disintermediation of humans in routine tasks and non-critical decision-making will have a real and sustainable negative impact on employment numbers (given that these sectors collectively represent a significant share of the total workforce). Some jobs, and perhaps some supporting functions, will cease to exist.

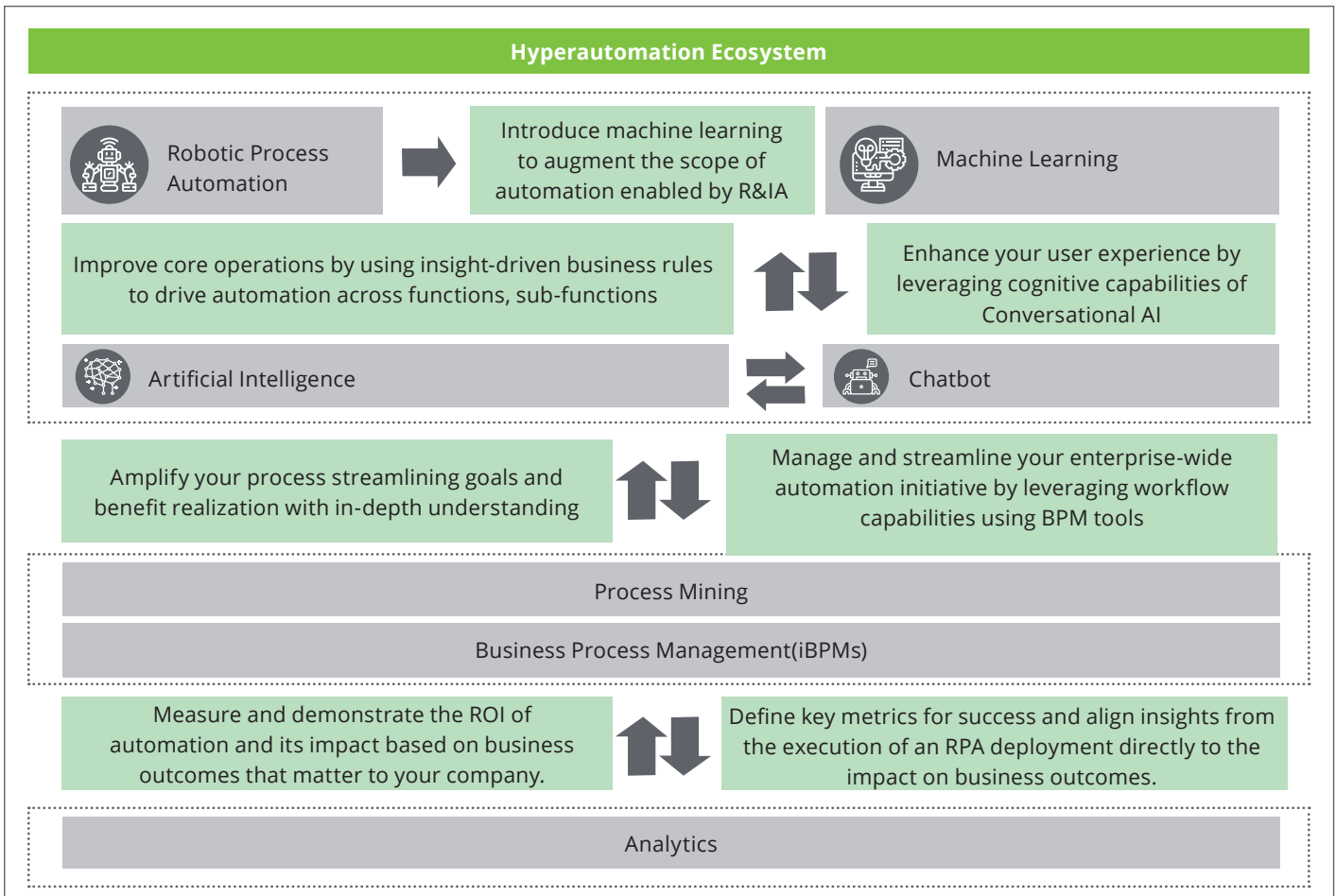


Hyperautomation ecosystem

Hyperautomation refers to a combination of automation tools with multiple ML applications and packaged software used to deliver work. RPA is just one subset of the key technologies helping to drive hyperautomation. Other technologies include intelligent Business Process Management Suites (iBPMs), integration Platform as a Service (iPaaS) platforms, and decision management systems. Together, they provide a robust toolbox of technologies that enables hyperautomation.

The RPA market is facing market disruptions as heavy R&D investments continue to flow in to redefine services and solution offerings. New offerings with a broader reach, new vendors, and new commercial models are emerging rapidly to redefine the market. This will lead to a revitalisation that is far beyond simple task-based RPA.

Cutting-edge technologies have come together to complement RPA and build an ecosystem for hyperautomation (i.e., creating a new way to work using a unified approach beyond 'simply RPA').



RPA

- RPA is a non-invasive integration technology used to automate routine, repetitive, and predictable tasks. This technology can help organisations with their digital transformation. Some of the top applications of RPA include customer service, accounting, financial services, healthcare, human resources, and supply chain management.
- **Highlights**
 - Enabling better customer service
 - Ensuring business operations and processes comply with regulations and standards
 - Allowing processes to be completed much more rapidly
 - Providing improved efficiency by digitising and auditing process data
 - Creating cost savings for manual and repetitive tasks
 - Enabling employees to be more productive

Process mining

- Process mining is designed to discover, monitor, and improve real processes by extracting knowledge from event logs readily available in application systems. It includes automated process discovery, conformance checking, and other advanced analytics features by integrating the BPM and RPA platforms.
- **Highlights**
 - Intelligent support for process model enhancement by deep data-driven insights
 - Identify process inefficiencies at a granular level for focused automations and quick wins
 - Auto generation of simulation models and process flows for faster documentation
 - Conformance checking to rapidly conduct a root cause analysis

AI

- AI is a brilliant way to augment automation of processes and a robot's abilities. The most common applications of AI are in incident management, case management, contract management, legal processes, etc. The following different types of AI can be used for process automation:
 - **Optical Character Recognition (OCR)** - It is used to extract text from images and documents via mechanical or electronic means. OCR in RPA enables organisations to automate a greater volume of their operational business processes, especially those that still highly depend on scanned paperwork, such as customer-completed forms.
 - **Natural Language Processing (NLP)** - In RPA, NLP analyses structured, unstructured, and "semi-structured" documents to identify, extract, and structure data within them for further analysis. Applications of NLP include invoice processing, insurance claim handling, contract analysis, voice of customers, and voice of employees. Integration of NLP and RPA helps companies improve customer experience by measuring the sentiment in the text.
 - **Chatbots** - They apply NLP to interact with users, understand their intent, and respond to them based on the assessment of their queries. This helps employees focus more on critical customer requests requiring personal interaction, reduction in incoming traffic of queries, and faster resolution.
 - **ML** - It applies AI capabilities to lend business context to tasks executed by RPA systems, enabling the latter to make better decisions and be more productive. It builds a knowledge base based on historical data and uses it for future decision-making. *The amalgamation of RPA and ML establishes a symbiotic relationship of continuous improvement between execution and analysis.*

iBPMS

Intelligent BPM Suites (iBPMS) have a solid foundation of tools for orchestrating processes and automating tasks within those processes. They (iBPMS) consolidate integration services, decision management, process orchestration, ad hoc processes, and advanced analytics into a single platform. The right orchestration is needed to unify bots, applications, and people to ensure that the automation results are as planned.

Advanced analytics

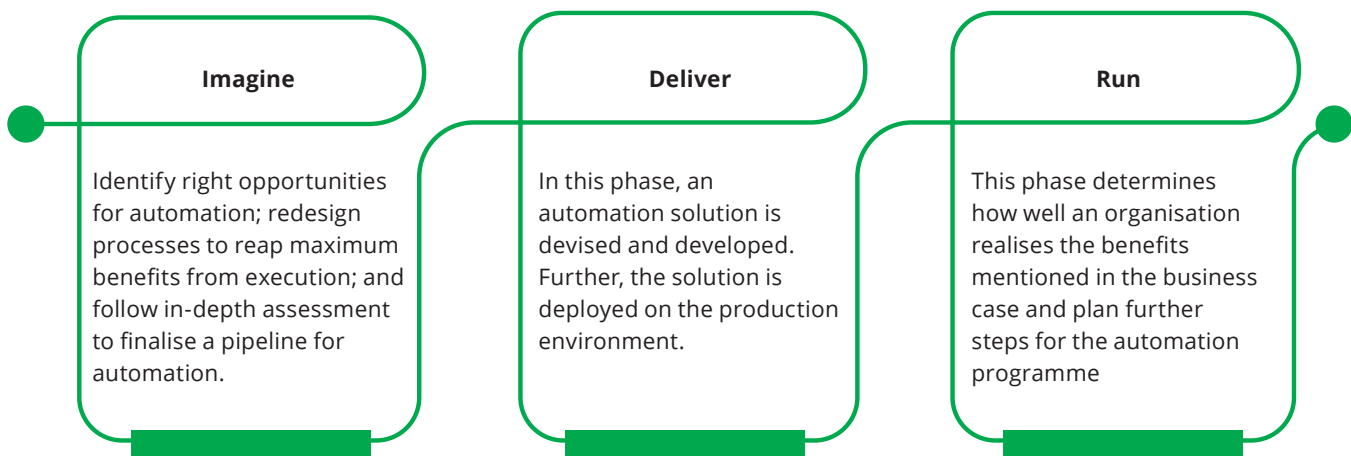
Applying advanced analytics to RPA to generate data can assist organisations to unlock operational and business insights, gain unprecedented knowledge of the RPA programme performance, and build a roadmap for the future.



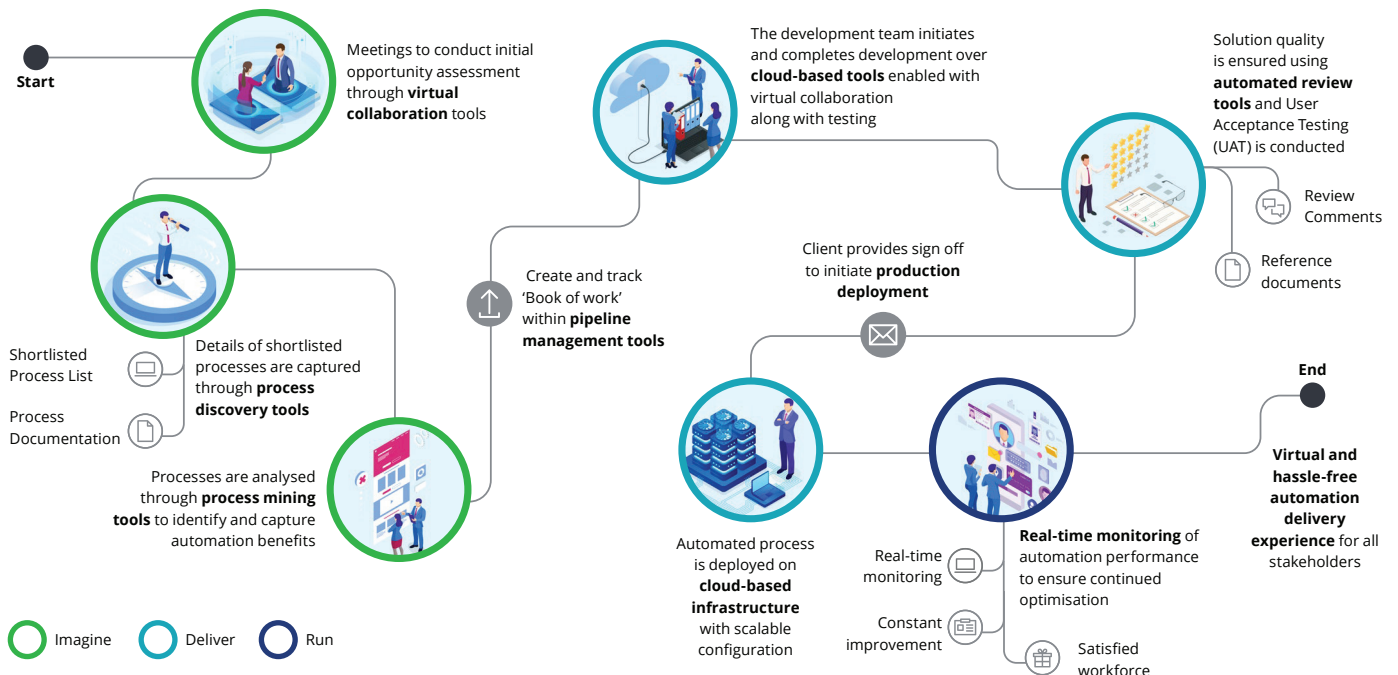
Delivery approach for hyperautomation

COVID-19 had a significant impact on the way we deliver technology solutions, leading us to re-think and design an evolved approach to delivering automations. Despite having hyperautomation capabilities, thriving in this time has never been easy.

Three major phases of the delivery approach are mentioned below.



We have articulated a high-level delivery journey enabled by hyperautomation mentioned below.



Some of the key benefits of this redefined approach are mentioned below:

- 01 In-depth assessment of processes with data-based process assessment
- 02 Effective prioritisation for process automation determined by key metrics
- 03 Ease of tracking initiatives with cloud-based and platform agnostic tracking tools
- 04 Central and real-time reporting, leading to one-place monitoring of the entire automation programme



Way forward

The strength of intelligent automation comes to the fore when RPA combines with AI to enable applications that go beyond the routine to the innovative: from collecting and processing data to analysing and making contextual decisions. However, based on a survey by Harvard Business Review, a significant number of survey respondents (48 percent) admit to neither thinking about nor implementing an intelligent automation strategy that includes AI. Another 36 percent include AI in their strategies but not at scale. Only 11 percent companies are currently scaling solutions that include AI.ⁱⁱ

The potential of hyperautomation is huge. Problems that could have been solved yesterday using human intelligence, can be solved tomorrow using digital twins. Just as the complexity of electronic circuits had doubled in a given period of time (Moore's Law), automation technologies will also grow exponentially. As advancements in different technologies ended up complementing each other and forming hyperautomation, we look forward to a similar amalgamation in the future.

Nevertheless, with the technological capabilities currently available with hyperautomation, organisations have the capability to entirely transform their core business operations and be a part of Industrial Revolution 4.0. Considering the evolving nature of the business environment and the ongoing COVID-19 situation, adopting automation has become critical. Hyperautomation is a collection of various complimenting technologies and it often leads to the creation of a digital twin of the organisation that can support business operations in parallel to an organisation's physical workforce.



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Deloitte Report: "The Fourth Industrial Revolution – At the intersection of readiness and responsibility"



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