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Single Day Event

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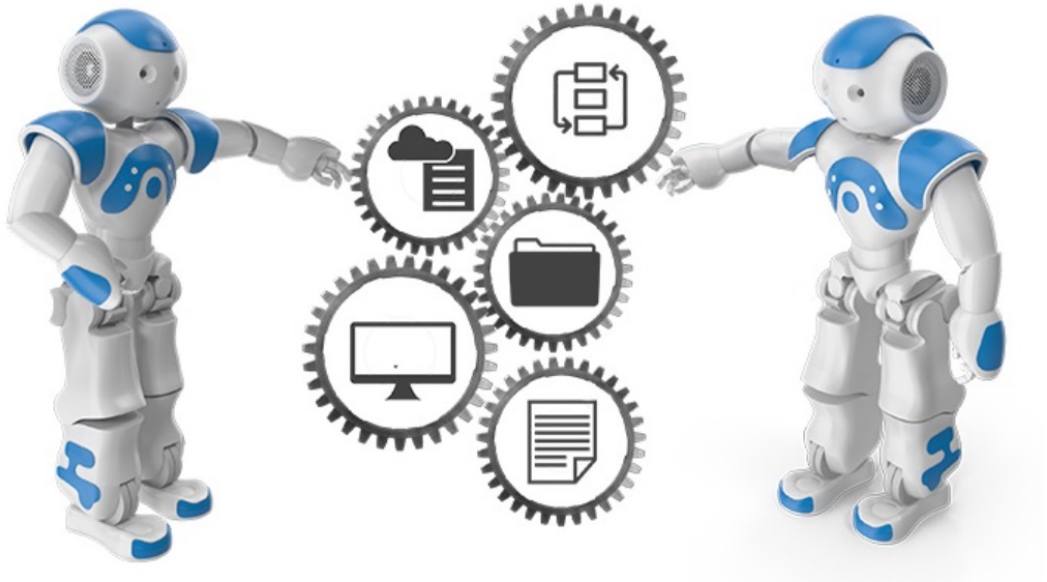
The Scope of Robotic Process Automation



Agenda

- Introduction to RPA
- RPA Trends
- Implementation of RPA with AI and ML
- Benefits of RPA
- RPA Softwares
- Programming Languages to Develop Software Bots
- Scope of RPA in CDISC Submission

What is RPA?

- RPA is all about automating repetitive and mundane tasks to reduce human efforts.

- It is a process that imitates humans to perform a sequence of steps to generate valuable output.

Types of Automation

Basic Process Automation

- Macros/script are implemented to automate repetitive tasks
- Significant IT participation is not required.
- Tasks like data capture or data inference from application interfaces can be automated to improve efficiency

Enhanced Process Automation

- Multiple application / interface process automation
- Scheduling, pattern recognition and document digitization
- Tasks where the processing of unstructured data like emails, quotations, images can be automated

Cognitive Automation

- Decision-making tasks can be automated with cognitive automation.
- Advancements in machine leaning have enabled this kind of automation.
- Data analysis and inference based decisions can be automated

How RPA Differentiates from the Traditional Automation Process?

- The traditional automation process would involve an entire change in the working system. On the other hand, in the case of RPA, bots work on the front-level UI and interact with the systems similar to humans.
- These RPA robots are agnostic which can automate processes for multiple processes.
- Similar to industrial robots that transform the floors, these software robots transform the back office. It replicates employee work such as operating files, inputting data, copy-pasting data, etc in an automated manner.
- They integrate with various systems through integrations and screen scraping which enables RPA tools to perform tasks.

RPA Trends

#1 Advancement in AI and ML

#2 RPA integration with other tools

#3 Elevation of Chatbots

#4 Attended Bots

#5 RPA Implementations

AI and ML

- RPA is a digital workforce of Machine Learning and Artificial Intelligence.
- RPA helps in providing solutions to natural language voice interaction, image recognition and fuzzy logic.
- AI and ML are two cognitive technologies that can increase the ROI of an enterprise.

RPA vs AI and ML

RPA	AI and ML
Robotic process automation (RPA) is a productivity tool that allows a user to configure one or more scripts (which some vendors refer to as “bots”) to activate specific keystrokes in an automated fashion.	Artificial intelligence (AI) applies advanced analysis and logic-based techniques, including machine learning, to interpret events, support and automate decisions, and take actions.
RPA tools perform highly logical tasks that don’t require knowledge or human understanding.	They can intake large quantities of data and, on their own, build algorithms that help determine the right way to perform a task
RPA is appropriate for any type of task that can be easily performed if there are clear conditions associated with carrying it out, such as: “If this is true, do this. If this is false, do that.”	Advanced machine learning algorithms are composed of many technologies (such as deep learning, neural networks and natural language processing), used in unsupervised and supervised learning, that operate guided by lessons from existing information
So if something within a specific task changes—for example, a form field is renamed or a data source changes—the RPA bot will have to be reconfigured to continue to work properly.	Machine learning is a component of AI, so it doesn’t make sense to use the two terms interchangeably. The difference between RPA and machine learning is that RPA lacks any built-in intelligence, while machine learning’s intelligence lies somewhere between RPA and AI.

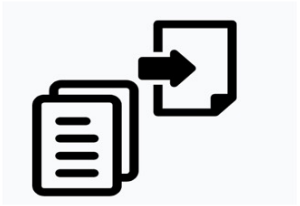
Chat bots

- The Demand of Chatbots and voice enabled processes is increased due to a rise in customer's conversational interface usage.
- The growth of chatbots has enhanced the use of cognitive technologies.
- Chatbots in the customer service segment is expected to be the fastest growing market segment during forecast period 2019-2026 with a CAGR of 31.6%.*

Software Bots – Reduce Human Intervention

LAUNCH APPS

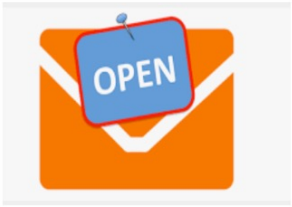
OPEN FILES AND FOLDERS



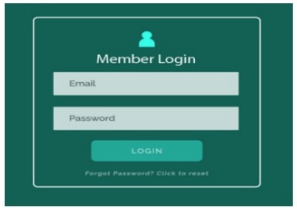
ACCESS DATABASES

INTEGRATE WITH MULTIPLE SYSTEMS

ACCESS EMAILS



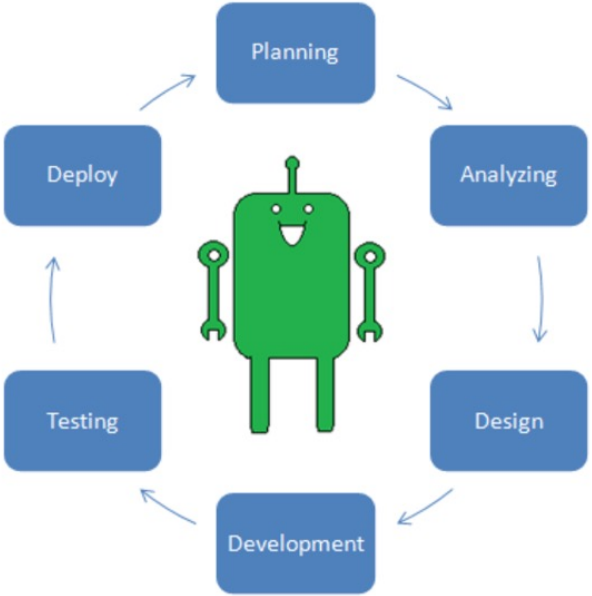
LOGGING INTO APPLICATIONS



DATA WRANGLING

RPA Implementation

- Cognitive Automation using AI/ML
- Bot Development
- Workflow Orchestration and Governance
- Rollout Validation and Planning
- Business Continuity and Scaling

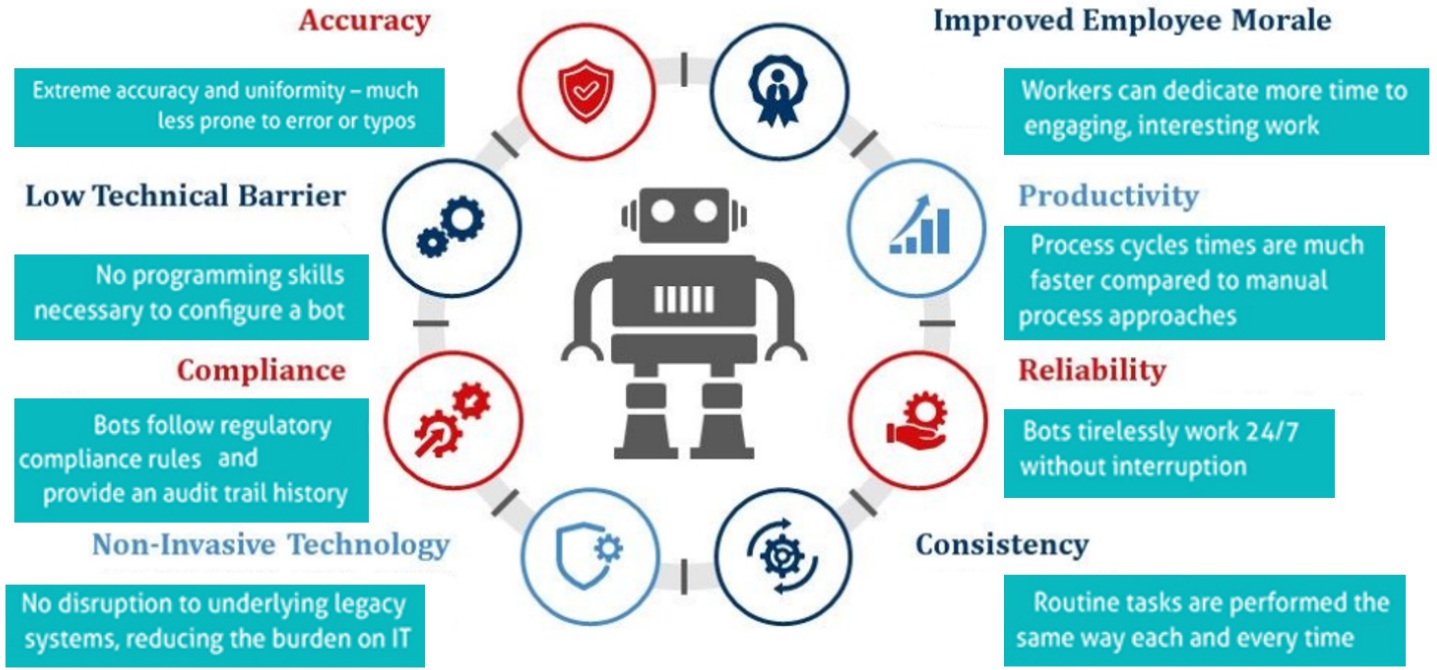


RPA Shifting to Top Gear

- The world is gripped by the Covid-19 pandemic. The global supply chain is experiencing a level of disruption that has never been seen before. Some manufacturers have ceased production completely, some have seen greatly reduced demand and others have seen a huge increase in demand.

- Robotic process automation (RPA) to support non-value add labour intensive activities. The use of mobile technology and augmented / virtual reality to enable workers to perform tasks they were not trained for more easily. This could have assisted with skills shortages due to self-isolation or repurposing of manufacturing.

Benefits of RPA in the pharmaceutical industry



Best Robotic Process Automation (RPA) Softwares

UiPath RPA | Robotic Process Automation

Automation Anywhere - RPA | Robotic Process Automation

ElectroNeek

Blue Prism

Laserfiche

WinAutomation by Softomotive

Automate Robotic Process Automation

AssistEdge

Appian

Intellibot - Robotic Process Automation platform

Pega Platform

Top 7 Programming Languages to Develop AI BOTs

- JAVA
- CLOJURE
- PYTHON
- C++
- PHP
- RUBY
- LISP

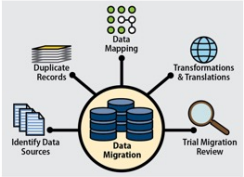
Existing use of Software Bots

MIMIC MEDICAL COMPANION

POST MARKET SURVEILLANCE

DRUG DEVELOPMENT AND APPROVAL

DATA MIGRATION



Scope of RPA in CDISC Submission

SDTM CRF Annotations:

The overall industry is moving towards automation and started maintaining a standard way of data collection using CDASH standards, followed by creating the SDTM annotated CRF by referring to the mapping repository. However, there are only few sponsors which started using other tools such as R-Shiny to fetch the CRF annotations from the mapping repository and others still work with the manual process of performing SDTM annotations.

How will RPA help here?

Software bots can be used as a replacement for the humans in doing the repetitive tasks such as checking standard mapping from the mapping repository document and performing the SDTM Annotations in the blank unique CRF with the prerequisite passing the appropriate inputs such as blank Unique CRF, ALS (Rave DB) which contains forms and fields details and the mapping repository document which contains the Rave.Fieldoid and corresponding SDTM Annotations.

Further, AI Bots can be used to take cognitive actions such as fetching the non-standard mapping from other existing studies or providing proposal for non-standard field.

Scope of RPA in CDISC Submission

SDTM Specification Creation:

Even though CDISC releases the spec template, the study specific updates to the SDTM specs such as updating the source column, value level tab and controlled Terminology tab and origin column with CRF page numbers become a tedious job and needs a keen manual intervention.

Software bots can be implemented to perform these activities to reduce the human errors and help the human performing tasks which needs cognitive thinking. Based on the input the software bots can fetch the information from a study data, example from the ALS document for a RAVE build and SDTM Annotated CRFs to create the SDTM specifications.

Take Away from this Presentation

Software robots (The process called as RPA)--instead of people--do repetitive and lower-value work, like logging into applications and systems, moving files and folders, extracting, copying, and inserting data, filling in forms, and completing routine analyses and reports. RPA+AI can even perform cognitive processes, like interpreting text, engaging in chats and conversations, understanding unstructured data, and applying advanced machine learning models to make complex decisions.

When robots do these types of repetitive, high-volume tasks, humans are freed to focus on the things they do best and enjoy more: innovating, collaborating, creating, and interacting with customers.

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