DATAMATICS

WHITEPAPER

OPTIMIZE BUSINESS PROCESSES AND DRIVE BUSINESS RESULTS THROUGH THE SUCCESSFUL INTEGRATION OF AI AND ML WITH RPA

TABLE OF **CONTENTS**

ABSTRACT

The convergence of high end technologies such as Artificial Intelligence (AI), Machine Learning (ML), and Robotic Process Automation (RPA) is helping businesses improve efficiency, productivity, and revenue, even amidst business constraints.

While RPA is good to automate discrete rule-based operations, Cognitive technologies such as AI and ML bring in the intelligence element to help the systems think and take decisions as a human would.

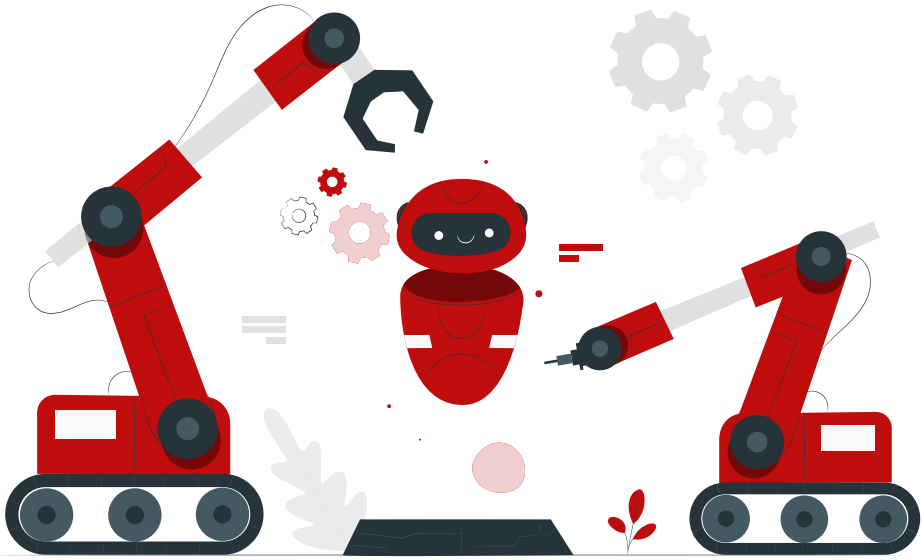
The integrated platform provides a plethora of options to harness business opportunities as well as mitigate threats on a scalable platform.

INTRODUCTION

Businesses large and small worldwide have recognized the benefit of using Robotic Process Automation (RPA) to automate repetitive, rules-based, and error prone tasks. RPA has quickly established itself as a tool of choice for enterprises that seek to establish nimble platforms that can quickly and cost-efficiently drive digitalization and business agility to help them stay competitive. With the success of RPA programs, companies are now looking at automation platforms with deeper intelligence, which leverage fast emerging technologies including Artificial Intelligence (AI) and Machine Learning (ML). This convergence is helping enterprises sustain business and optimize outcomes in competitive markets.

As such, advanced technologies like AI and ML infuse a layer of intelligence into automation approaches thereby taking pure-play RPA to the next level thus significantly improving speed, accuracy, productivity

However, applications powered by these Cognitive technologies are still emerging and not fully developed to support business needs as out-of-the-box solutions. They require careful evaluation and management within the organizational context from both business and technology perspectives to ensure successful integration and provide meaningful benefits.



Before we get into discussing the potential and promise of these technologies it would be pertinent to clarify what these technologies are, their capabilities and limitations. Following definitions would be helpful given the considerable hype or lack of specificity around some of these terms:

Robotic Process Automation (RPA)

is the application of technology that allows employees in a company to configure computer software or a "robot" to capture and interpret existing applications for processing a transaction, manipulating data, triggering responses and communicating with other digital systems. (IRPAAI, Institute for Robotic Process Automation and Artificial Intelligence)

Artificial Intelligence (AI)

is the theory and development of computer systems that are able to perform tasks which normally require human intelligence such as, visual perception, speech recognition, learning, decision-making, and natural language processing. (Artificial Intelligence Research, Development and Regulation, IEEE USA 10 Feb 2017)

Machine Learning (ML)

Here a computer first learns to perform a task by studying a training set of examples. The computer then performs the same task with data it hasn't encountered before. (Machine Learning, IEEE Software, Volume: 33, Issue: 5, Sept.-Oct. 2016). Machine Learning as such is an integral part of Artificial Intelligence. Machine Learning has evolved from the study of Computational Learning Theory and Pattern Recognition. It is the most effective method used in the field of Data Analytics in order to predict something by devising some models and algorithms.

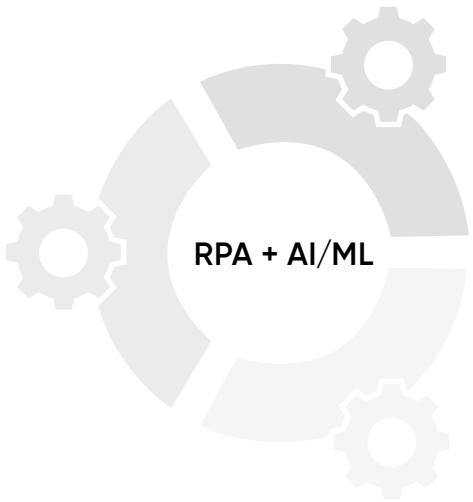
PROBLEM STATEMENT

In a competitive market, enterprises are challenged to operate under many business constraints. They need to find solutions to not only sustain but also thrive amidst challenging business environments and market disruptions.

SOLUTION

RPA and Cognitive technologies such as AI and ML promise to improve business performance significantly through quantum shifts in productivity and efficiency. While RPA is based on automating discrete rule-based operations, Cognitive technologies are required where typically human judgment and decision-making is required that cannot be fully captured as discrete process steps.

AI and ML leverage core Cognitive capabilities such as Pattern Recognition, Natural Language Processing (NLP), Classification and Deep Learning that enable computers to process information from a wide variety of input sources such as Text, Emails, Documents, Video, SMS to understand context and determine course of action.



While AI is an emerging science, considerable work has been done in specific AI disciplines, which lends itself to robust workplace applications.

CHALLENGES IN LEVERAGING **THE CONVERGED PLATFORM**

Typical challenges encountered while leveraging a combination of RPA and Cognitive technologies such as AI and ML include:

AI Technologies - Hype Versus Reality

Adoption of AI poses challenges as there has been a simplistic perception that AI is a plug-and-play technology that magically delivers breakthrough results by helping enterprises reduce headcount, minimize risk, know their customers better, and automate decision-making. This is far from the truth. Today, in order to successfully deploy an AI enabled solution, enterprises need to carefully examine the readiness and suitability of available Cognitive technology options, preparedness of their enterprise to embark on the Cognitive journey, and availability of strategic partners prior to embarking on their Cognitive journey.

Lack of Awareness about Executable Business Cases

As with most cutting edge technologies, the typical focus of vendors has been to promote AI and ML as technologies and products as ends in themselves rather than enabling them as technologies in a wider tool-kit of emerging automation tools. It is critical that enterprises start by applying their standard business discipline to determine areas that need attention to drive productivity gains, risk reduction, business growth, or other business goals. Any evaluation of Cognitive technologies to enable these outcomes should happen at the solution evaluation and design stage. In addition, standard technology and business rigour around risk assessment for nascent technologies should be applied to ensure that expectations from RPA and Cognitive technologies are realistically set.

Lack of Data Preparedness

Data drives AI . A well designed data access strategy is critical to the success of any AI and ML initiative. Therefore it is crucial that in the planning of their Intelligent Automation initiative, enterprises validate that their data management approaches are ready to provide the required self learning or assisted learning data-sets and processing capabilities. Capabilities such as ML cannot be brought up to industry grade performance without having high-quality data to help the ML algorithms learn the variety of business situations typically encountered in any enterprise. Today, most of this learning needs to be built from scratch as it pertains to the knowledge and expertise within each enterprise. Validating your data availability and readiness therefore becomes a crucial aspect of preparedness. It otherwise poses challenges in moving the Intelligent Automation solution to production from the development stage.

Talent Challenges

To ensure integration and success of Intelligent Automation initiatives, it is important that the client has internal resources, who understand both RPA and Cognitive technologies from technology capability as well as program overview perspective. As enterprises may still be evaluating the specific profiles and skill-sets they require for their in-house Cognitive RPA programs, an option to consider in this regard is to work with technology and solution partners. They can provide the required skills with a mandate to train and orient internal teams to develop the required skills and perspective and become self-sufficient in near future.

Cognitive Program Governance

Cognitive Automation programs are typically initiated with high expectations of immediate outcomes. As RPA has in recent years demonstrated quick outcomes, with the promise of much more to come, there is pressure on the AI and ML elements of automation programs to deliver similar quick returns. Setting up a robust governance framework and Centre of Excellence (CoE) for Automation initiatives provides a systematic approach to engaging business and technology stakeholders, enabling technology teams, managing vendors and partners and focusing on the program roadmap and success indicators. The governance team can also play a key role in enabling business units to successfully identify key automation opportunities as well as plan and align cross-functional automation initiatives to suit the culture of their enterprise.

PLANNING FOR **COGNITIVE AUTOMATION SUCCESS**

Embarking on a successful Intelligent Automation journey that includes Cognitive capabilities, requires attention to following aspects:

01

Understand RPA and Cognitive Technologies

Consider engaging a consulting or technology enablement partner with depth and breadth of AI and RPA expertise, who can connect the possibilities of Intelligent Automation to your enterprise's business needs and priorities. Look at one or more key pilot initiatives to assess technologies and understand both possibilities and limitations.

02

Develop your RPA and AI Talent Pool

Along with having an experienced Advisory and Technology partner, it is important to start developing your in-house pool of AI and RPA experts, who can tailor the technology to your enterprise needs. They can relate how it can be managed from both business and technology perspectives within your enterprise. In our experience, it is not necessary to always hire externally as internal talent can be developed to leverage the larger knowledge of the enterprise's processes from both business and IT perspectives.

03

Create an Intelligent Automation CoE

The Intelligent Automation initiative will likely span the entire range of functional disciplines and business units within the enterprise. An appropriately staffed and structured CoE can play a crucial role in alignment of stakeholders to promote and streamline the process of adopting automation. A CoE tailored to your enterprise's context can oversee successful and results-based integration of Technology Capabilities, Business Priorities, and People & Process Enablement beginning with Start-Up, Scaling-Up, and Steady-State Management of your Intelligent Automation journey.

04

Set Realistic but Aggressive Targets

Automation is expected to provide game changing results and outcomes. The only reason to embark on an automation journey is to deliver business advantages through disruptive change. The design of an Intelligent Automation program should ensure that the business case for such change and outcome can be established in advance.

The Automation CoE should put together a roadmap and strategy, which ensures business sponsors are on-board and committed to pursue radical new ways of doing business. The primary objectives are driving both top-line and productivity that were hitherto not possible. As technology alone cannot deliver results, it is important that planning for aggressive targets takes into consideration process, people and change management issues. This is a business imperative to ensure that automation initiatives make sense to business leaders and employees alike.

05

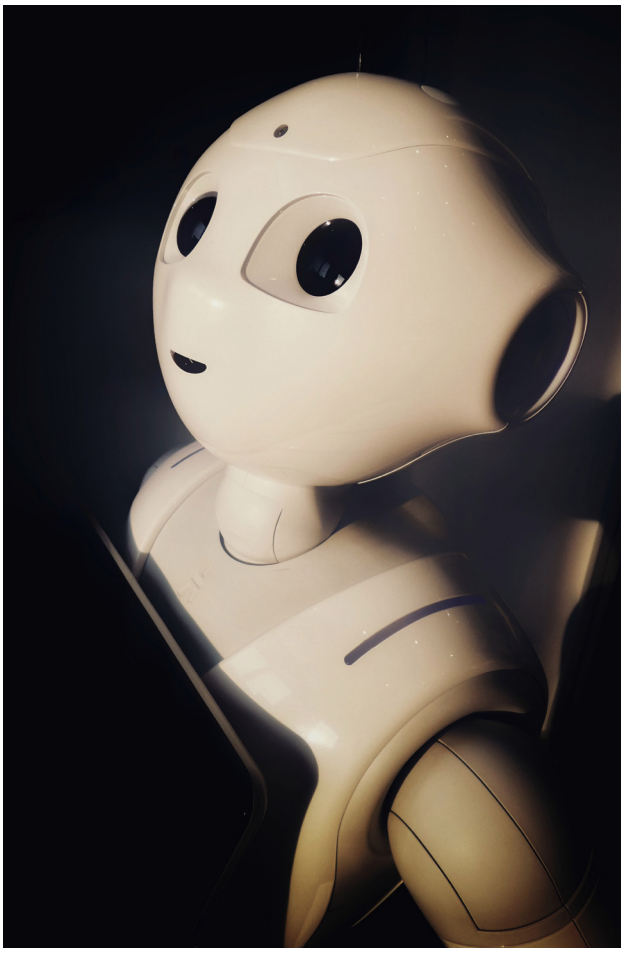
Start with RPA

RPA is a simpler technology that has been proven to provide business results in very short time-frames. In our experience it makes sense to start the Intelligent Automation journey by rolling out RPA first in process-intensive as well as paper-intensive processes. This includes regular processes related to Accounts Payables (AP), Accounts Receivables (AR), and Order to Cash (O2C) as well as paper intensive processes in other departments such as Procurement and Supply including Procure to Pay (P2P) and Record to Report (R2R). This reduces latency and speeds up processes by almost 10x to 15x in an error-free environment.

As the RPA processes become more familiar, it is simpler to visualize the growth of RPA and impact of AI and ML layers to add to the business impact that has already been delivered by RPA. This approach reduces the risk of trying out multiple new technologies and increases the chances of success of both RPA and Cognitive Technologies.

THE JOINT VALUE

BROUGHT IN BY RPA, AI,AND ML



Cognitive technologies such as AI and ML take pure-play RPA to the next level. The convergence brings in intelligence and self-learning aspects to process automation. The AI/ML layer works on digitized unstructured assets to parse, ingest, and assimilate information. The layer thereby helps to derive intelligence from structured text as well as unstructured text from printed documents, pdfs, videos, images, photographs, etc. It is just the matter of further coding to help the application port the data intelligently to other systems or locales after proper classification.

The AI/ML layer also imparts applications the capabilities to process multi-lingual data. It translates and summarizes the digitized assets, which can be further classified and stored – all through an automatic process.

The AI/ML layer also helps to take decisions related to numbers and difficult calculations and makes intelligent interpretations thus ensuring a completely paperless transaction.

HOW WE DO IT
AT DATAMATICS

We believe that business issues can be mitigated by applying thought towards a strategic and systematic use of technology.
With this belief, Datamatics helps enterprises unlock business value through the integration of RPA, AI, and ML and at the same time improve efficiency, productivity, and hence the business revenue.
In addition to providing assistance with planning the Intelligent Automation journey, Datamatics also provides a full featured Cognitive Product, **Datamatics Genie**, which makes use of these technologies to help enterprises speed up processes as well as cull out critical insights and trends from structured and unstructured data.

Datamatics Genie helps to:

- Collate information from diverse sources, parse, read, interpret all the structured and unstructured information from the sources, extract key points, highlight, and summarize information
- Uncover patterns and relationships between name and entity
- Classify incoming documents as well as the summarized versions into different categories
- Translate free text documents or scanned documents received in multiple languages using multi-lingual capability; extract text from the document, translate it in English, create a summary, and tag for sentiment analysis as applicable

Use Cases:

Datamatics helps enterprises use their data along with RPA and Cognitive Technologies as well as achieve significant business value through this integration.

Few scenarios for using Datamatics Genie's Integrated RPA and AI/ML capabilities:

1. **Classification:**
   Scrutinize high volumes of document records or images and classify them according to pre-defined categories to support business. For example: Paper-intensive processes such as mortgages or bank loans, genome analytics, wildlife conservation, etc.

2. **Pattern Recognition:**
   Recognize usual or unusual trends or behaviours in customers' financial transactions and detect anomalies to identify potential opportunities and frauds

3. **Prediction:**
   Identify short and long term data variation to improve business forecasting. For example: Energy or Retail Product consumption

4. **Image Recognition:**
   Scan huge number of images to identify pre-defined conditions. For example: Identifying normal and abnormal MRI and CT scans

5. **Speech to Text:**
   Transcribe voice messages to text to identify sentiment and conduct further analysis and respond. For example: call centres, chatbots

6. **Natural Language Interaction:**
   Voice-command a business application to generate a report for the required transactions. For example: Sales Revenue

7. **Natural Language Generation:**
   Retrieve summaries of all transactions that have been analyzed from a pool of documents

8. **Cognitive Search:**
   Offer personalized recommendations to online customers. For example: recommendations to online consumers by matching their interests with others, who purchased similar products

Following are some other prominent sectors, where our integrated platform can be leveraged

01

Banking & Financial Services

Internal/External Audit Automation, Fraud Detection, Credit and Risk Analysis, and Market Recommendations

02

Healthcare

Holistic view of patients' health for care administration, summaries of patient health to care providers

03

Government and Public Sector

Smart City projects to automate and correlate data collected from sensors, Security and Vigilance agencies

04

Communications and Retail

Personalized shopping experience and customized recommendation to online shoppers

05

Manufacturing and Energy

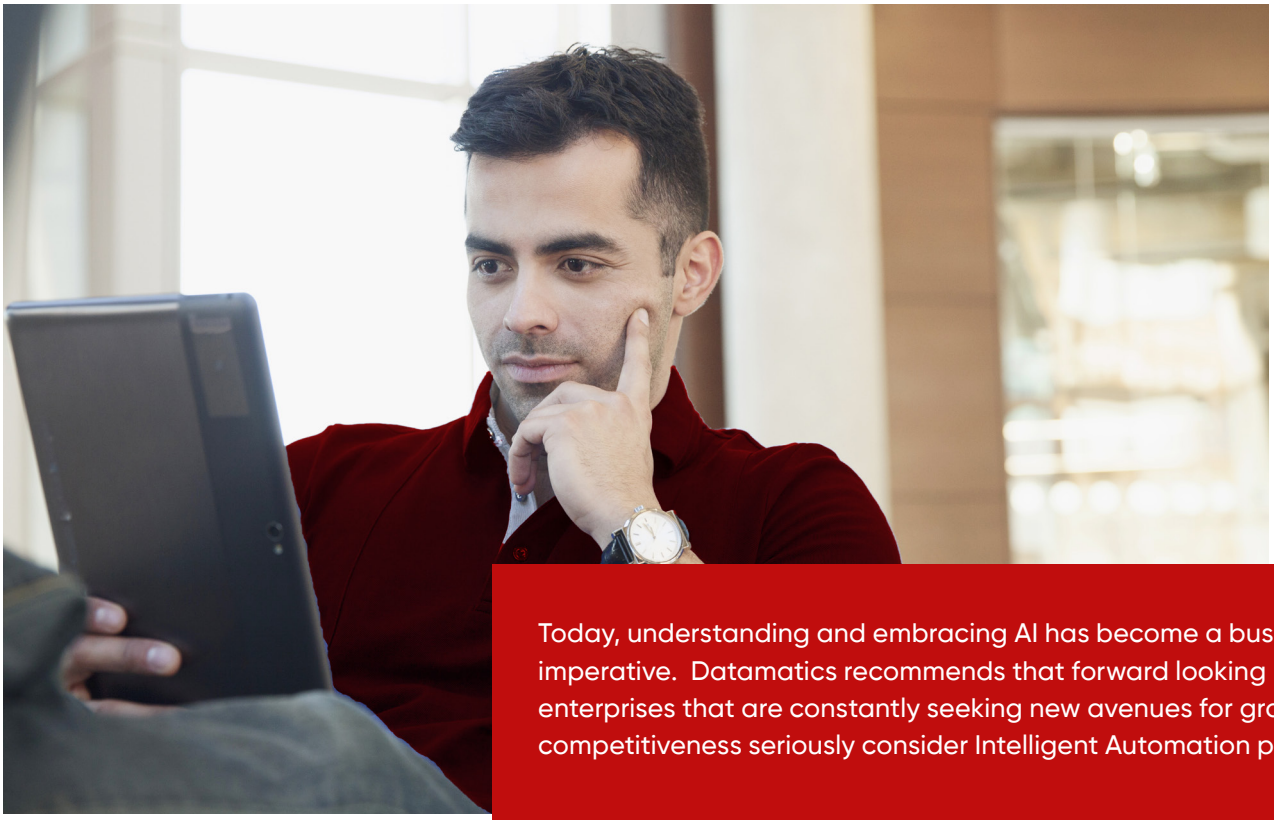
Trends & Anomalies in Production and Energy forecasting

06

Logistics

Supply Chain monitoring

CONCLUSION



Today, understanding and embracing AI has become a business imperative. Datamatics recommends that forward looking enterprises that are constantly seeking new avenues for growth and competitiveness seriously consider Intelligent Automation programs.

The convergence of AI and ML with core RPA capabilities is driving a new and accelerated stream of automation possibilities such as optimized processes, significantly improved business outcomes and operational efficiencies. Early movers have been already able to improve productivity by 30-40%, reduce costs by 60-70%, and improve processing times by over 70%. To fully realize the benefits of intelligent automation, companies need to start small with RPA and then explore the potentials of the Cognitive Technologies vis-a-vis different business scenarios.

ABOUT
THE AUTHOR

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Strategic Solutions

He has experience in engaging customers in Banking, Financial Services, Supply Chain Management, Manufacturing, Industrials, Healthcare, and other sectors to design and ensure successful delivery of RPA Program Objectives

Shubhen is a Senior Consulting Leader for large scale RPA CoEs and complex implementations at Datamatics Global Services Ltd. He has experience in engaging customers in Banking, Financial Services, Supply Chain Management, Manufacturing, Industrials, Healthcare, and other sectors to design and ensure successful delivery of RPA Program Objectives. He has extensive experience in stakeholder facilitation, RPA program vision & objectives development, program governance & management oversight processes, program & technology risk management, and automation program ROI delivery for Global Tier-1 Accounts, Shared Service Organizations (SSOs), and BPOs. His global industry experiences in both business and technology roles has helped him ensure alignment of technology enabled solutions with most critical business needs and technology requirements for enterprise clients in the US, Canada, Europe, Asia Pac and other global locations.

ABOUT **DATAMATICS**

Datamatics provides intelligent solutions for data-driven businesses to increase productivity and enhance the customer experience. With a complete digital approach, Datamatics portfolio spans across Information Technology Services, Business Process Management, Engineering Services and Big Data & Analytics all powered by Artificial Intelligence.

It has established products in Robotic Process Automation, Intelligent Document Processing, Business Intelligence and Automated Fare Collection.

Datamatics services global customers across Banking, Financial Services, Insurance, Healthcare, Manufacturing, International Organizations, and Media & Publishing.

The Company has presence across 4 continents with major delivery centers in the USA, India, and Philippines. To know more about Datamatics, visit www.datamatics.com

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