ROBOTIC PROCESS AUTOMATION OF OPERATIONS IN AN ORGANIZATION USING UiPATH

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ABSTRACT
The importance of automation in the Information Technology (IT) has increased dramatically in recent years. It ensures data-driven event automation resulting in continuous operations with zero downtime and allows forecasting based on data collected or probable scenarios. It enables better management of resources, increasing productivity and alignment of IT with business goals. In the mainframe computing environment, the variety of software needed to perform essential functions has always posed a challenging operations management problem. Initial solutions relied on numerous human operators, whose salaries became a significant portion of the IT budget.
Operations became a monster that had to be fed constantly. Whole administrative structures were created to support it. This bureaucracy, and the nature of people, led to a system that was prone to errors resulting in more expense and complexity. The situation was out of control and something had to be done. The answer turned out to be using the computer to control and manage itself. To address this need, this study focuses on exploring and innovatinga Robotic Process Automation (RPA) integration solution to Operational Process for the case company. Our company aims to offer these faster RPA process deployments to enjoy the benefits of this kind of process automation solution. This thesis aims to innovate and improve the use of the Robotic Process Automation in the manual routine task procedure. Business practice shows that the costs of high volume manual tasks are enormous for companies, even though these processes could be automated with software robotics.
Keywords -Automation, Robotic Process Automation, UiPath, Operations Automation

1. INTRODUCTION

In a world dominated by connected devices and applications, there is increasing pressure on IT to deliver services that match the needs of users. The scenario in most enterprises is that IT departments and budgets have not been able to keep pace with the technology they service. However, IT is stuck being tactical as it continues to use tools that require much manual intervention and effort. For IT to be the differentiator, it is strategic to automate IT operations due to the flexibility it brings into IT operations. Several technological changes and the evolving business world have made IT operations automation inevitable. IT automation is different from orchestration, but commonly, the terms are used together. Automation accomplishes a task repeatedly without human intervention. Orchestration is a broader concept wherein the user coordinates automated tasks into a cohesive process or workflow for IT and the business. 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.

1.1 Challenges of the Modern IT Function

Today's IT functions experience multiple, often conflicting, pressures and demands (see Figure 1). Business pressures are now intense. The high profile area is business-IT alignment. This is very difficult to achieve, with dynamic business contexts leading to constantly changing requirements. IT functions are now judged increasingly on business metrics in terms of quality, responsiveness, business value, end-customer service and satisfaction, cost efficiency, fit with business need, and time to market. IT functions are also judged by increasingly knowledgeable, IT literate and demanding users at 'coal-face' operational levels.

Behind the scenes, IT functions are devoting anything between 30-70% of their effort and cost on maintaining existing legacy systems. Failure here, and the knock-on effects to internal users and external customers, can become high profile very quickly. Keeping the technology platform, architecture and infrastructure operational, streamlined, secure, and resilient for the long term, while not detracting from business performance is a major undertaking now that IT is the engine room of the modern, digitizing organization. Deploying external service providers both onshore and offshore has been seen as one way of relieving the pressure on delivery. But our studies over the years show that outsourcing needs strategic direction, distinctive in-house capabilities, and constant management attention. The threat of further outsourcing may sharpen internal performance, but also creates further pressures on, and attention issues for, IT executives.

Above all, in terms of expertise, advice and decision-making, the CIO and IT function form an organization's central capability on information and communications technologies. IT executives are expected to proactively innovate for business value through ICT development, implementation and deployment. Their key role is to navigate existing and emerging technologies, in order to lead/guide the business in piloting, adoption, sourcing, and usage decisions. In itself, navigating through the techno-hype, the capability becoming available, the IT that is merely useful and may be an expensive distraction, through to what will be of real strategic value is, today, an immense challenge. Social media, business analytics, mobile, and cloud as-a-service (SMAC) technologies and applications, as well as software packages, are proliferating at an accelerating rate [1].

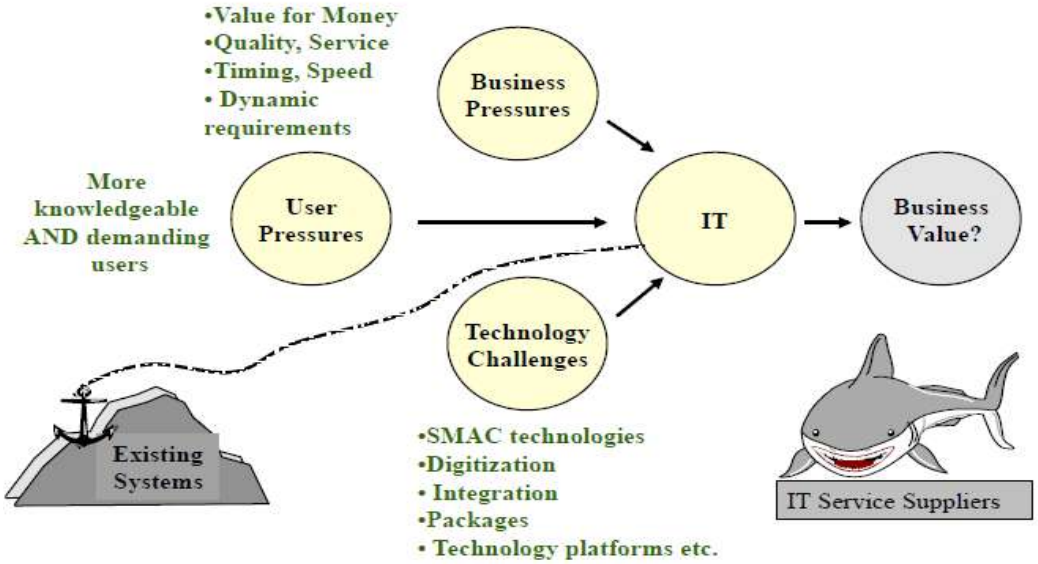


Figure 1 : Challenges of Modern IT functions

1.2 Pros and cons of RPA for user organizations

Advocates of RPA frequently present it as a replacement for outsourcing. A company is typically looking to outsource routine, non-core tasks requiring a lot of FTEs (full-time equivalent), such as invoice processing, bookkeeping or data entry, to low-cost destinations such as India. While outsourcing helps to reduce staff costs and concentrate on core operations, there are some challenges to outsourcing such as hidden cost of management, communication problems and overwhelmingly complex service level agreements. The promise of RPA is not only to reduce costs even further (robots can work around the clock with no salary), but also to eliminate the problems with management and miscommunication.

RPA does not require changing the existing IT systems, as robots mimic human behavior. Thus, robots can operate fully within the user interface (UI), leaving IT systems unchanged. This is a substantial advantage compared with automation achieved through back-end integration, which frequently requires a significant redesign of the existing systems.Another potential benefit of RPA compared with offshore outsourcing could be avoiding the backlash related to sending jobs abroad.

RPA providers claim that people employed on routine tasks can be moved to more productive jobs. In the long run, robotic automation itself could create jobs in robot management, consulting and sophisticated data analytics.

However, there are some downsides to RPA as well. First, while front-end integration brings flexibility and speed at which it can be implemented, it is still inferior to back-end integration designed for machine-to-machine communication. In the current state, RPA represents a temporary solution, which fills the gap between manual processes based on legacy IT systems and redesigned processes running on fully automated systems.Second, in spite of the disadvantages associated with outsourcing, the practice of outsourcing has a proven track record, backed up with a variety of business cases and decades of experience.

RPA, on the other hand, while highly promising, lacks similar credentials. Therefore, potential clients of RPA need a persuasive business case to overcome caution.A third source of skepticism is the impact of RPA on current employees. While the RPA post-implementation feedback has been mostly positive and no significant job losses have been observed because of RPA, employees may still see robots as their direct competitors for a job. This may create tensions between management and employees, even have a destructive impact on employee morale. Therefore, any introduction and deployment of RPA has to be handled delicately and communicated properly.And finally, currently RPA is suitable only for a particular type of processes that include only clearly defined, rule-based tasks, devoid of subjective human judgment. Next we will explore the suitability of a task for RPA [2].

1.3 Task suitability for RPA

To assess the suitability of any given task to RPA, one should evaluate whether the task is routine or non-routine and Turning RPA into commercial success whether it requires the use of manual or cognitive affordances (see Figure 2). Highly cognitive tasks requiring creative thinking, as well as non-routine tasks with no or little recurring patterns and high variability, are a bad fit for automation. The rule of thumb for task suitability for automation is to determine whether one can precisely write down all the steps of the process, taking into account all possible events and outcomes along the way. While the advancements in Artificial Intelligence enabled automation of some no routine tasks, the general principle remains same.

To determine whether a task is suitable for RPA, more factors need to be taken into consideration. Beyond the manual and routine nature of a task described previously, a company willing to take on RPA needs to consider whether it is viable to replace humans with software robots for particular tasks and what would be the long-term implications of such decisions. These criteria also inform strategic decisions of RPA providers concerning commercialization and marketing of the technology.

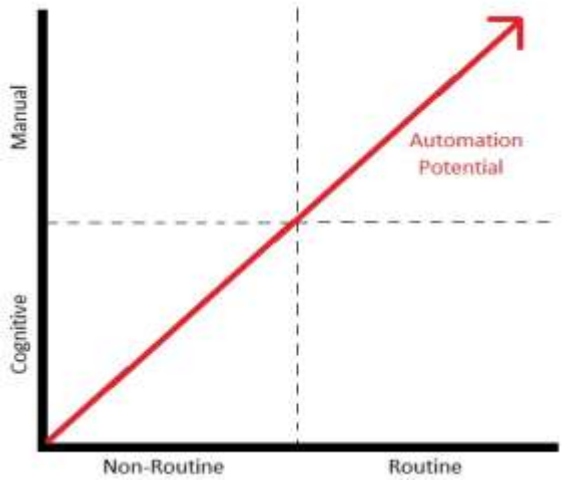


Figure 2 : Guide to automation potential of the task.

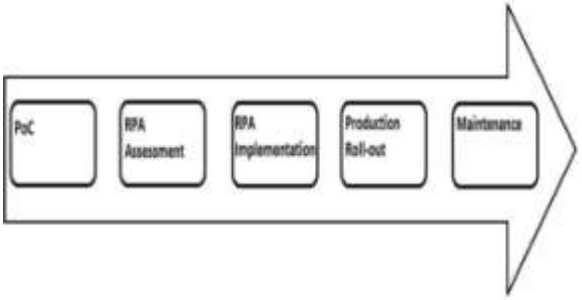
1.4 UIPATH

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. The UiPath Platform is a state-of-the-art robotic software platform used by organizations across major industries to take over repetitive, rules-based administrative tasks and eradicate them from

the activities of the human employees. The Platform is built on an open, extensible architecture and delivers enterprise wide automation benefits. It consists of the Studio - where users design their automation visually and without code, the Orchestrator - the aggregator where the entire robotic workforce is managed and monitored, the Driver responsible for the cognitive and computer vision capabilities, and the Robot - the attended and unattended software that takes over and executes all processes automatically.Automate smarter as no more manual, error-prone diagramming of each process step and user action. Specialized recorders turn any user's activity into a process. Complete for Desktop Apps, Web Apps, Citrix and Terminal Emulators. Automate faster as Drag and drop, point and click and leverage Microsoft Workflow Foundation technology. Visually model tasks, the easy way. No scripting and coding. The visual debugger highlights any errors and a library of hundreds of activities is provided for an even faster processing. We can collaborate and automate as more people can contribute to the same workflow, combining their efforts. Extract and share reusable components between teams and projects. Studio Designer is integrated with Team Foundation Server—the industry standard for work collaboration, and SVN [3].

METHODOLOGY

RPA journey has 5 stages: PoC (Proof of Concept), RPA assessment, RPA implementation, production roll-out and maintenance as shown in the diagram below.



In the PoC stage a process is chosen, a small automation team is built, a technology is chosen from the available ones in the market and a process is automated. The purpose of PoC is to validate both the technological approach and the benefits of running RPA. The risk in this stage is to start a PoC for the wrong reason. What an organization wants is to validate its business case assumptions. When in RPA Assessment stage the organization tries to answer to the following questions:-

- Which process has the highest potential for automation?
- Is it properly documented?
- Is it standardized across business units and regions?
- Is it optimal or does it need redesign?

The danger in this stage is to try to automate the wrong process that is too complicated, unstable, with multiple exceptions included, desired by management but not thoroughly followed by people. Once a process or a list of processes that are truly fit for automation is established we move to the next stage which is RPA implementation. In RPA implementation stage an automation team will build the RPA project, deploy that in nonproduction environment and test it thoroughly before moving on to the production roll-out. When in production roll-out stage IT is going to become the operational owner of the RPA

virtual workforce and manage it as any other business application in the company. This includes central management governed by business owners' defined rules and monitoring the number of software robots. In the Maintenance stage based on requests coming from business owners IT is going to adjust the number of software robots, business owners are going to perform ROI analysis and request model improvements. Model improvements will be executed by the automation team and after proper testing will be promoted to the production environment by IT operations team[4].

RELATED WORK

The automationof IT operations has been a focus of attention for the last two decades [5], with on-going developmentof new technologies [6, 7, 8] and dozens of automation related products on the market [9]. More

Recently, there has been interest in process automation through workflow based solutions [10, 11, 12]. However, none of these efforts address the question of when automation reduces cost. There has been considerable interest in manufacturing in business cases for automation [13, 14, 15], and even an occasional study that addresses automationof IT operations [16, 17].However, theseeffortsonlyconsidertheautomationinfrastructure, not whether a particular process with a limited lifetime shouldbeautomated.

CASE STUDIES

Introduction of RPA To A Service Provider Company

Every business faces global pressure to increase their profitability. One approach is to reduce costs. But, reducing the capabilities of the computer center negatively impacts the entire company.To address this need, this study focuses on exploring and innovating an RPA integration solution to Operational Process for the case company. Our company aims to offer these faster RPA process deployments to its clients who suffer from similar challenges and help them to enjoy the benefits of this kind of process automation solution.Although the term "Robotic Process Automation" suggests physical robots wandering around offices performing human tasks, RPA is a software-based solution. In RPA parlance, a "robot" is equivalent to one software license. For business processes, the term RPA most commonly refers to configuring the software 'robot' to do the work previously done by people. RPA software is ideally suited to replace humans for so called "swivel chair" processes; processes where humans take inputs from one set of systems (for example email), process those inputs using rules, and then enter the outputs into systems of record.

Consider, for example, a human resource (HR) specialist in charge of onboarding new employees for a large company. The onboarding process likely entails logging on and off a dozen systems to set up a new employee with benefits, payroll, email, voicemail, security clearance, office space, office furniture, computer, parking pass, expense account, identification badge, and business cards using standard rules. Multiply that process by the thousands of employees who are on boarded each year in many large organizations. Now imagine that RPA software has been configured to do all this work just as the HR specialist did—by logging on and off systems with its own assigned

logon ID and password to perform these routine tasks.

RPA implementation has different timeframes, depending of what the client wants: -

- Proof of concept (PoC) – performed to demonstrate the RPA capabilities on the clients' premises. Not all the exceptions are handled. This usually takes 3 to 5 weeks.
- Initial Pilot – perform a RPA mission only for a part of the process in order to confirm that the business case is viable. This usually takes 6 to 8 weeks.
- Scale pilot – performing RPA according to the developed business case. This can take 8 to 12 weeks.

That's what Robotic Process Automation (RPA) does—interacts with other computers systems just like a human would. If configured correctly, the RPA software should do the work better, faster, and much cheaper than the HR specialist. In our use cases we generally automate the process of downloading, manipulating the downloaded data and later transfer the files according to the requirement of the process(as shown in Figure 4). HR specialist in this scenario would be free to focus upon non-routine tasks, such as working with business units to craft job descriptions, suggesting appropriate recruiting outlets, fielding calls from potential applicants, reviewing resumes, and calling references. The HR specialist would also handle all the non-routine exceptions the RPA software could not process. There would be fewer HR specialists needed overall if the volume of work was constant, but those HR specialists remaining should have more challenging work.

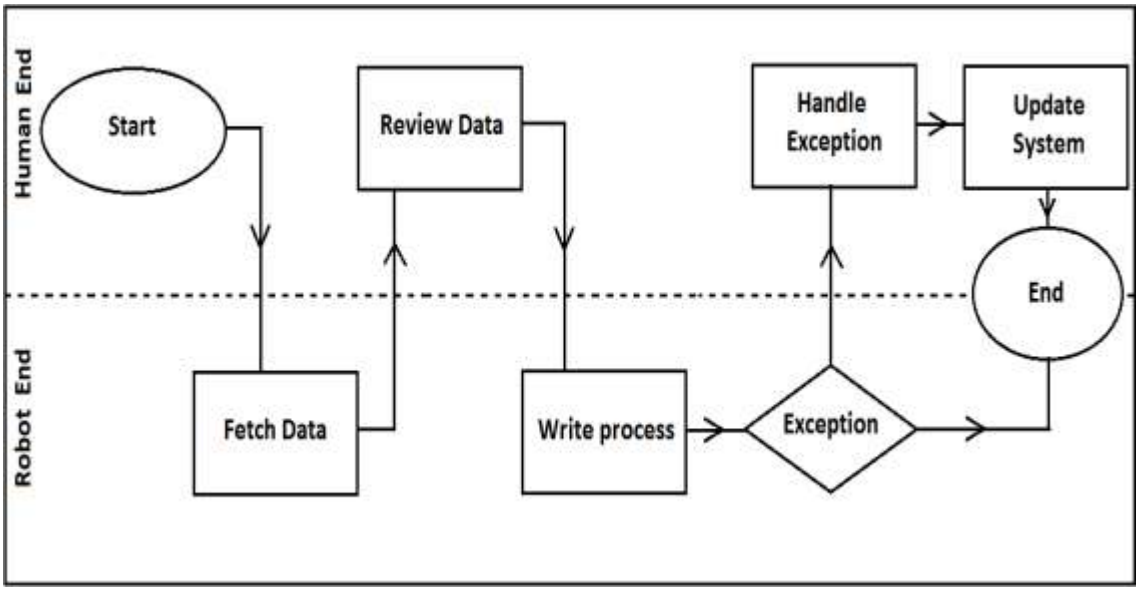


Figure 4: Generalized flowchart of our Case Study

Human first starts the process, robot then fetches the required data, human reviews the data and robot continues the process as per the rules until an exception arise, exception is handled by human by designing new rules for robot to complete the process.

RESULTS :

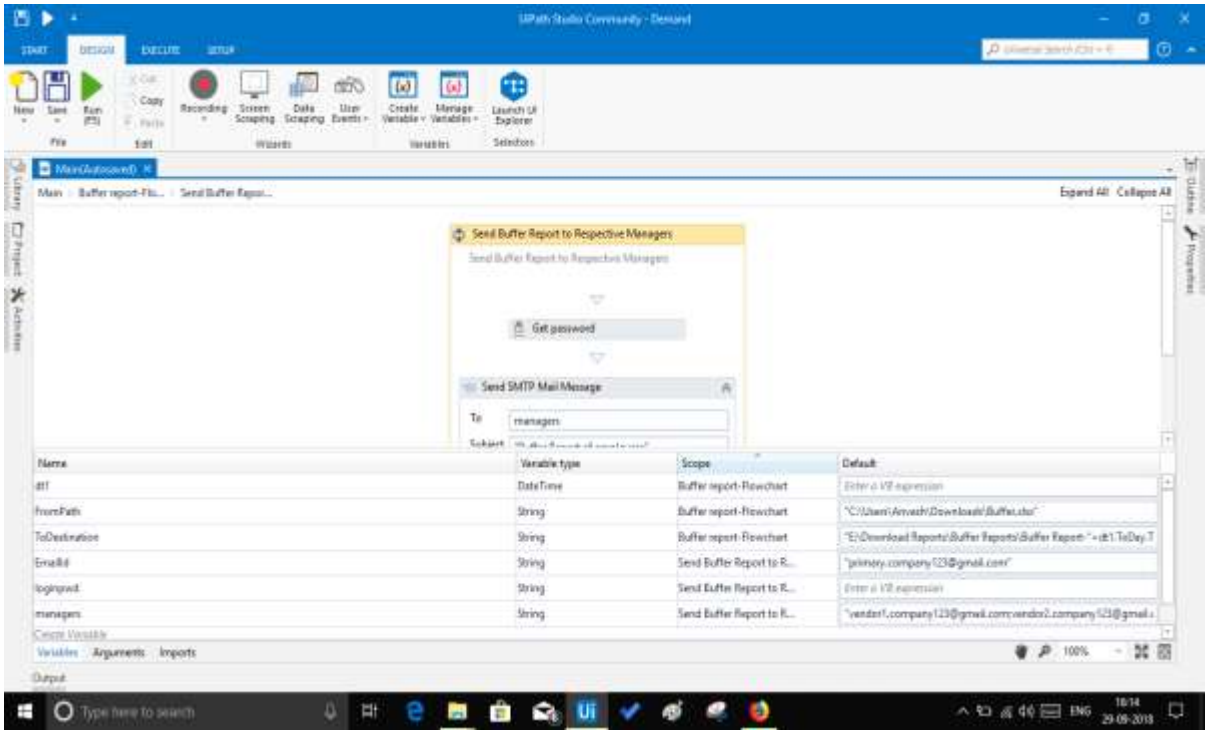


Figure 5: Screenshot of Designing of a robot in UiPath Studio

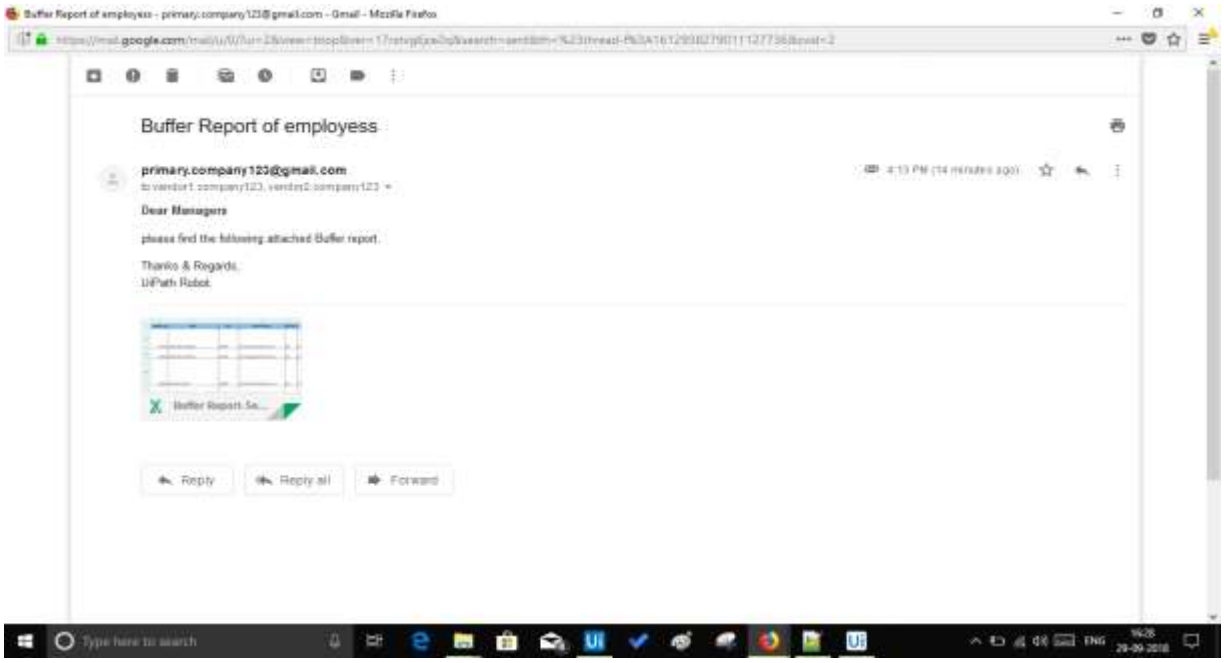


Figure 6 :Screenshot of an e-mail received from UiPathrobot

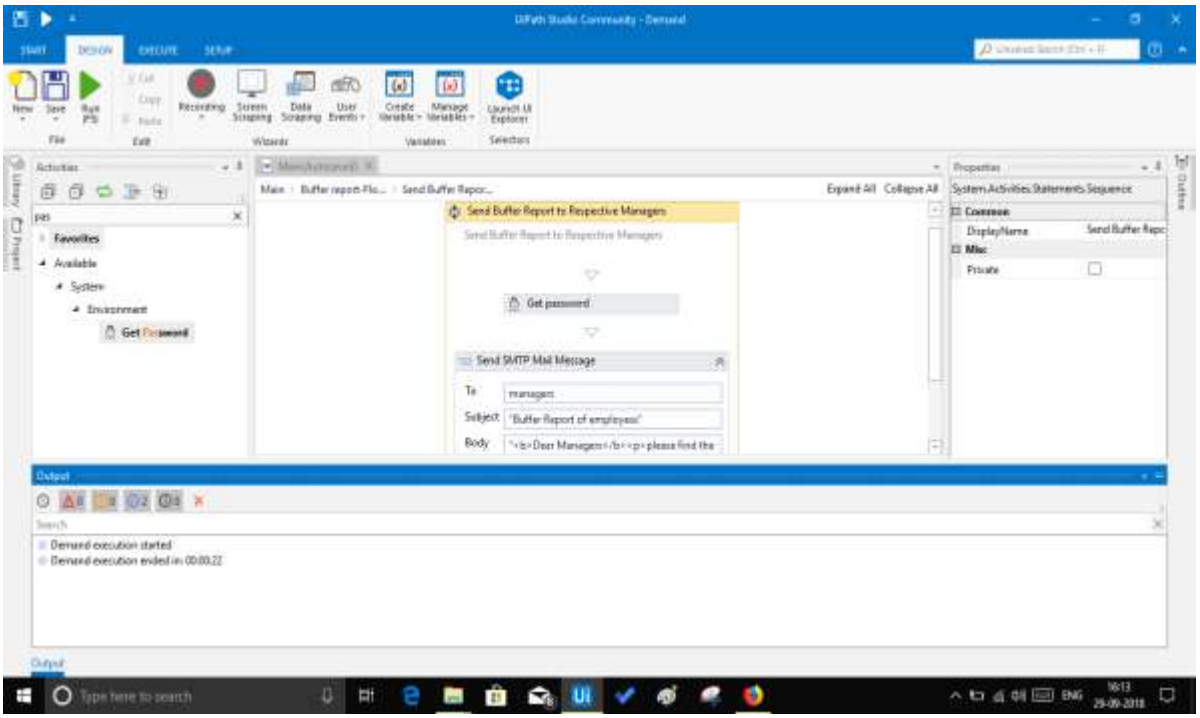


Figure 7: Screenshot of an execution of an operation within very few seco

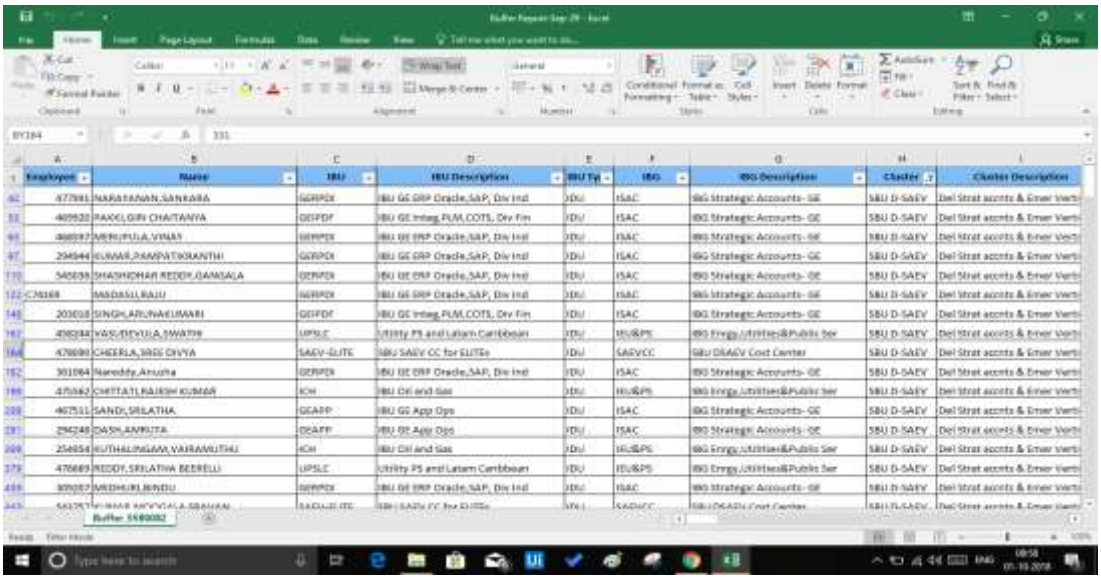


Figure 8 :Screenshot of an output obtained after filtering of buffer report

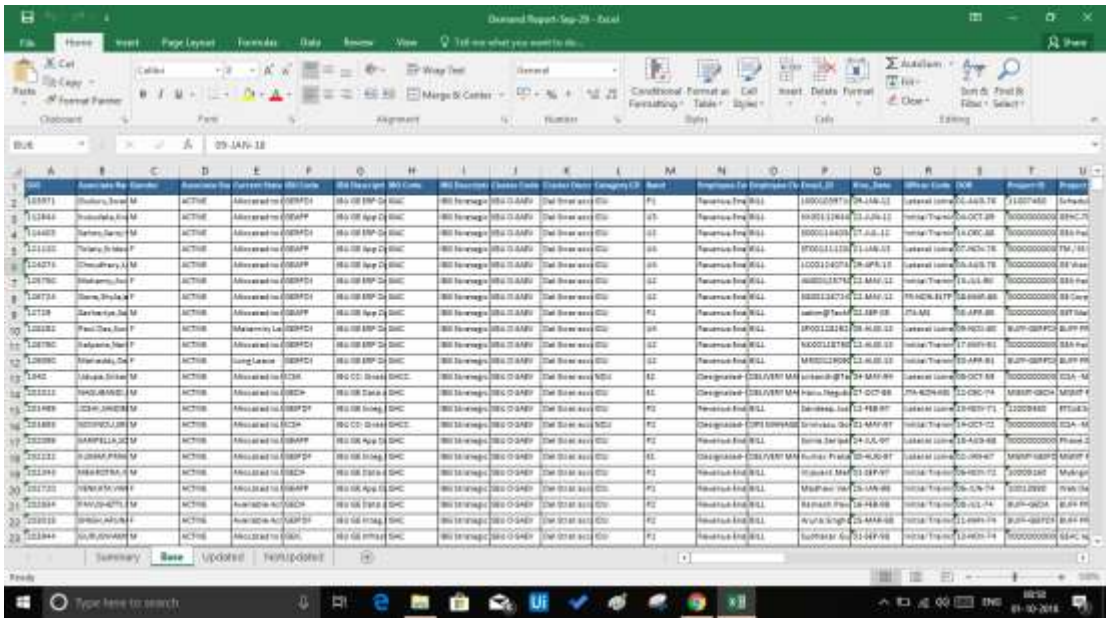


Figure 9 :Screenshot of an output obtained after filtering of demand report

CONCLUSION

This paper discusses the possibility of robotic process automation at a person or an organization level without any real difficulty by eliminating most of the manual processing involved which is mainly used in IT industry. It is evident from our work that the robotic process automation of operations in a company combined with artificial intelligence framework helps reduce the human costs, Avoiding delays in finding the employee data, Reducing communication delays between the Managers, Faster response and faster working time, Reduced overhead and increased work efficiency.

FUTURE SCOPE

Well, the future scope of RPA is relatively very high. There are various human jobs which can be easily automated using RPA tools and technology. The future scope of RPA can be observed in the field of data entry and data rekeying jobs. These tasks could be easily automated with RPA.

The conversation in the market will rapidly move away from just RPA, and will focus on the broader concept of SPA (Smart Process Automation). This change will lead to innovations that make business processes smarter than they are today. In order to do this, RPA is just the beginning, full transformations can make use of entire Digital Transformation platforms.

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