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Hyperautomation

Expanding Robotic Process Automation (RPA) with AI

Manual, repetitive processes are typically time-consuming, difficult, and error-prone, particularly where companies have confusing systems and applications in place or lack precise documentation.

Research suggests that workers spend a significant amount of their time on manual tasks that can hinder their ability to focus on high-value projects, and prioritizing automation is an increasingly important enabler of success.

Hyperautomation – that is, automating everything that can possibly be automated within the organization – has profound impacts on productivity, people management, and profitability.

While the transition can be difficult, businesses that successfully implement cost-effective automations and technologies are finding new ways to successfully achieve their goals.

In this article, you will learn how Robotic Process Automation (RPA) and Artificial Intelligence (AI) can be used together in hyperautomation.

We'll explore use cases and best practices, and you'll find lessons our own practitioners learned in implementation to help improve your strategy and workflows.

An Introduction to Hyperautomation

Hyperautomation streamlines processes using smart automations that eliminate the need for human intervention.

In optimizing these repetitive operations using robotic processes, AI, and machine learning (ML), companies can transform legacy processes and equipment, discover cost and resource savings, and better empower the organization to thrive in a competitive environment.

RPA and AI are the two leading technologies in hyperautomation. RPA is an automated solution for repetitive processes, while extending it with AI facilitates problem-solving through data analysis.

For example, RPA may pull information from an email for AI to process. The 'decisions' made by the AI can guide RPA in performing specific actions with that processed data.

While early examples of artificial intelligence date back to the early 1950s, today we see myriad applications of this technology including facial recognition, object recognition, natural language processing, audio processing, and video annotation and analysis, among others.

The combined use of RPA with AI is becoming more common in automated systems supporting security, logistics, and commercial industries. For example, in security, AI can be trained to perform facial recognition on images from a security camera and identify who enters certain areas. With this information, RPA can take actions such as sending alerts via WhatsApp or email to specific people.

In this way, RPA and AI work hand-in-hand to activate the insights gleaned from data analysis at scale.

Any organization can benefit from expanding its hyperautomation structure, particularly those experiencing these common pain points:

• Inefficient workflows with repetitive, time-consuming processes for workers.

• IT's inability to keep up with business demands due to a lack of resources or knowledge.

• Difficulties in complying with industry standards and regulatory demands at scale.

• Quality control challenges in product development due to human error.

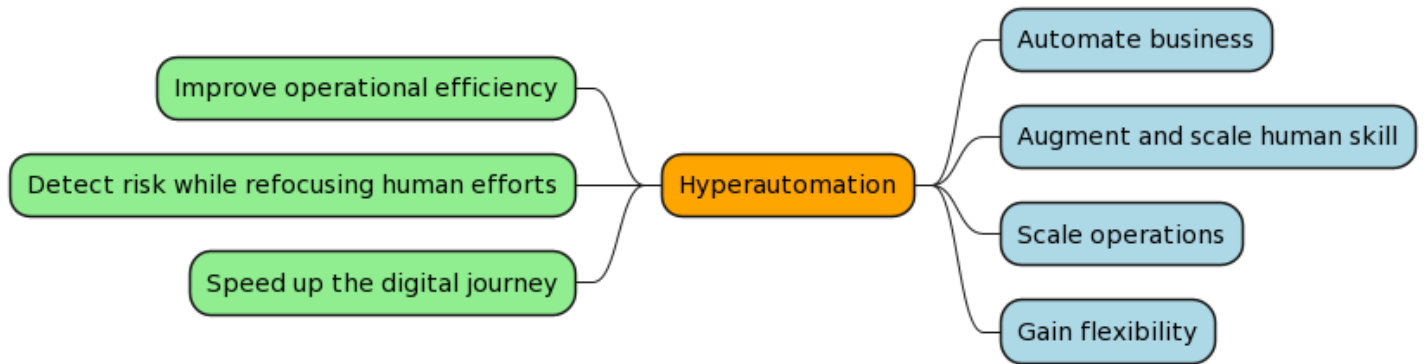## The Benefits of Hyperautomation

Hyperautomation provides a strategic framework for the independent and simultaneous deployment of various automation technologies. It covers identifying tasks, the agility of automated processes, and their ability to be reused.

When the goals are to reduce expenses, increase productivity, achieve efficiency through automation, and use digitally processed data, hyperautomation can provide organizations a platform to grow, integrate and optimize enterprise automation.

It also expands and addresses the successes and limitations of RPA tools.

Finally, it helps companies with the process of identifying automation and subsequently self-generating suitable artifacts.

The next figure showcases the main opportunities to improve industrial automation.

Automate business

Hyperautomation is a transformational opportunity for businesses, with the power to improve all business processes. Companies that have previously invested in automation may have seen the benefits of robotics in streamlining activities and operations.

It can also benefit companies that have yet to explore the benefits of automation, such as its time-saving and efficiency capabilities.

Augment and scale human skill

Hyperautomation combines automation technology and artificial intelligence to augment human skills so that tasks can be completed faster, more efficiently, and with fewer errors.

It has robotic intelligence to make processes more intelligent, while automation can easily simplify task procedures.

Scale operations

Different automation technologies must work in harmony to achieve operational scalability.

Intelligent business process management provides careful planning, execution, and improvement of processes. Companies need to test new procedures before implementing them to avoid potential issues.

Business process management software is a powerful yet simple tool for managing a company's hyperautomated strategy.

Gain flexibility

Through multiple automation technologies, hyperautomation can expertly leverage a single digital technology. This helps companies gain operational scalability and flexibility.

Employees can automate time-consuming tasks and perform more important organizational functions using fewer resources, for example. Businesses can also integrate digital technologies into all their operations and systems through hyperautomation.

Improve operational efficiency

Hyperautomation can increase revenue and reduce expenses by optimizing resources through sophisticated analytics tools and capabilities.

Hyperautomation enables robots and humans to work efficiently and together, giving employees tools that are easy to integrate and customize.

Detect risk while refocusing human efforts
Hyperautomation ensures that finance and legal teams have updated, centralized data. It can also improve accuracy, helping manage-ment visualize real-time data and quickly spot risks and opportunities to make more informed decisions.

Employees are freed up from low-value, manual tasks so they can complete more strategic work, increasing an employee's overall well-being, motivation, and productivity.

Speed up digital journeys
Hyperautomation enables accelerated digital journeys and lays the groundwork for future developments with more intentional data management, security, sharing, and exploitation, creating a unique and enduring competitive advantage in the market.

The Technologies Driving Hyperautomation

Hyperautomation provides sophisticated analytical tools and capabilities that help organizations overcome the limitations of data collection and analysis platforms, allowing users to automate numerous tasks across departments.

Automation is highly dependent on the performance of a company's current IT infrastructure and business operations. Integrated RPA systems and hyperautomation combine machine learning techniques, software packages, and job automation.

In addition, hyperautomation uses various digital technologies to create manufacturing automation.

To imitate the activities of employees, the AI uses four critical capabilities, as detailed in the following graph.
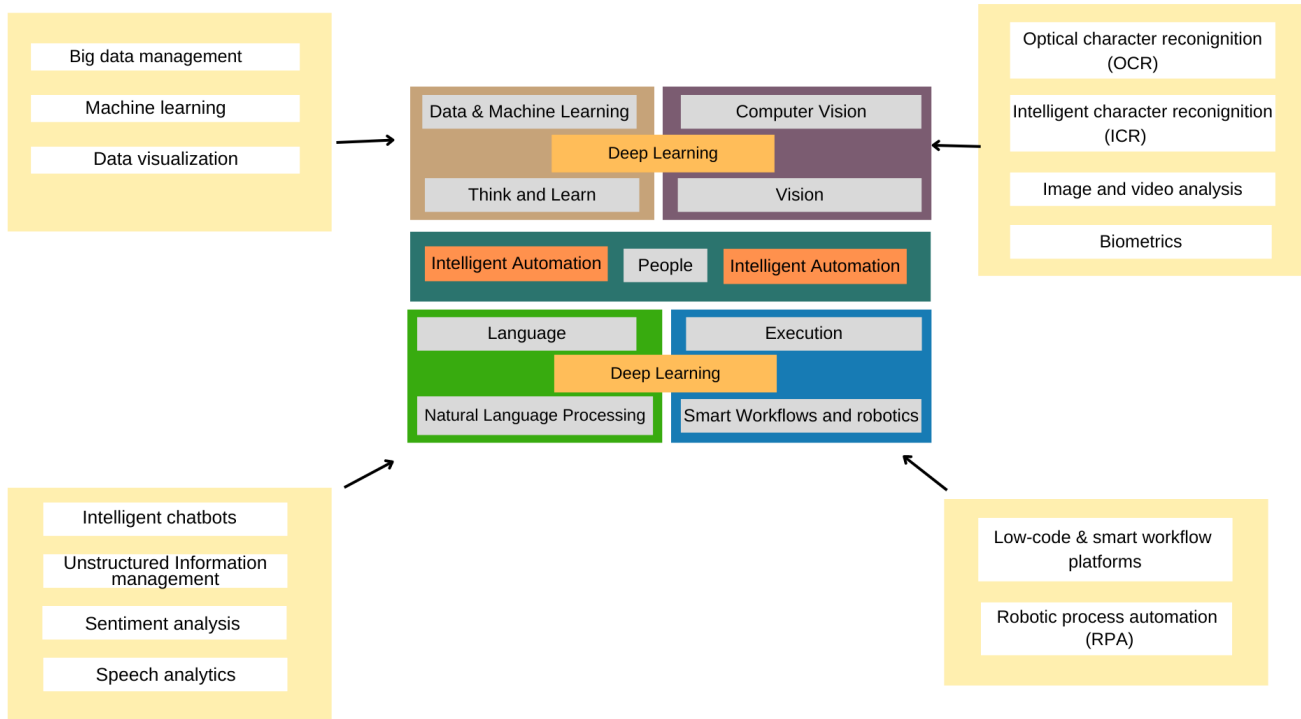
Each of the four main capabilities uses one or more technologies.

Vision
This first feature allows computers to perceive, interpret, and understand elements of the visual world, such as different environments, objects, signs, or letters, during processing. It mainly involves processing documents, images, videos, and biometric information. In the context of AI, the four key technologies are:

- Optical character recognition (OCR)
- Intelligent character recognition (ICR)
- Image and video analysis
- Biometrics

Execution
Hyperautomation carries out numerous individual tasks in digital environments, such as writing text, clicking on buttons, routing information, filling forms, and performing authentication. However, it mainly deals with the delivery of end–to–end automated business processes. The three key technologies that support this capability are:

- Smart workflow platforms
- Low–code platforms
- Robotic process automation (RPA)

Language
Language can include voice interactions with employees, customers, suppliers, and partners and interactions with smart devices across different channels.

These interactions mainly occur through text translation, information extraction, information summarization, information classification, sentiment analysis, speech-to-text, text-to-speech, predictive text input, or language understanding.

The key technologies currently using natural language processing are:

- Intelligent chatbots
- Unstructured information management
- Sentiment analysis
- Speech analysis

Think and Learn
The thinking and learning capabilities of hyperauto-mation include analysis and prediction to support decision-making. These three technologies support this capability:

- Big data management
- Machine learning
- Data visualization

Recommended reading:
If You Build Products, You Should Be Using Digital Twins

Hyperautomation Best Practices

Hyperautomation technology is broad yet structured. It extracts information from businesses, designs, and decisions, which informs the machine learning models, and validates and organizes that data.

The following graphic demonstrates the stages of hyperautomation:

The following best practices can help companies successfully integrate hyperautomation:

1. Determine the expected results of a business effort. Businesses must identify the specific goals they want to achieve through hyperauto-mation.

2. Improve your procedures to facilitate growth. Automation strategies allow large-scale processing, so it is vital to consider the scal-ability of the plan.

3. Research the most effective tools combination. It ensures that each chosen tool is in line with business goals. Hyperautomation isn't trying to replace jobs but frees high-value workers from routine tasks, allowing them to take on projects that require specialized knowledge.

4. Select the tools you will need. Businesses can assign automation tools to various activities, such as discovery, analysis, design, and auto-mation. There are numerous possibilities for automation.

5. Try to automate entire processes from start to finish. In the HR department, for example, this could mean digitizing the entire process from candidate selection to employee management. This will help create standardized practices, increase efficien-cies, and remove bottlenecks.

Hyperautomation Use Cases in Various Industries

Some current use cases for hyperautomation include:

- Document processing, such as checking a PDF and image using OCR (Optical Character Recognition).

- Natural language processing (NLP) to determine the sentiment of incoming emails by classifying keywords.

- Improving automated workflows by using artificial intelligence.

Here are a few specific use cases from different industries.

Finance
In an industry where cost reduction and creating efficiency for clients are key, hyperautomation can execute financial processes faster and provide high-quality data. For example, character recognition could analyze expense information, giving staff time to focus on tasks with greater complexity.

Recommended reading:
Cloud: A Great Refactor for the Financial Services Industry

E-commerce
AI-based hyperautomation can streamline front-end and back-end e-commerce processes including social media and email target marketing, supplier and inventory management, and conversion optimization, all improving the bottom line through time saved and increased revenue.

QA in Manufacturing and Product Development
QA automation offers the opportunity to optimize numerous processes using new technology with little human intervention.

Automation can lead to faster releases, reduce testing task execution time, and give workers the time to focus on the company's products or services in more complex business areas.

Healthcare
There are many automation use cases in healthcare, including billing cycle operations, medication inventory management, and patient record data management, to name a few. As a result, customers can expect a reliable and secure system through automation.

Healthcare Use Case: Cognitive Automation in Claims Processing

Cognitive automation is transforming healthcare claims processing by combining robotic process automation (RPA), artificial intelligence (AI), and intelligent document processing (IDP).

Explore a proposed IDP system flow for processing unstructured or semi-structured documents with greater accuracy.

Continue reading at GlobalLogic.com

GlobalLogic's Approach to RPA with AI

One example of our approach to hyperautomation comes in the story of a leading bank in Chile.

This business highly ranks as efficient when it comes to technological innovation in Latin America.

During the survey, we observed the following use cases with AI intervention.

Case 1:
Robot Integrated with AI

Operations executives receive many scanned PDFs with customer and product information, which staff must manually enter into the bank's internal platforms.

This manual process was error-prone due to the high volume of daily documentation. It was slow, tedious, and left customers waiting a long time – especially during peak seasons. The bank hired seasonal executives when demand increased, thus increasing operating costs.

The proposed solution?

GlobalLogic designed and developed a robot to perform data entry using AI to "read" the data and input it into the system.

Where an automaton couldn't assess the data, hyperautomation enabled a

flag and sent those documents to human professionals for review.

The bank also had an RPA Center of Excellence, making it necessary to raise only those prioritized automation projects.

This AI was trained on more than 100,000 documents and learned to recognize different types and what data to extract. It took several months to correct the documentation classifications and information retrieval process.

The following figure shows the solution workflow:

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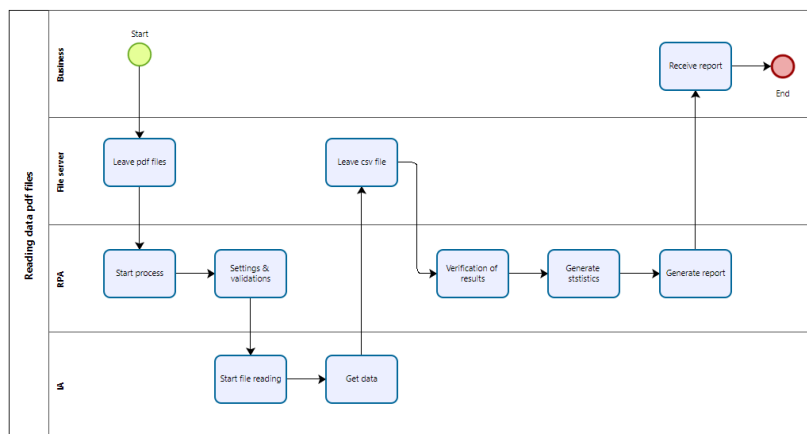
Solution Benefits

Implementing this hyperautomation to add a layer of intelligence to the bank's simple automations had the following impacts:

- Improved customer experience via the speed by which products were delivered.

- Improved management performance indicators, with a notable drop in income errors, better delivery times, and improved case processing rates.

- Improved work environment by lowering the workload, improving executive satisfaction with outcomes, reducing staff turnover, and generating new management opportunities.

- Lowered operational costs as hiring executives for peak times is no longer necessary.

Case 2:
CI/CD and RPA Development

When the bank began using RPA technology, its developers didn't have systems or procedures to make efficient robots according to today's standards.

They recognized that updating their RPA and implementing reliable practices would help them reduce robot errors and manual time to complete tasks.

When they implemented their Center of Excellence, the client also created four RPA environments: development, tests, UAT, and production.

When a developer finished building a robot, he passed the deliverables to an RPA platform controller that manually extracted specific elements and sent them to the next environment.

This process can create issues including incomplete robots transferred to other environments, production missing deadlines, and

outdated environments that generate operational problems.

Our solution to these problems addressed the lack of integration between RPA environments and poor robot development practices.

For this solution to work, we needed to implement a series of pipelines in Jenkins that allow continuous integration and delivery and construct an API with quality development practices

This solution consisted of:

- Structural analysis of robot development deliverables (XML File) to determine how to identify good development practices.
- Documentary analysis of RPA development practices proposed by the creator of RPA technology.
- Up-to-date versioning of the CI/CD Jenkins application.
- RPA and Jenkins integration research.

Solution Implementation

Implementation was divided into three phases.

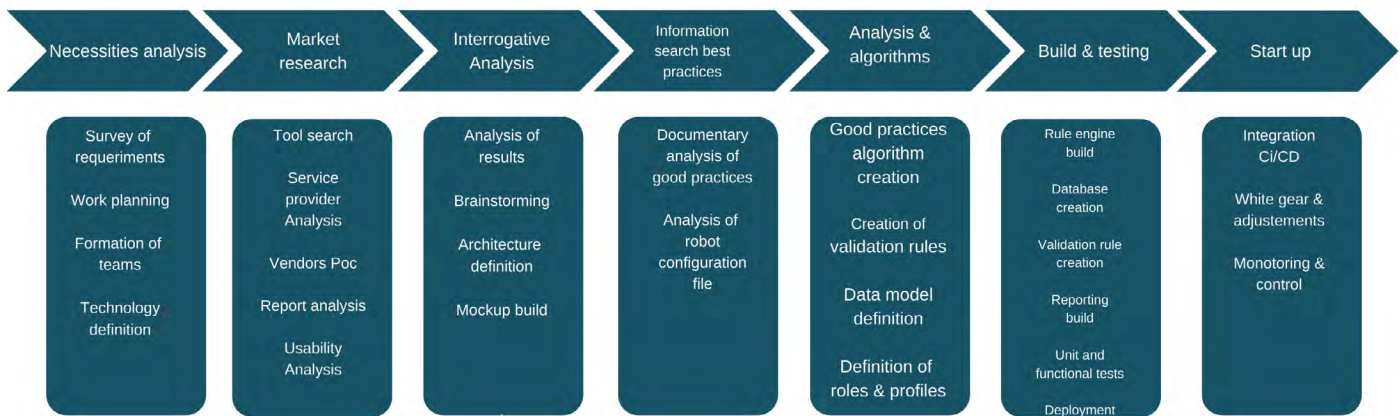### Phase 1: Build API Code Review RPA

We built an API that allows validating robot develop-ment practices. We rely on the official documentation from the RPA service provider for practices, including robot development with Blue Prism, vendor research, and structural analysis of RPA release files.

These were the steps:

- Obtain official documentation for RPA development practices from the RPA platform.

- Market research to investigate similar tools in the market to obtain ideas for development.

- Analysis and a study of XML files, as RPA deliverables are files in XML format with the robot's structure.

- Creation of validation rule algorithms with the prioritized rules and the identified architecture.

- Definition of technolo-gies to best fit the client's needs, using Java and XQuery to create the rules.

- Construction to build the API while consider ing all background insights above.

- Implementation once the API was finished, into a production environ ment and integrated with the CI/CD pipeline.

The following figure further details the stages of building APIs.

Necessities analysis	Market research	Interrogative Analysis	Information search best practices	Analysis & algorithms	Build & testing	Start up
Survey of requeriments	Tool search	Analysis of results	Documentary analysis of good practices	Good practices algorithm creation	Rule engine build	Integration Ci/CD
Work planning	Service provider Analysis	Brainstorming	Analysis of robot configuration file	Creation of validation rules	Database creation	White gear & adjustements
Formation of teams	Vendors Poc	Architecture definition		Data model definition	Validation rule creation	Monotoring & control
Technology definition	Report analysis	Mockup build		Definition of roles & profiles	Reporting build	
	Usability Analysis				Unit and functional tests	
					Deployment	

Phase 2: Building CI/CD pipeline with Jenkins

This phase consisted of creating pipelines in Jenkins that contain validations including the integration of the RPA and AI code review, as follows:

- Research integration functionalities of RPA tool

- Jenkins and RPA integration research

- Proof of concept on export and import of robot releases in different environments

- Creation of the pipeline in Jenkins

- Create Jenkins nodes for the different versions of the RPA tool

- Functional testing and validation of integration rules

- Startup

Phase 3: CI/CD integration and API Code Review RPA

In this phase, we added to the Jenkins pipelines and validated RPA development practices through the API, as follows:

- Adjustments to the pipelines to add the validation phase of good RPA development practices

- Creation of Jenkins node for API Code Review RPA functionality

- Add phase of verification of result delivered by the API

- Add notifications when bad development practices are detected

- Design and implement criteria for acceptance of good development practices

- Integration and testing

- Startup

Solution Benefits

This solution benefitted solved the client's pain points and offered the following business benefits:

Fewer complaints from commercial areas.

The new robots integrated into the bank's procedures seamlessly and caused production failures to drop considerably. Manual processes were limited only to cases where the robot's input information was not readable or if there was a system failure.

Increased robot productivity.

With the validation of RPA development best practices, the robots significantly increased efficiency and effectiveness, thus meeting the expectations of internal CoE RPA customers.

Decreased error rate.

By building the integration with Jenkins, the automated steps from one environment to another ensured that errors

in the export and import of robot deliverables were limited to bad information delivered by the developer, which decreased considerably in time.

Improved deliverable compliance.

This was achieved by automating the CI/CD process. Along with this, the API integrated into the pipeline in Jenkins ensured that the built pieces complied with the standards established by the bank.

This next figure shows the entire solution:

Lessons Learned in Implementation

Involving all interested parties, if not the entire company, is extremely important. A lack of insight and uncertainty on the part of some stakeholders can generate mistrust, which threatens the implementation of any hyperautomation strategy. Users can become the greatest detractors if they are not involved in the creation process.

It's crucial to define the objectives in an easily understand-able way. Defining the vision and making it visible to the entire team can help keep employees on track. The participation of members in all technology areas is critical to the project's success, as they provide the technological tools to support the implementation of the RPA architecture.

Defining a suitable model to manage the automation CoE is vital. Centralized, Semi-Federated, Federated, and Decentralized are all valuable models. Defining the roles of the individual who will manage the Automation Center of Excellence can help businesses meet their objectives.
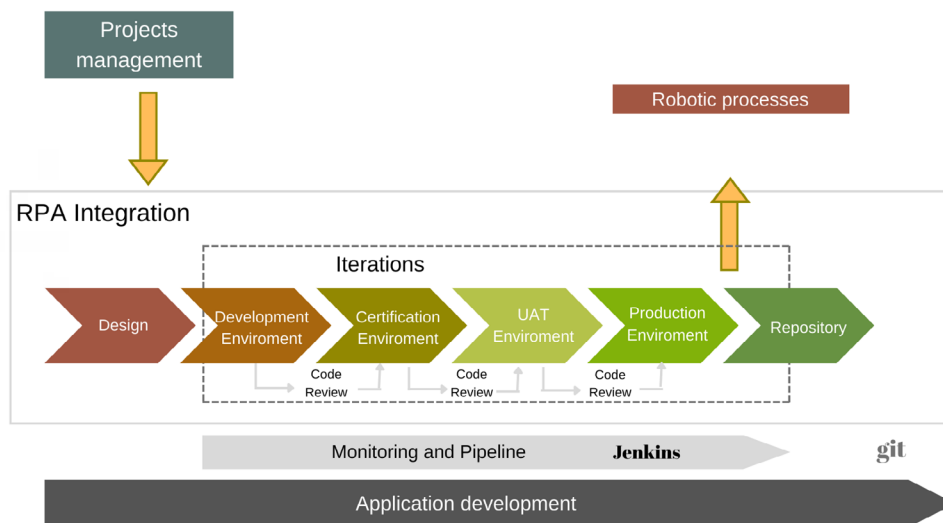
What's Next in RPA Hyperautomation?

Hyperautomation kept many businesses afloat during the pandemic.

However, as workers returned to normal operations, many needed clarification about the growing number of robots performing tasks in the workplace.

Admittedly, their skepticism is not entirely unfounded as by 2025, automation will take over a third of all jobs.

But all is not lost. AI will also create more jobs – in fact, Gartner estimates that AI will create 2 million new jobs that same year.

These new roles will appear at both ends of the spectrum, with the need for highly skilled and visionary senior executives to junior personnel.

Organizations are reviewing responsibilities and preparing their teams for radical change now. Rather than viewing hyperautomation software suites as a threat, Gartner recommends that organizations start training "converged teams." These teams combine technology with the business domain expertise of human employees.

In combining RPA and AI, hyperautomation aims to transform routine applications and processes to enable organizations to optimize business operations. The future of hyperautomation is bright and offers numerous technological opportunities.

Hyperautomation won't reduce the demand for human work, but can help eliminate repressive processes and reduce errors and this provides more time for employees to complete meaningful work.

The following goals are driving business leaders to adopt hyperautomation right now:

- Need to keep up with market demand.

- Legacy worker processes causing delays.

- Enterprise IT rendered powerless by a lack of resources or knowledge.

- Need to meet certain regulatory compliance.

- Stable production process and higher quality products with minimal human error.

Want to Learn More?

Let's explore the opportunities for your business.

Get in touch with a member of the GlobalLogic team today to book your initial consultation.

Contact Us