

INTELLIGENT AUTOMATION

EVERYTHING YOU NEED TO KNOW

In the last 10 years, automation technologies have evolved dramatically to become what we know today as Intelligent Automation. Desktop Automation—*software that supports human actions by automating repetitive tasks on a local machine*— was the first iteration, later evolving to Robotic Process Automation (RPA)—*software that mimics human actions by automating tasks performed by humans seamlessly across various applications and systems*.

Today, Intelligent Automation, built on the foundation of its predecessors, leverages traditional RPA technology and combines it with digitization and artificial intelligence to augment human intelligence and expand the realm of possibility.

Intelligent Automation can be a difficult topic to wrap one’s head around, but like a lot of things, future success starts with solid fundamentals. And if you’re looking to learn, you’ve come to the right place.

What are the core components of Intelligent Automation?

Intelligent automation is the intersect of Digitization, RPA and AI. Below are some basic definitions of key intelligent automation terms.

Digitization

Digitization is the process of converting manual and paper-based elements of a process into digital information.

Robotic Process Automation (RPA)

software that mimics human actions by automating tasks performed by humans seamlessly across various applications and systems.

Artificial Intelligence (AI)

Artificial intelligence (AI) is the theory and area of computer science that develops systems designed to perform tasks that normally require human intelligence. With AI, machines are gaining the ability to understand language (e.g. natural language processing), see (e.g. machine vision), and make informed decisions (e.g. cognitive computing). Some of the AI capabilities used in intelligent automation include:

NATURAL LANGUAGE PROCESSING

- Natural language processing (NLP) is the ability of a computer system to understand, interpret, and generate written and spoken language.

CHATBOTS, IVAs, & CONVERSATIONAL AI

- These are systems that can interpret voice and text in free form (chat) to respond with standard predefined answers. A simple example is the customer service function where a chatbot could respond to queries. These chatbots can continuously learn and build vocabulary to interpret the unstructured information being directed to them.

NEURAL NETWORKS

- Artificial Neural Networks are a specific model of machine learning that mimics human learning patterns. These networks are made up of units (neurons) that are grouped in layers. The more layers there are, the more complicated problems the network can work through. This neural system for processing information is what powers complicated machine learning processes, like deep learning.

MACHINE LEARNING

- Machine learning is the area of AI that allows computer systems to consume large data sets, discover patterns, and learn to perform specific tasks without being explicitly programmed to perform those tasks.

What is Intelligent Automation (IA)?

Intelligent Automation refers to a goal in the automation journey that can be achieved through leveraging the following three components:

1.

Data capture/digitization technologies (such as OCR)

2.

Task automation (such as RPA & RDA)

3.

And Artificial Intelligence technologies, i.e. the combination of machine learning, neural networks, natural language processing & conversational AI.

How does IA work?

Intelligent Automation is the combination of RPA with Digitization, and subsets of Artificial Intelligence including: Machine Learning, Natural Language Processing, Neural Networks, etc.

Intelligent Automation is best suited for processes that demand human judgment, intuition, creativity & problem-solving skills

Intelligent Automation allows the user to leverage “learning” algorithms and models that can be trained and fine-tuned to improve task performance over time.

A Venn diagram with three overlapping circles. The top-left circle is purple and labeled 'ROBOTIC PROCESS AUTOMATION'. The top-right circle is blue and labeled 'ARTIFICIAL INTELLIGENCE'. The bottom circle is teal and labeled 'DIGITIZATION'. The central area where all three circles overlap is labeled 'IA'.

Where is IA applicable?

Intelligent Automation is the combination of RPA with Digitization, and subsets of Artificial Intelligence including: Machine Learning, Natural Language Processing, Neural Networks, etc.

Intelligent Automation allows the user to leverage “learning” algorithms and models that can be trained and fine-tuned to improve task performance over time.

Intelligent Automation is best suited for processes that demand human judgment, intuition, creativity & problem-solving skills

For example, in the workflow below we see how intelligent automation can be leveraged to automate an entire business area, where in the past only a single process would be within the automation scope.

A horizontal flowchart titled 'EXAMPLE INTELLIGENT AUTOMATION WORKFLOW'. It consists of four boxes connected by arrows. The first box is labeled 'OCR' and contains an icon of a document with a magnifying glass. The second box is labeled 'AI' and contains a neural network icon. The third box is labeled 'RPA' and contains a robot head icon. The fourth box is labeled 'AI' and contains a chatbot icon.

That’s a Wrap

There’s a lot of information to process in this infographic, and you may still have questions about how intelligent automation will impact your industry, if so, please contact us. The Burnie Group can help you set the right strategy and build the right foundation to begin your intelligent automation journey.

You can also find additional resources below:

Intelligent Automation: burniegroup.com/intelligent-automation/
RPA: burniegroup.com/technology-operations/robotic-process-automation/
Artificial Intelligence: burniegroup.com/technology-operations/artificial-intelligence/

● The Burnie Group