

HYPERAUTOMATION: TRANSFORMING INDUSTRIES IN THE DIGITAL AGE

The next frontier of automation will automate everything from simple tasks to complex processes.



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Introduction

In an era defined by relentless technological advancement, the concept of hyperautomation has emerged as a catalyst for unprecedented disruption across various sectors and industries. This powerful fusion of state-of-the-art technologies such as robotic process automation (RPA), artificial intelligence (AI), machine learning (ML), business process management (BPM), low-code/no-code (LC/NC), intelligent document processing (IDP), process orchestration, and process mining is reshaping the way organizations operate scale in a digital age.

By automating repetitive tasks, streamlining processes, and leveraging intelligent algorithms, hyperautomation empowers businesses to achieve more, helps focus on strategic initiatives, and helps deliver exceptional value to customers. It facilitates everything from enhancing customer service and optimizing business processes to revolutionizing supply chain management and more. Hyperautomation is reshaping the business landscape, empowering organizations to stay competitive in an increasingly connected world.



The Hyperautomation Paradigm

Hyperautomation's growing role in business is reflected in the observations of leading analysts:

Hyperautomation can help businesses to improve operational efficiency by up to

50%

and reduce costs by up to 30%
- Forrester

Hyperautomation can help businesses to improve customer satisfaction by up to

20%

- IDC

Hyperautomation can help businesses to accelerate time-to-market by up to

30%

- PwC

Hyperautomation can help businesses to improve innovation by up to

40%

- Gartner



These bytes demonstrate the clear business benefits of hyperautomation and why it is becoming a top priority for organizations of all sizes across all industries. For CXOs and business leaders who have a mandate to improve efficiency, reduce costs, and stay competitive in today's digital world hyperautomation is full of promise.

Hyperautomation represents a fundamental shift in how businesses leverage automation technologies to optimize processes, enhance productivity, and create more value for customers. It is about going beyond traditional automation to achieve end-to-end process transformation, optimization, and automation. Let us take a closer look at the key components of hyperautomation.

Components of Hyperautomation

Robotic process automation (RPA)



RPA forms the backbone of hyperautomation, automating repetitive, rules-based tasks across business processes in various sectors including telecom, aerospace, power and energy, mining, utilities, pharma and healthcare, banking, and insurance. Whether it's automating data entry in telecom, large asset data migration in utilities, geospatial, ESG-related data collection, and tracking for power and energy, claims processing in healthcare, or order processing and fulfilment in e-commerce, RPA streamlines operations, reduces errors, and frees up human resources for more strategic tasks.

Intelligent document processing (IDP)

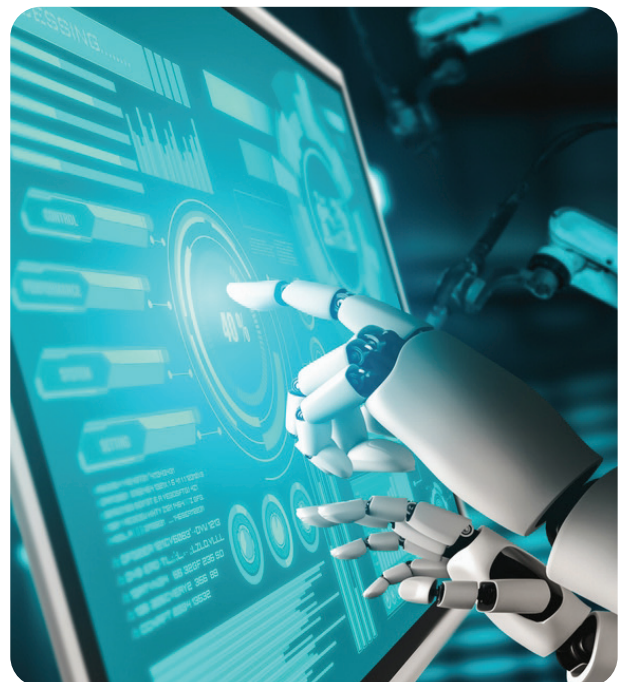


IDP solutions transform semi-structured and unstructured data into usable structured data. Business data is at the heart of digital transformation; unfortunately, 80% of all business data is embedded in semi-structured and unstructured formats such as business documents, emails, images, and scanned PDF documents. IDP is the next generation of automation, able to capture, extract, and process data from a variety of document formats. It uses AI technologies such as natural language processing (NLP), computer vision, deep learning, and machine learning (ML) to classify, categorize, and extract relevant information, and validate the extracted data.

Artificial intelligence (AI) and machine learning (ML)



AI and ML algorithms add cognitive capabilities to automation, allowing systems to learn from data, adapt to changing conditions, and make intelligent decisions. From personalized recommendations in e-commerce, predictive maintenance in manufacturing to fraud detection in finance, AI and ML are transforming the way businesses interact with data and customers.



Process Orchestration



Process orchestration tools integrate and manage the complex interplay between various automation components ensuring seamless workflow automation. This is crucial for achieving end-to-end process optimization and automation. Process orchestration coordinates the various moving parts or endpoints of a business process, and sometimes even ties multiple processes together. It helps orchestrate work between people, systems, and devices while providing a seamless and holistic end-to-end process automation that drives better business outcomes, improved customer experiences, and higher operational efficiency.

Process Mining



Process mining tools are designed to discover, monitor, and improve the actual business processes by extracting data from event logs readily available in enterprise information systems such as SAP, Salesforce, PLM, etc. Process mining includes automated process discovery (i.e., extracting process models from an event log), conformance checking (i.e., monitoring deviations by comparing model and log), automated construction of simulation models, model extension, model repair, case prediction, and history-based recommendations. It provides visibility into end-to-end business processes, enables continuous improvement by identifying bottlenecks and modifying processes to operate in their optimal state.



Hyperautomation Across Industries and Functions

The impact of hyperautomation is pervasive, transcending industry boundaries. Let's explore how this transformative approach is reshaping sectors across the board.

i. Telecommunications



Hyperautomation has the potential to revolutionize the telecom industry by automating many of the manual and repetitive tasks currently performed by humans. This can free up telecom operators to focus on more strategic initiatives, improve efficiency, reduce costs, and provide a better customer experience.

Automated network provisioning:

Hyperautomation can be used to automate the provisioning of new network equipment, services, and customer accounts. This can reduce the time it takes to provision new services and improve the accuracy of provisioning.

Automated network monitoring and fault detection:

Hyperautomation can be used to automate the monitoring of network performance and the detection of faults. This can help telecom operators to identify and resolve network problems faster.

Automated performance optimization:

Hyperautomation can be used to automate the optimization of network performance. This can help telecom operators to improve the quality of service and reduce costs.

Automated customer service:

Hyperautomation can be used to automate many customer service tasks, such as order fulfilment, provisioning, and troubleshooting. This can improve the customer experience and reduce costs.



ii. Pharma and healthcare



Hyperautomation can offer significant benefits to the pharmaceutical industry by streamlining various business processes, increasing operational efficiency, and improving patient outcomes. It can help accelerate the drug discovery and development process by automating data analysis, molecule screening, and clinical trial management.

In healthcare, hyperautomation can revolutionize patient care. It automates administrative tasks such as appointment scheduling, billing, creating patient summaries, and multiple processes across the revenue cycle management (RCM) allowing medical professionals to focus more on patient well-being. Furthermore, AI-driven diagnostics can improve accuracy and speed in disease detection, while smart devices and wearables facilitate remote patient monitoring.

iii. Manufacturing and supply chain



Hyperautomation has turned the manufacturing landscape into a highly efficient, data-driven ecosystem. With real-time monitoring and predictive maintenance, factories can reduce downtime, minimize waste, and optimize production schedules. In supply chain management, it ensures end-to-end visibility, optimizing inventory levels, eliminating bottle necks and in-efficiencies, and enhancing responsiveness.

Inventory management: Traditional inventory management systems are fraught with inefficiencies and prone to human error. RPA and AI-driven hyperautomation solutions provide real-time analytics and predictive modeling that consider variables such as seasonality, market trends, and supply chain disruptions. Simultaneously, RPA bots can handle mundane tasks like order processing, thereby reducing errors and freeing up human resources for more strategic tasks.



iv. Energy and utilities



With increasing competition and rising customer expectations, energy companies are under immense pressure to optimize their operations and reduce costs. By implementing hyperautomation solutions, energy and utility companies can automate repetitive tasks, improve accuracy, and enhance overall productivity. In the energy sector, hyperautomation plays a pivotal role in optimizing energy consumption, grid management, predictive maintenance, asset management, and energy demand forecasting. Smart grids use automation and data analytics to balance supply and demand, reduce wastage, and enhance the integration of renewable energy sources.

Energy companies operate within a highly regulated environment that requires strict adherence to safety standards, environmental regulations, and reporting requirements. Hyperautomation solutions using RPA and BPM allow energy companies to ensure consistency in their operations and greater compliance by minimizing human errors. This technology empowers organizations to enhance productivity, reduce costs, and deliver sustainable solutions for a brighter future in the energy sector.

are millions of queries and complaints processed by hundreds of human agents. The manual process is slow, expensive, and leads to customer dissatisfaction. By automating the manual process, airlines can save more than 10 million USD annually in hard personnel costs.

Data extraction and updation into ERP

systems: A vast amount of critical data is locked in semi-structured and unstructured formats like scanned pdfs and image files which needs to be retrieved and validated using standard business rules before posting it into enterprise systems like SAP. Hyperautomation using RPA and IDP is handy in such situations and saves thousands of hours of human effort which could be better utilized elsewhere.

Hyperautomation can also be applied in other aerospace use cases such as engineering documentation for regulatory and traceability expectation, reuse of engineering information based on past type certification, and sizing and scaling of the engineering BOM.

v. Aerospace



Hyperautomation is revolutionizing the aerospace industry by optimizing processes, enhancing operational efficiencies, and improving safety and quality across various facets of aerospace operations.

Customer complaints processing:

Hyperautomation using RPA and Gen AI can be used to automate commercial airline customer complaints and queries. There



vi. Mining



Hyperautomation has the potential to revolutionize the mining industry by automating many of the manual and repetitive tasks that are currently performed by humans. This can help mining companies to improve safety and efficiency, reduce costs, and improve sustainability.

Automated mine planning and scheduling:

Hyperautomation can automate the process of mine planning and scheduling. This can help to improve the efficiency of mining operations and reduce costs.

Automated equipment maintenance and monitoring:

Hyperautomation can automate the maintenance and monitoring of mining equipment. RPA, AI, and IoT sensors can be used to predict when mining equipment needs maintenance. This can help to prevent equipment failures and extend the lifespan of equipment.

Improve compliance: Hyperautomation can automate compliance processes such as environmental and safety audits. This can help mining companies to reduce the risk of fines and penalties and ensure consistent and accurate reporting.

Automated data collection and analysis:

Hyperautomation can automate the collection and analysis of data from mining operations. This data can be used to improve safety, efficiency, and sustainability.

vii. Banking and financial services



The financial sector has been quick to embrace hyperautomation, using it to streamline compliance, risk management, and customer service. Hyperautomation ensures faster loan approvals, real-time fraud detection, and personalized financial advice. It also enables banks to adapt to changing regulatory requirements swiftly.

viii. Retail and e-commerce

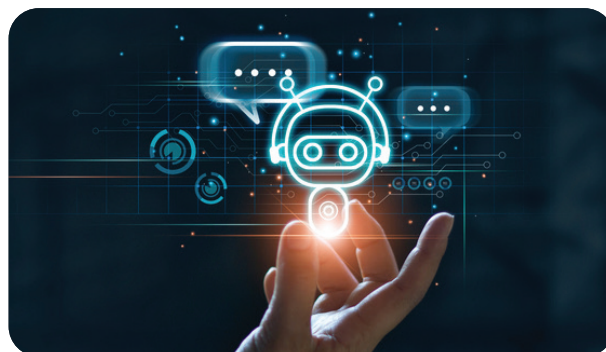


E-commerce giants are leveraging hyperautomation to deliver personalized shopping experiences. AI-driven recommendation engines analyze customer behavior and preferences, while chatbots and virtual assistants provide instant support. RPA also streamlines inventory management, ensuring products are in stock when customers need them.

ix. Human resources



HR departments are using hyperautomation to streamline recruitment, onboarding, and talent management. Chatbots assist with employee inquiries, while AI-ML and Gen AI help identify top candidates from a pool of applicants. Predictive analytics aids in workforce planning and employee retention strategies.



Challenges and Considerations

While hyperautomation offers remarkable benefits, there are critical challenges in its implementation



Since there is no single hyperautomation platform available today, there are a combination of technologies and tools at play. These need to be interoperable and orchestrated in a cohesive and holistic manner to reap the full benefits of hyperautomation.



Organizations must address issues related to data security, privacy, and ethical concerns when implementing AI and automation at scale. Furthermore, the need for upskilling and reskilling the workforce to collaborate effectively with automation technologies is paramount.



Automated processes involve a diverse number of endpoints (people, systems, and devices). If these endpoints are not properly orchestrated, processes can be disjointed or siloed. This is where a robust process orchestration tool would be required to enable hyperautomation.



Business processes are not always simple, they can be fairly complex. These processes are coordinated based on a certain logic, which is rarely a linear set of steps. As a result, complex processes must be described by advanced workflow patterns, which ensure alignment, scalability, and process resilience

Future of Hyperautomation

Hyperautomation will continue to evolve and redefine industries. Here are a few trends that could shape its future:



Hyperautomation as-a-service

Cloud-based hyperautomation platforms will become more accessible, allowing organizations of all sizes to leverage automation as a service. This democratization of technology will drive innovation across sectors.



Human-automation collaboration

Rather than replacing humans entirely, hyperautomation will focus on enhancing human capabilities.



Industry-specific solutions

Hyperautomation will be tailored to meet the specific needs of different industries. We can expect specialized solutions in sectors like healthcare, manufacturing, telecom, energy, and utilities addressing industry-specific challenges and requirements.



Enhanced cognitive capabilities

Advances in AI, ML, and Gen AI will lead to even more sophisticated cognitive capabilities, enabling systems to handle complex decision-making and problem-solving tasks.



IoT integration

IoT will become more tightly integrated with hyperautomation. Sensors and data from connected devices will be used to optimize and automate processes in real time.



Cross-industry collaboration

Industries will increasingly collaborate and share best practices for hyperautomation implementation. This cross-pollination of ideas will accelerate innovation and adoption.



Regulatory frameworks

Governments and regulatory bodies will establish frameworks to address the ethical and legal implications of hyperautomation, ensuring a responsible and fair use of the technology.

In the future, we can expect to see even more changes in the way hyperautomation is used and implemented. Advances in **IoT**, **blockchain**, and **quantum computing** will open opportunities for **hyperautomation** to be applied in new domains and enable it to automate highly complex tasks and processes.

Conclusion

Hyperautomation is ushering in a new era of possibilities, transcending the boundaries of sectors and industries. Organizations that adapt to embrace its transformative approach will gain a competitive edge, greatly enhance customer experience, and drive growth in the digital age. As the journey continues, it's essential to remain agile, ethical, and committed to harnessing the full potential of hyperautomation for a brighter and more efficient future.

About the Author



Prakash Narayanan is Solutions Head for RPA and intelligent Automation at Cyient. He has over 24 years of experience in IT and has delivered 1000+ bots across sectors such as banking, pharmaceuticals, and telecom, and has extensive experience in hyperautomation tools and platforms. He was among the Top 16 Global Automation Rockstars picked by Dynamic CIO magazine in 2022. He was recognized as a standout Thought Leader for Automation and AI by 3AI in 2023.



About Cyient

Cyient (Estd: 1991, NSE: CYIENT) is a global Engineering and Technology solutions company. We collaborate with our customers to design digital enterprises, build intelligent products and platforms and solve sustainability challenges. We are committed to designing tomorrow together with our stakeholders and being a culturally inclusive, socially responsible, and environmentally sustainable organization.

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