What is Intelligent Automation?

A Cortex Introductory Guide to Intelligent Automation
Understanding Automation

At a basic level automation is the use of control systems and information technologies to reduce the need for human work in the production of goods and services.

To be Intelligent Automation the next generation of automation must be:

- Smart in sensing its environment
- Intelligent in evaluating its context
- Automated in making decisions and recognising exceptions.

Intelligent Automation creates truly self-managing, self-healing, automated operations and establishes digitalised devices which manage all the exceptions, failures, and problems that may occur.

Intelligent Automation is a unified platform that automates business processes and orchestrates technology resources with powerful machine intelligence. It builds on your existing automation technologies and business systems. This new technology creates digitally enabled processes that emulate the evaluation, decision making, and exception handling.

The ability to replicate human reasoning, which allows organisations to consolidate knowledge and skills on an enterprise scale, is what distinguishes Cortex Intelligent Automation from other automation solutions.

Automation (and “...automation”)

Automation is confused because it has two meanings that are used interchangeably. For terminology sake we will differentiate them using capitalisation:

The first is the noun “Automation”, this is the thing you are achieving; a state of “Automation”. This is the term the boardroom like and should be reserved for the boardroom and project names as it has very little meaning to engineers.

The second is the verb “automation” which should always be used with the object that it is automating. For example: “Task automation”, “Process automation”, “Workflow automation”. This ensures that even in speech we can tell the difference.

“Automation” needs no further definition, but often does need explanation. Automation is the transition to a new state of operation. You cannot buy Automation; you can only transform an operation into an automated state using Automation techniques. As it is indirectly the most common reason for the failure of Automation projects, it is important for any senior executive to understand this clearly.
Using the John Boyd Decision model as a reference, Cortex Intelligent Automation Software encompasses the four fundamental elements of Intelligent Automation: Sensing, Analysing, Deciding, and Acting within our established SADA Model.

The reality of enterprise organisations operations is that processes are not always simple, linear or well defined. Applying elements of Artificial Intelligence to traditional RPA (Robotic Process Automation) or DPA (Desktop Process Automation) which are based on screen scraping can not mimic the human work force.

The reasoning, decision-making, assessment and re-assessment of results and outcomes requires all four quadrants of the loop to become autonomous.

The SADA model embodies these four requirements of closed-loop, continuous Intelligent Automation.

**SENSE:** monitor, and decipher events, receive requests and understand situations.

**ANALYSE:** situations using machine intelligence and critically manage all exceptions.

**DECIDE:** using logic, rules, inference and neural nets to orchestrate an automated response.

**ACT:** to apply the required automation, processes and functions based on the previous cycle.
Automation can be easily categorised into types that build a hierarchy of automation ultimately resulting in a system.

### Types of Automation

#### Functional Automation

Has common capabilities typically seen in mass produced technology applications. Its function is unchanging, for example, posting an SAP invoice entry.

Functional automation carries no context; it will always work the same way wherever and whenever it is used. For this reason, it is most found in off the shelf products.

Functional automation can be augmented with missing functionality by common task automation tools and techniques such as Scripting, Coding, RPA, and Runbook type tools.

Functional automation is all about reliable, repeatable actions.

#### Task Automation

Task automation contains actions, configurations and governance specific to the individual organisation. It is highly repeatable within a fixed context.

Task automation is a build once and deploy approach much like functional automation - but only for that specific organisation.

From a static input data and start state, Task automation executes the appropriate sequence of Tasks to produce success or fail outcome.

If a Function requires localisation, or configuration to work, it is known as a Sub-Task. Most often used to provide external system interfaces such as Servicenow, or Salesforce.

Task automation automates an activity in a single skill, knowledge or resource domain. It is dependant only on the initial conditions for a success or fail outcome. Task automation is unchanging during execution which by its nature has a short running time.

Task automation is most effective in a workflow or case-based environment. As it will increase the quality and scalability of the output but will not have a significant impact on the mean time to respond, or the headcount.
Processes automation is sensitive to its context.

Process automation takes a transaction with a set of input data, and start state, through a sequence of decisions and tasks to achieve an outcome at an end state. The resulting data may or may not define the end state.

Process automation has multiple permutations chosen depending upon the details of the transaction, and the internal results of Tasks.

Process automation must be stateful so that analysis and decision can be taken, and exceptions generated.

Process automation can be single domain, single system, or cross domain, multi-system, and any combination. It is still Process automation, not “Orchestration”.

Process automation, in combination with Orchestration, achieves significant increases in velocity of operations as tasks are executed and sequenced at machine speed. Significant headcount reduction will result from the exception only environment.

Workflow automation automates the sequence of operations, defined as the work of a person or group with common skills, knowledge or resource access.

Many Workflow automation tools emanate from the business process management (BPM) sector, where workflows are defined in forms-based sequences of screens. More advanced BPM tools allow business rules to be applied to route the flow of work to various actors (people or systems) based on skill, knowledge, responsibility or resource access.

Workflow automation can be confusing for people to differentiate from the process. Simply, a workflow is about flowing work between different groups of people. Workflow automation allows people to analyse and decide what actions are taken at each stage. Workflow is a high-level abstraction of common steps for different processes and normally emerge for efficiency where the process is poorly defined.

Workflow automation is characterised by the fact that every action starts and ends with a person.

The main driver for Workflow automation is improved repeatability and the removal of management time for directing authorising activities.
Services are sets of activities that produce customer outcomes such as provisioning a network.

Service Orchestration directs the appropriate set of actions: Processes, Functions, Tasks, Workflows, and Services to achieve an optimum outcome. This can be to support an objective, deliver an outcome, or maintain a goal.

For example: To maintain the performance of a software application. Technical Service / Resource Orchestration is the coordination of tasks and technology systems and services to achieve this.

Service Orchestration tools are hierarchical in nature and are Analysis and Decision driven to align with operational structure. This differs from simple orchestration tools which have two dimensions, decision and action.

Service Orchestration in conjunction with Process and Task Automation can fundamentally transform the way in which businesses operate. Successful service orchestration will deliver cost saving, headcount reduction, quality improvement and velocity (MTTR) transformation.

Types of Automation
Automation and Associated Technology

Robotic Process Automation (RPA)

RPA is the execution of a task through machine emulation of human user access to applications via human interface devices such as Windows, Keyboard and Mouse controls, or Command-Line Interfaces. This is often done to capture data from an application when an API or database access is unknown, unusable, inaccessible, or not available.

Artificial Intelligence

Having failed to deliver the required outcomes using simple automation, CSPs are leapfrogging the next stage and exploring predictive service failure systems and pre-emptive preventative action responses. This leaves both a dearth of automated operations, and locked-in engineering teams being overloaded by advanced information but unable to react in time - although as we shall see later there are also deeper dangers with this approach.

Cognitive Computing

Methods and Algorithms that allow machines to recognise and categorise things. For example: Natural Language Processing allows computers to recognise speech, and Imaging technology allows machines to identify images.

Machine Learning

A machine being able to modify its own programming to improve or optimise outcomes.
About Cortex

Cortex Intelligent Automation is the first unified platform specifically built to solve the challenges preventing organisations’ acceleration to an autonomous future. Cortex rapidly creates value, using multi-purpose intelligent automation software to transform enterprise operations.

A unified, no-code, automation and orchestration platform, Cortex Intelligent Automation delivers Workflow, Orchestration, Automation, Reasoning, Integration and Event processing. Unique, decision-driven, closed-loop, and self-adjusting automation technology seamlessly integrates into existing and legacy technologies, automating processes to increase accuracy, speed, agility, and to deliver tangible ROI.

Process design within the Cortex Intelligent Automation platform requires no programming experience, underpinned by Cortex’s mission statement of “A world where everyone can automate”, and puts the business process owners and subject matter experts at the core of the automation project. Web based and highly scalable, the platform supports a simple managed process for the migration of a process design from development to test to production environments.

With strategic global delivery partners, Cortex applies proven strategies and methodologies for Intelligent Automation deployment, together ensuring that the most successful outcomes and ongoing autonomous operations are achieved.

START YOUR INTELLIGENT AUTOMATION JOURNEY TODAY
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