Automation of Vendor Skill Management Using Uipath

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Abstract: With the rise of technology and robots, involvement of humans in the technology and other processes are slowly diminishing. Instead humans are being replaced by robots. This process is termed to be Automation. In general system, people are being recruited to do repetitive tasks in an organisation like, gathering data, sorting the data as per the needs of the organisation, short-listing the candidates, sending number of mails to various organisations and individuals etc. So, to perform these repetitive tasks the cost incurred by the organisation is also very high.

This project aims to minimise the performance over-heads, cost incurred by the organisation and increase the efficiency of the organisation with the help of software robots that can be configured to perform the repetitive tasks like sending mails to organisations and individuals, merging the huge amounts of data received via mails, generating faster responses etc. This process of deploying robots into repetitive human tasks is known as Robotic Process Automation (RPA) which handles repeatable tasks with artificial intelligence and machine learning.

UiPath is the tool used here for automating the business processes. With the help of this tool many of the repetitive tasks of the organisations can be automated. Thus, helping the human strength to be involved in some other processes for better use.

Keywords: IT automation, UIPATH, Robotics, Vendor skill management.

I. INTRODUCTION

IT automation is the utilization of guidelines to make a rehashed procedure that replaces an IT expert's manual work in server farms and cloud deployments. Software tools, systems and apparatuses direct the errands with least overseer intercession.

The extent of IT automation ranges from single activities to discrete successions and, eventually, to a self-governing IT arrangement that takes activities in light of client conduct and other occasion triggers.

IT automation is unique in relation to coordination, yet usually, the terms are utilized together. Automation achieves an undertaking over and over without human mediation. Arrangement is a more extensive idea wherein the client organizes mechanized assignments into a durable procedure or work process for IT and the business. For instance, an IT overseer empowers remaining task at hand scaling with mechanized occurrence creation, working framework (OS) introduces and capacity provisioning. They arrange the automation undertakings in a work process with a particular request of activities for each errand. Arrangement can likewise incorporate consents and jobs authorization, endorsement doors and the sky is the limit from there. IT automation depends on software tools to characterize and direct a recommended arrangement of point by point activities that are conjured physically or by an outside trigger, for example, an adjustment in IT limit request.

IT automation replaces a progression of activities and reactions between a chairman and the IT condition. For instance, an IT automation stage, for example, Microsoft Windows PowerShell, joins cmdlets, factors and different segments into a content to emulate the arrangement of directions and steps that an overseer would conjure one line at any given moment through the order line interface (CLI) to arrangement a virtual machine (VM) or actualize a reinforcement procedure. A more mind boggling IT automation result can be accomplished by consolidating various contents into an arrangement. These constrained extension automation forms are most useful when they supplant an errand that a head needs to perform as often as possible. Administrators don't spare much, assuming any, time via computerizing a repetition activity made once every month. Robotizing a repetition activity that happens different times each day, nonetheless, altogether builds a chairman's the ideal opportunity for different undertakings that require basic leadership and appraisal aptitudes.

Undertaking class IT framework automation tools trigger activities in light of limits and other situational conditions in the IT condition. Propelled IT automation tools regulate the design of frameworks, software and other foundation parts; perceive unapproved or surprising changes; and naturally take remedial

activities. For instance, if an outstanding task at hand quits reacting, this triggers the computerized ventures to restart it on an alternate server that has accessible ability to run it. When IT automation is set to authorize a coveted condition of setups, the instrument will identify changes in a server's arrangement that are out of spec and reestablish it to the right settings.

II. RELATED WORK

The related work on the web scratching strategies includes in this paper the different viewpoints, for example, unique web scratching semantic levels and the nostalgic methodology has been incorporated. This paper gives the examination on human feeling mining where screen scratching assumes the significant job. The most widely recognized accessible tools and systems are been utilized by numerous clients which are free and simple to utilize. Utilizations the calculation to clarify UIPath utilizing Tree alter separate coordinating calculation. The issue of figuring the tree alter remove between trees is a variety of the exemplary string alter separate issue for extricating information. The creators of have an investigation on the strategies of web content mining and relate web scratching tools that are accessible. As these paper comprises numerous themes under information mining which gives the unmistakable thought on the diverse accessible systems under information mining and we can contrast this and web scratching. The creator of in this paper the creator has ascertained the aggregate assessed estimation of web scrubbers in enterprises which has an overview as 68% is utilized for web based business and web-based social networking, rest of which is advanced news distributing and online indexes. As the expansion being used of web increasingly and of the clients tend to utilize long range informal communication destinations .The papers, has embraced the web scratching strategies in the web promoting field which likewise clarifies the communitarian separating methods for web scratching with favored usage advertisements. As the scratching has an utilization in adverting field this has turned out to be imperative in learning different strategies.

III. ROBOTIC PROCESS AUTOMATION

Robotic process automation (RPA) is the use of software with artificial intelligence (AI) and machine learning capabilities to handle high-volume, repeatable tasks that previously required humans to perform. These tasks can include queries, calculations and maintenance of records and transactions.

RPA technology, sometimes called a software robot or bot, mimics a human worker, logging into applications, entering data, calculating and completing tasks, and logging out.

RPA software isn't part of an organization's IT infrastructure. Instead, it sits on top of it, enabling a company to implement the technology quickly and efficiently -- all without changing the existing infrastructure and systems.

THE EVOLUTION OF RPA

Although the term "robotic process automation" can be traced to the early 2000s, it had been developing for a number of years previously.

RPA evolved from three key technologies: screen scraping, workflow automation and artificial intelligence.

Screen Scraping is the process of collecting screen display data from a legacy application so that the data can be displayed by a more modern user interface. The advantages of **workflow automation** software, which eliminates the need for manual data entry and increases order fulfillment rates, include increased speed, efficiency and accuracy. Lastly, **artificial intelligence** involves the ability of computer systems to perform tasks that normally require human intervention and intelligence.

APPLICATIONS OF RPA

Some of the top applications of RPA include:

- **Customer service:** RPA can help companies offer better customer service by automating contact center tasks, including verifying e-signatures, uploading scanned documents and verifying information for automatic approvals or rejections.
- **Accounting:** Organizations can use RPA for general accounting, operational accounting, transactional reporting and budgeting.
- **Financial services:** Companies in the financial services industry can use RPA for foreign exchange payments, automating account openings and closings, managing audit requests and processing insurance claims.
- **Healthcare:** Medical organizations can use RPA for handling patient records, claims, customer support, account management, billing, reporting and analytics.
- **Human resources:** RPA can automate HR tasks, including on boarding and off boarding, updating employee information and timesheet submission processes.
- **Supply chain management:** RPA can be used for procurement, automating order processing and payments, monitoring inventory levels and tracking shipments.

IV. UIPATH

Robotic Process Automation is one of the most in demand fields in the IT industry today. Companies are always looking for solutions to automate their small processes so that the human strength involved in those processes can be put to better use someplace else. This demand for RPA has led to the development of a number of tools that are both licensed and open source. Many such tools are now available on the market. Some of the popular RPA tools are:

- Automation Anywhere
- Blue Prism
- UiPath
- OpenSpan
- WorkFusion

For this work, UiPath has been selected as it offers a lot of flexibility and is easy to use.

UiPATH

UiPath is an enterprise computing platform dedicated to automating business processes. It provides process modelling, change management, deployment management, access control, remote execution and scheduling, execution monitoring, auditing, and analytics in full compliance with the enterprise security and governance best practices.

UiPath offers a variety of modules for automating a number of processes:

- UiPath Studio

UiPath Studio is the highly visual productivity environment where business users can model end-to-end business processes into a process diagram with simple drag-and-drop functionality. Advanced error checking and history visibility ensure flawless execution and detailed project monitoring.

- UiPath Orchestrator

UiPath Orchestrator is a scalable RPA server, fully integrated and equipped with centralized instrumentality for enterprise class management, security, compliance, support, and auditability. Our Orchestrator records everything the robots do through log files and transforms them into advanced analytics.

- UiPath Front Office Robots

UiPath Front Office Robot is the agent-assisted robot that shares the same workstation with human employees and assists them to automatically execute business activities.

- UiPath Back Office Robots

UiPath Back Office Robot is the autonomous software robot programmed to run unattended, independent from human interaction.

Types of UiPath Automation
Desktop Automation

If you just copy a few fields from an application and paste them into another application, import sales data from an Excel spreadsheet and fill out an online form, it is already time-consuming, tedious, and error-prone. It is time to automate this process. The question is not if rule-based tasks should be automated, but what does it take to automate them?

An Excel macro is a good start, but how can you fill data into another application? Even a simple macro requires programming knowledge, and you do not want to involve your IT department in simple tasks. Many businesses and IT processes are affected by repetitive, rule-based tasks that involve manipulation of the software of various applications.

UiPath Desktop introduces a visual, declarative way of describing how to automate a process, and you can use it in the same way you use a Visio diagram. When working with the presentation layer of other apps, you simply indicate on the screen what operation you need to perform. UiPath understands the UI at the logical control level and does not rely on the position of elements on screen. This makes automation much more reliable and independent of screen-size and resolution.

V. UIPATH STUDIO

UiPath Studio is a complete solution for application integration, and automating third-party applications, administrative IT tasks and business IT processes. One of the most important notions in Studio is the automation project.

A project is a graphical representation of a business process. It enables you to automate rule-based processes, by giving you full control of the execution order and the relationship between a custom set of steps, also known as activities in UiPath Studio. Each activity consists of a small action, such as clicking a button, reading a file or writing to a log panel.

The main types of supported projects are:
- **Sequences** - suitable to linear processes, enabling you to smoothly go from one activity to another, without cluttering your project.
- **Flowcharts** - suitable to a more complex business logic, enabling you to integrate decisions and connect activities in a more diverse manner, through multiple branching logic operators.
- **State Machines** – suitable for very large projects; they use a finite number of states in their execution which are triggered by a condition (transition) or activity.

VI. UIPATH ROBOT

The Robot is UiPath's execution agent that enables you to run workflows built in Studio. A Robot is installed as a Windows Service by default. As a result, the Robot can open Windows sessions (interactive or non-interactive), under the Local System account, and has all the rights of a Windows service.

Robots can also be installed in a user mode. For your Robot, this means that it has the exact same rights as the user under which it has been installed. egardless of the mode in which you installed the Robot, it can still be connected to Orchestrator.

The Robot is split into four components, each being dedicated to a particular task in your automations. The Robot components are:
- **Service** (UiPath.Service.Host.exe):
- Manages and monitors Windows sessions and acts as a proxy between Orchestrator and the execution hosts.
- Trusted with and manages the credentials for Robots.
- **Executor** (UiPath.Executor.exe):
- Runs the given jobs under a Windows session (executes workflows).
- Is aware of per-monitor DPI settings.
- **Agent** (UiPath.Agent.exe, Robot Tray):
- A WPF application which displays the available jobs in the system tray window.
- Is a client of **Service**.
- Can request to start or stop jobs and change settings.
- **Command Line** (UiRobot.exe, Command line):
- Is a client of **Service**.
- A console application that can request to start jobs and waits for their output.

Types of Robots
1. **Attended** - operates on the same workstation as a human, to help the user accomplish daily tasks. It is usually triggered by user events. You cannot start a process from Orchestrator on this type of Robots, and they cannot run under a locked screen. They can be started only from the Robot tray.
2. **Unattended** - run unattended in virtual environments and can automate any number of processes. On top of the Attended Robot capabilities, this Robot is responsible for remote execution, monitoring, scheduling and providing support for work queues.
3. **NonProduction** - retains all the features of the Unattended Robot, but it should be used **only** for development and testing purposes.
4. **Development** - has the features of an Unattended Robot, but it should be used only to connect your Studio to Orchestrator, for development purposes.

Connecting a Robot to Orchestrator offers the following benefits:
1. a centralized location from which to deploy automation projects to Robots
2. an easier and centralized point for the management and monitoring of multiple Robots
3. the scheduled execution of automation processes on Robots
4. the management of queues and transactions
5. centralized Robot logging to SQL and/or Elastic Search

VII. VENDOR SKILL MANAGEMENT
Vendor Definition

In a supply chain, a vendor, or a seller, is an enterprise that contributes goods or services. Generally, a supply chain vendor manufactures inventory/stock items and sells them to next link in the chain. Today, these items refer to a supplier of any goods or service.

Effective vendor management

Effective and efficient vendor management should be your priority if you want to remain competitive in the marketplace. Vendor management enables you to drive service excellence, mitigate risks, gain value from your vendors and manage costs throughout the partnership cycle.

Below are five best practices that can help you improve your vendor management strategy.

Align Vendor Management Framework to Business Objectives

A vendor comes in to support your company goals and objectives. To ensure efficiency, you need to pick a model that supports your organizational goals and strategy. As stated above, a wrong partnership will ruin your organization instead of building it.

Start by creating an internal vendor management team that will be dedicated to handling vendors from the onset.

A committed team will focus on procuring the most appropriate vendors and maintaining mutually beneficial relationships. Vendor management is different from other organizational aspects like employee management where typically the Human Resources department would source and hire, but the department heads will manage them.

The size of your vendor management team will depend on the number of outsourced vendors and their contribution to the company. Your goal here is to position your office as a strategic function that facilitates the long-term health of key vendors.

Classify Existing Suppliers

Unless you are a start-up company, you already have some vendors. Look at that list again and classify them based on the products or services they provide and the level of impact it has on the company. Regarding goods and services, a vendor can provide hardware, software, system integrators, telecommunications or services. Their influence can be tactical or strategic.

Proper classification helps in resource allocation because not all vendors are equal. For example, a vendor providing hardware is different from the one providing a service. To determine further the distribution portions, consider whether the partnership will be short-term or long-term.

Your aim is to invest more on the strategic vendors whose role has the highest impact on the organization goals and objectives. However, do not neglect the tactical vendors.

Establish a Vendor Management Structure

Your framework is in alignment with the overall corporate goals and your suppliers classified, next you need to focus on the governance and reporting lines to achieve the set objectives. A management structure covers the following steps:

- Vendor selection process needs and requirements.
- Having the right people with functional capabilities and skills to oversee the vendor relationships effectively, while working closely with other business units.
- Documented decision-making roles and responsibilities to avoid conflict and duplication.
- Clear accountability for top-priority vendor management functions.
- Performance management processes and incentives to instill confidence among the employees.

This structure will ensure your team works seamlessly and increase your resource management effectiveness, including cost containment.

Define the Relationship

A vendor is your business partner and will potentially be privy to confidential organizational information. The amount of information shared between the two parties will vary depending on the nature of the services or products they provide, and the length of the contract.

You need to safeguard yourself and the vendor by defining the partnership parameters. Determine what to share at what point of the partnership, agree on individual responsibilities for the overall success of the relationship and contract termination circumstances.

Your aim should be to protect yourself from any misunderstanding and risks that may emerge if the partnership collapses. You would also be well advised to also execute standard Non-Disclosure Agreements.

Monitor and Measure Vendor Performance

Monitoring and measuring are a common practice in all organizations, and you may have some experience in what it entails. However, in vendor management, you will use project management skills more than any other skills. In addition to the paperwork, you have to monitor the overall benefit of the relationship to the company.

Consistent monitoring and measuring of vendor performance will enable you to quickly notice when something goes right or wrong. Given the impact of a vendor to the organization, their performance has to remain top notch. Hold performance review meetings to discuss the progress of the partnership.

Effective and efficient vendor management is crucial for the success of your business and should be a top priority. Having a good team in place will establish a mutually beneficial relationship that can be your competitive edge.

VIII.   PROPOSED METHODOLOGY

Let us consider a primary company with many number of vendor companies available and associated with it. Here the primary company needs some employees or associates to complete the project with a particular skill set and a set of experience if any (depends on the company requirements and terms, it might vary) and sends a mail to the available vendor companies about the requirements and the deadline time and date.

Now the vendor companies got a mail from the primary company which is in need of the associates to complete the project with their requirements attached in the mail. The managers from these companies will mail their primary company that they have received a mail and will work on it by sending the associates from their companies matching the skill set and experience asked or as mentioned in the mail.

Here, the response should be fast. Response here mean the time taken to read the mail and reply them that they have seen it and sending the required details of the associates in a particular time which the actual primary company has mentioned in the mail.

Now, in the vendor company there are many associates matching the experience mentioned or the skills mentioned or sometimes both. Filtering these among hundreds and thousands may take time, so here the Robotic Process Automation can be used to make the work easy. The list which is on the excel sheet is automated using the process named **EXCEL AUTOMATION.**

After the automation process is performed there is a final list obtained from it matching the skill set and experience of the requirements mentioned by the company.

This final list is sent via mail to the primary company. The mails are automated using **EMAIL**

AUTOMATION, so that the mail can be sent on a particular time without the intervention of a human process. The respective managers need to filter the large number of data and send it to the respective mails using the **automation** methods.

From the Primary Company View:

Now, this particular company with the requirement will be getting many number of mails stating from 1 to 100 or even more depending on the vendor companies for that particular company. Here the lists will be accepted only before or on the final date mentioned.

To filter all the lists will be a difficult task which consumes time. So the lists which are obtained are to be made into a single list. Again there is a need of automation o be performed. So, using the **EXCEL AUTOMATION** the lists are sorted in an order and merged into a single list dividing it into categories of matching the required skills and required experience (equal to the number required or more than that is considered).

And the associates whose requirements are matched will be considered and will be sent a further mail for the interview process. And they are selected based on the interview.

The selected candidates are sent a mail about their selection and the rejected candidates are sent a mail too. These mails are automated for the selected and rejected associates. The vendor companies are even sent an automated mail about the associates who are selected with their names and other details respectively.

Now, the maximum number of associates selected from the list are in to be a priority-1 and follows which in future is an advantage for the vendor companies that they will be considered first for the associates exchange basing on their skills.

From the Vendor Company View:

From a vendor company's point of view, the respective manager receives a mail about the need or requirement with some qualification, job role, and experience (if mentioned). The mails sometimes might be received from many companies on a whole as there might be on or many organisations connected to each other

internally. So, filtering the large number of data based on the requirements is a lengthy process. It involves more time (time consuming process). So, with automation, the large amount of data (in any format, for e.g., excel format) is linked with UiPath and the automation processes are performed on the data and is filtered using various filter methods based on the requirement and then the filtered data is automatically sent to the respective mails based on their requirements.

With this automation process, work is made easy, the actual process time is shortened and the process can be done error free.

By establishing this project methods i.e., automation methods in vendor management there are few advantages like:

1. Associates are provided with good opportunities.
2. The companies which take time to search details of employees won't find difficulty in producing their details to the respective recruitment.
3. As mails are automated the details of the associates and the details of rejection and acceptance can be done fast, resulting in faster outputs and faster work.
4. The actual process might take time, because of this automation the work is done faster and it takes comparatively lesser time when compared to the manual processes involved.
5. Robots never make a mistake.

These are few advantages of automation:

1. Increased throughput or productivity.
2. Improved quality or increased predictability of quality.
3. Improved robustness (consistency), of processes or product.
4. Increased consistency of output.
5. Reduced direct human labour costs and expenses.
6. Installation in operations reduces cycle time.

Benefits of Vendor Skill Management Automation

- Avoids delays in finding the employee data
- Reduces communication delays between the organizations
- Faster response and faster working time
- Reduced overhead and increased work efficiency

IX. CONCLUSION

To summarize. RPA (Robotic Process Automation) is the automation of repeatable and rule based tasks by the use of non-invasive software called BOT which can mimic actions performed by human users on computers to complete various business processes. Instead of working on repeatable jobs, people can get re-skilled in RPA technologies. This challenge is in fact an opportunity in disguise for people with knowledge of processes and domain.

Finally, vendor skills management is automated using UiPath tool by deploying virtual robots into the regular tasks which are performed in an organisation. By automating there is much lesser time consumed when compared to a manual process which is performed by a human being. Let us consider, a regular process takes a time of around 20 minutes to perform and to obtain an output or the result, involves one or more than a human to perform operations on it and to cross check before proceeding for the final result.

By automating this whole 20 minutes of process (e.g.,) just by deploying artificial robots in the process by linking the necessary data to the tool used for automating i.e., UiPath. The task is performed within 2 minutes or even lesser, sometimes the result can be obtained within seconds itself.

This makes the human work easier and even error free. There is no need of one or more than one human working for the regular process in an organisation. Instead this time can be utilised by them in putting up some creative work or any other. There are few pros in introducing automation in the regular processes etc. They are as follows:

- Saves a lot of time as mentioned above
- The time which is saved can be utilised for some other work
- Requires less human intervention
- Robots work as we schedule them to automate
- Low cost, more reliable, error free

Here, vendors process automation not only includes employee exchange or related to employees. They even include goods, services, customer related support etc.

Future scope:

As per many market researches, the RPA market is poised to reach USD 2,467 million by the year 2022. This research is done by Markets and Markets research private limited. There are various research and consulting firms forecasting about the global RPA market which may vary as per the respective research methodologies adopted.

But one point which is clear that RPA is one among the latest technologies with great year-on-year growth opportunities. Application areas of RPA are Finance, Accounting, Supply chain management, Healthcare, Customer service, IT support and any other operational areas with repeatable rule based tasks and processes.

Hence, Indian IT services and product companies are embracing RPA with open arms and coming up with innovative RPA solutions in various verticals for their respective customers and helping them in optimizing their operations and achieving cost savings.

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