

Research Article

Robotic Process Automation

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A B S T R A C T

“Robotic Process Automation” RPA emerged as a new technology which mostly focus on or whose main target is for making automation for those things which are repetitive, routine, rule-based human task whose sole purpose is to bring comfort and to give benefits to the association or individual that decide to implement such software solution. RPA is still a relatively innovative expertise available in the market, the scientific literature on this topic is still not fully available in the market yet. Therefore, the aim of this paper is to find out how the academic community defines RPA and to which extent it has been investigated in terms of its use, its market production, and its various uses. Robotic Process Automation is similar to Business Process Mechanization, actually it is an enhanced version of BPA which supports the concept of software system robots or also known as bots and also it supports the concept of artificial intelligence developers. In any type of repetitive tasks, a developer develops inventory actions to automate task and its boundary to the back-end system which exploits various inbuilt application programming boundaries or dedicated scripting language. In other way, we can say that RPA is software robot that copies the actions of human, whereas AI is the simulation of human intelligence by machines.

Keywords: Robots, Automation theory, Robotic laws, Artificial intelligence ,Sensors, Controllers ,Programming

Introduction

Changes in the global economy driven by the development of new know-hows require businesses to become more agile and to quickly respond to the needs, wishes, and demands from their regulars. Moreover, competitive and financial pressures force organizations to be more well-organized, thus constantly seeking for new technologies and methodologies that would help them become more productive, save costs and add value to their business. One of the solutions which is developing as a new knowledge is Robotic Process Automation (RPA) which can replace employees on repetitive tasks and automate them and therefore, allow employees to be tangled in additional multifaceted tasks which can bring organization more value. Conferring to the reports of referring companies.

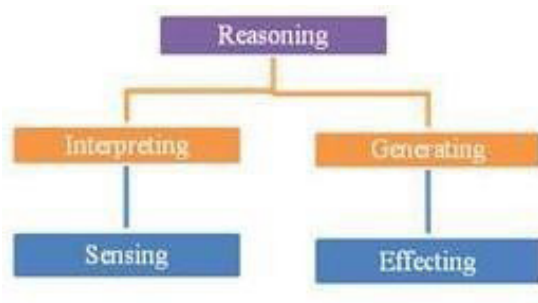
RPA is known as an evolving and unsettling equipment that is already carrying value.^{10,15} Even though there is a quantity of authors broadcasting countless assistances of completing RPA within an organization.^{7,8,16,29,39} bestowing to investigators’ best information, RPA is, at the instant, more often applied in exercise than it is investigated by the researches. Therefore, it very important to discuss modifications, resemblances, and complementarities among RPA and other similar technologies and tactics, one of which is Business Process Management (BPM).

For example, there is a commendation for examining the amalgamation of BPMS and RPA. Moreover, inspecting the state of the BPM market, Harmon indicated that 30% of the graphed consultants would like to add some kind of RPA capabilities to their process exhibiting suite. Therefore,

directing to properly learn RPA, to assess its importance within the research communal and to inspect its link to BPM, a Systematic/ methodical Literature Review (SLR) has been conducted. In that logic, this paper reports on three questions which has been discussed in this research paper which are related to the condition and evolvement of the RPA research, its definition, meaning and real-world usage, which are talked in more detail later in this paper. Moreover, the purpose of this paper is to provide an understanding of the differences between RPA and BPMS. The three questions that has been discussed in this paper later on ,with the purpose of meeting this goal and to answer the research questions, the paper is divided as follows. After this introduction, a brief introduction on RPA is given, in the second part of the paper, explaining RPA in theory and practice and its relation to BPM.

Methodology

An engineering process related to manufacturing is basically a stochastic process. A machinist uses his physical power with the help of his/her body parts like arms, hands, senses, brains etc. to perform various actions like grasping, holding, orienting, inserting, aligning, fitting, screwing and turning of work pieces of various shapes and sizes and this all happens in case of large batch production where the accuracy obligatory is too high. In small and medium batch manufacture, programmable automation is adopted.



Bots are significant aids in programmable robotics. For correctness a robot has to relate with the atmosphere around it in a way comparable to man. Hence, a robot should be smart if it has to match human abilities. An intellectual robot has lasted arm and end-effectors, has senses/ feelers and adaptive control functions which is done with the help of a computer. Adaptive control is essential to precise the faults or blunders in situation and orientations of the work pieces and the end-effectors. An intelligent robot must govern cause and effect phenomena. So it must find out the defects and make them less effective. The intellectual procedures such as brain operations and its functions are completed by a computer. Identifying and carrying out those operations and functions are the body functions that can be accomplished using the elementary laws and axioms of computer science. In order to finish a task, both the brain

and the body function are to be synchronized. So a smart robot must have artificial intelligence that will distinguish the robot from another machine.

Sensing embraces sightness, listening, feeling, tasteness and measuring. The sensors collect and generate information. They have little capability to reason about it. Implementation can be done by actions. The action can be accomplished by exploiters using body, arm, wrist, hands, fingers, legs, wheeled vehicles (mobile robot) and with various means of communications. The mechanisms of interpreting, generating and reasoning are necessary to obtain knowledge about the environment. These apparatuses in fact, recognize, locate and assemble the objects and may direct the changes in the environments.

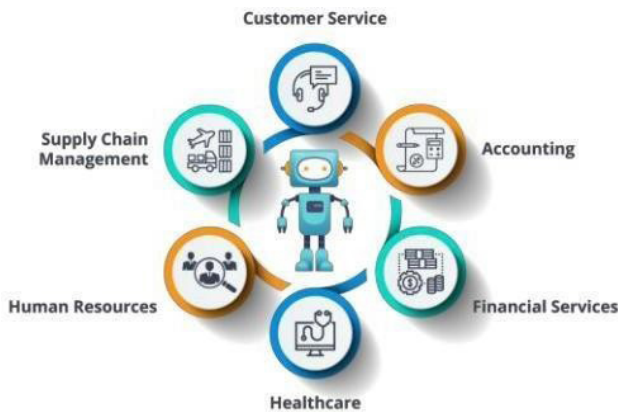
Advantages

Robotic process automation software program system and facilities are ready to run applications in the manner a person's machinist would. Supported rules, the work flow operate automatically complicated responsibilities. RPA brings a full form of advantages like:

- Continuing service: once it involves running real 24/7 service, software package robots appear as obvious what they are doing, no need to take breaks while doing tasks.
- Scalability: The processes fixed for one software robot are often enlarge to any number of other robots and conversely, robots are often decommissioned of a process to work on another one.
- Truthfulness: Once assigned tasks, robots are nominated to deliberately complete the instructions without error.
- Time: Whereas it consumes a lot of years to set up conventional projects with humans, and for the same robot takes a couple of days.
- Improved Productivity- The miracle of Robotic process automation is that it's planned to enhance human employees of their recurring daily tasks. When these task and workflows are handled by technology, the method runs massively faster and then works more effectively and efficiently.
- Greater Productivity-When expertise does the heavy traffic, like with Robotic Process Automation, output will be increased. In additional, knowledge employees are going to deliver the use of their skills and capability to further necessary projects that drive revolution and evolution.
- Elimination of human errors- Even the foremost careful human worker can make an occasional mistake. Unfortunately, typically these errors can prove to be incredibly costly. With robotic procedure automation know-how, this risk is removed, resulting in larger accuracy.

- Cost saving- While executing robotic process automation it does require an open venture, the overall propagation in efficiency and output as well as decrease in human mistakes quite defend the expense.

Existing RPA Tasks



RPA at Workplace

RPA is often accepted in business, this is actually because they have some issues present in their inherited system, which is related to either area unit, losing out time and money. If we try to understand this by an example, if suppose a business doesn't have sufficient or inefficient manual methodology for the fulfillment of the commercial document. This method was long and not easy because, the manual fulfillment of document was more prone to errors and even human still have to compel the question manually.

RPA at Investment Sector

How about we look the more sensibly at the investment industry. RPA systems will successfully accomplish quite a lot of tasks related to loan initiation and account managing.

Nevertheless, RPA naturally can't regulate if the person making the investigation is actual person or not. By scrutinizing amorphous data (e.g. say, reviewing a scanned passport image and matching it against a customer's account record), machine learning is then able to establish a linking between doing and thinking in an automated environment.

In HR and Business Support

It's imminent the use of artificial intelligence and forward-thinking analytics are clearly obvious and reached the most advanced stage in industrial settings, whereas in support functions like unit of time, it's probable to be even as innovative however the acceptance has been a bit slower. For example, in HR, process of familiarizing a new employee with the organization or the onboarding process and to put them off to work after hiring usually takes approx. one month, conferring to latest research by Career- Builder. The numerous measures taking up references, authenticating individualities, carrying out health and safety assessments

and guaranteeing hires have an tolerances of company practices, policies and culture requires a complex set of actions and toolsets which are not easy to automate.

Conclusion

Robotic Process Automation (RPA) provides advanced software system robots taking the place humans every time complicated processes or routine tasks will be machine-controlled. That being said, how will artificial intelligence and connected technologies empower it? As we have a tendency to enter the digital alteration era, our productions are coverage that their mission forces are operational regarding eightieth of their IT processes manually, lowering their performance and motivation. At a similar time, they estimate that at least of five hundredth of those errands may be programmed. RPA uses software program package and procedures that are skilled of taking benefit of the most current technologies along with artificial intelligence, machine learning, voice recognition, and linguistic communication process to necessitate computerization to upcoming level. That creates it a necessity for companies and establishment of all industries that wish to carry their business right along the digital transformation journey.

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