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Planning for a Successful Robotic Process Automation (RPA) Project: A Case Study

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Abstract. The revolution of technology is often emphasized in any organization for them to remain competitive in the market. Among the latest technologies is Robotic Process Automation (RPA) which can mimic humans and take over their tasks. However, implementing RPA can turn into something complicated and challenging if it is implemented without proper strategic planning. Hence, this study aims to understand how to do proper planning in a successful Robotic Process Automation (RPA) project. This study uses an in-depth case study approach in one of the largest oil and gas organizations that provides F&A services. The result of the study showed that an effective RPA project should have careful planning as well as a realistic project planning timeline. The project timeline is very important to ensure that the project remains transparent and organized. Besides that, clear communication is very important to employees so that they can accept the changes that are taking place. It is also important for the employee to receive strong support from the management and information technology (IT) department for a successful implementation of the RPA project.
Keywords: Robotic Process Automation; Planning; Project Management; Communication and Change Management; Support and Training

1 Introduction

The finance and accounting (F&A) profession involve many repetitive and high-volume tasks that require them to meet a tight timeline. Therefore, many organizations invest money to automate tasks in the F&A unit using technologies such as computerized accounting systems, Enterprise Resource Planning (ERP), Excel worksheets and other automation technologies. However, these technologies still require humans to perform repetitive tasks manually such as typing, copying, and pasting a number of high-volume tasks from one system to another. However, the

repetition of this structured task can be done automatically without human involvement using Robotic Process Automation (RPA).

RPA is defined as a technological application that uses software tools to interact with existing systems and replace humans. IRPA (2014) defines RPA as the use of technology that allows employees in a company to configure computer software or 'robots' to capture and interpret existing applications to process transactions, manipulate data, and communicate with other digital systems. RPA technology is a software tool or a virtual workforce that can mimic real user behavior. It promises various benefits to individuals and organizations namely to increase the effectiveness of work processes, enhance productivity, reduce the risk of errors, and minimize the organizational costs (Lacity & Willcocks 2018, 2015a; Willcocks, Lacity & Craig 2017, 2015b). These robotic-enabled tasks allow humans to have more time to focus on more challenging and value-added tasks that can have a long-term impact on strategic planning and organizational performance. Therefore, organizations that do not take the opportunity to use RPA will be reluctant to reap the benefits offered by this technology such as failing to reduce operation costs and at the same time failing to maximize business profits.

However, the implementation of new technologies is not necessarily an appropriate action. This is because investing in the technology may also lead to new problems and greater complexity in the work process. This is because the implementation of new technologies can have a negative impact on the organization due to positions and tasks that have been changed or eliminated (Lacity & Willcocks 2016b; Lacity & Willcocks 2015a; 2015b; 2015c). Employees who have lost a particular position or task, and have been reassigned to another position or task, are more likely to be less productive, which in turn will have an impact on the organization (Willcocks, Lacity & Craig 2015a).

In addition, the success of the implementation of new technologies depends on the planning and support received from the organizational management. Support from top management, information technology (IT) department and even suppliers of these systems is important to enabling system users to obtain adequate knowledge and information (Asatiani & Penttinen 2016; Hallikainen et al. 2018; Rozario & Vasarhelyi 2018). Careful and complete management planning should be available to support the use of the new system and to adapt employees to the new tasks that have been changed (Britton & Atkinson 2017). Hence, based on the above issues, the aim of this study is to understand how to do proper planning in a successful RPA project. There are three aspects of planning discussed in this paper which are project management, communication and change management, and also support and training.

The remainder of the paper is structured as follows. The next section which is the literature review gives an overview of the influence of planning in the RPA project. It is then followed with the research methodology section. Later, the findings and analysis section is presented. The final section provides the discussion and conclusion of the study.

2 Literature Review

The problem of the adoption of new technologies among employees is one of the issues that can pose an obstacle to the implementation of RPA. Employees may see robots as competitors and fear losing their jobs, which in turn can lead to tensions between employees and management. However, this effect can be minimized with proper change management skills among others by introducing RPA projects carefully and delivered effectively (Hallikainen et al. 2018; Rozario et al. 2018; Asatiani & Penttinen 2016). According to the World Economic Forum (2018), new technologies and trends are influencing business models and changing current job profiles. The majority of employers expect that there will be significant changes in terms of the skills required to perform most jobs. Therefore, organizations need to take proactive steps in facing these changes by supporting and training employees who will be affected by the implementation of new technologies such as RPA.

Implementation of RPA requires training needs among employees (Britton & Atkinson 2017; Willcocks, Lacity & Craig 2017). For example, employees should be prepared to face automation system failures. A problem that may be encountered in the implementation of automation systems is that it can create situations where staff are unable to detect automation malfunctions (Fung 2014). This problem should be addressed during process planning and staff should be trained to deal with this problem.

Besides that, additional training is also required if there is a shift in tasks performed by employees. Retraining is required if employees are transferred to other parts of the organization. To facilitate this training effort, a lifelong learning system should be run within the organization (World Economic Forum 2018). Investment in human capital and collaboration with other stakeholders on human resource strategies should be key goals for long-term growth. In addition, organizations should recognize and prepare for job losses for entry-level, by creating training protocols or modifying internal training programs for juniors (Britton & Atkinson 2017). Furthermore, organizations need to have better learning and training techniques with the involvement of seniors to support junior employees to interpret the data generated (Britton & Atkinson 2017).

According to Zhang & Liu (2019), there are two possible configurations that may speed up business coordination with RPA. First, new corporate strategies with new leadership that have a digital transformation perception can drive coordination between RPAs and organizations. When managers realize the importance of digital coordination within the organization, they will make this coordination happen faster and better. Second, if the organization has low performance, but with strong leadership, it has the opportunity to drive RPA business coordination. When financial or market share decisions decline, the leadership of the organization will think about the future and methods that can improve this weakness. If managers also have digital views and transformation perceptions, coordination between RPAs and organizations can be done at a faster rate (Zhang & Liu 2019).

In a study written by Lacity and Willcocks (2016a), they have outlined five principles and guidelines for organizations that are considering implementing RPA:

1. Test RPA capabilities with controlled experiments.

2. Develop criteria to determine which processes can be automated.
3. Involve the IT department at an early stage.
4. Communicate effectively at the beginning of the implementation process.
5. Diversify automation resource options.

The first principle of action means that RPA capabilities should be tested to understand what can or cannot be done, and how it differs from traditional automation solutions. For example, organizations can compare the capabilities and costs of different solutions by automating the same process using robots and other automation systems. Controlled experiments can also be used to assess the capabilities of RPA providers. This can be done by providing the same process for two RPA service providers to perform automation in controlled experiments. This step can be a best practice for comparing their capabilities (Lacity & Willcocks 2016a).

Secondly, the correct process should be identified as not all processes are suitable for robotics. There are several suitability criteria in the selection of the RPA process. According to Rozario et al. (2018), organizations need to find a simple victory when embarking on their RPA journey, and they should avoid choosing complex and subjective processes. Typically, high-volume processes provide great potential in cost savings (Rozario et al. 2018; Lacity & Willcocks 2016a; Willcocks et al 2015b). Moreover, systematically determined and rule-based processes are easier to automate, as robots still need strict guidelines to complete tasks (Rozario et al. 2018; Lacity & Willcocks 2016a). Besides that, organizations should aim for a mature process, as it is more stable, predictable and the cost is already known, making it less risky to automate (Rozario et al. 2018; Lacity & Willcocks 2016a).

Thirdly, organizations need to bring in intervention by the IT department in the early stages of RPA implementation. RPA technology is often seen as a business operations program and therefore many organizations that implement RPA at an early stage have excluded IT in the early stages of its implementation (Lacity & Willcocks 2016a). The IT department should be involved in its implementation starting either when it is developed internally or when it is purchased as a service package. If the organization chooses to develop the RPA on its own, then the IT department needs to participate in the stage of RPA development, testing and implementation. If the organization chooses to purchase it as a service package, then the IT department should support the business in the RPA business case construction process and participate in the negotiation process with the RPA provider (Lacity & Willcocks 2016a). By understanding the capabilities of RPA, the IT department can function as an advisor to business units, and its role is also important when considering matters such as validating the RPA process and optimizing IT infrastructure (Hallikainen et al. 2018).

The fourth issue is about the importance of effective communication at the beginning of the implementation process. According to Lacity and Willcocks (2016a), the most appropriate time to communicate about the use of RPA is in the experimental phase. Early communication is important so that employees are receptive and open with the use of RPA. This is because they have to work together in the development of the RPA while programming the robot. In addition, the organization can give a human name to its software robots because it can help professional staff in the organization see it as their assistant (Hallikainen et al. 2018).

The last issue is that organizations should consider a variety of different resource options for RPA adoption. As illustrated in Table 1, there are five different source options. Organizations should choose the most appropriate option for the company, and the selection can be made based on the resources and objectives of the company itself. For example, insourcing can be a good option if the organization wants to have a high level of control and earn cost savings (Lacity & Willcocks 2016a). Outsourcing can also be considered if the organization does not have sufficient capabilities or wants to use the expertise of RPA providers. The most well-known RPA software providers include companies such as Blue Prism, Automation Anywhere, UiPath, and Ipsoft, which offer easy-to-use tools and can also offer training to business operations staff for a few weeks so they can manage the process on their own (Lacity & Willcocks 2016a).

Table 1. RPA Sourcing Options

Options	Explanation
Insource	Purchase RPA licenses directly from RPA software providers.
Insource and consulting	Purchase RPA licenses directly from RPA software providers, and obtain consulting firms for services and configurations.
Outsourcing with a traditional business process outsourcing (BPO) provider	Purchase RPA as part of an integrated service provided by traditional BPO providers.
Outsourcing to RPA providers	Purchase RPAs from the new generation of RPA outsourcing providers.
Cloud-source	Purchase RPA through cloud services.

Source: Lacity & Willcocks 2016a

Table 2. Planning Summary

RPA Planning	Sources
Project management	Zhang & Liu 2019; Lacity & Willcocks 2016a
Communication and change management	Hallikainen, Bekkhus & Pan 2018; Asatiani & Penttinen 2016
Support and training	Britton & Atkinson 2017; Willcocks, Lacity & Craig 2017

Although the selection of the right process or task for RPA is important (Convergys 2018), but how to determine the appropriate process, sub-process, or task for RPA is not always easy to see (Agaton & Swedberg 2018). Although organizations already have checklists (Accenture 2018), 'questions to ask' when assessing the potential of automation (Agaton & Swedberg 2018), and a list of selection process criteria (Burgess 2018), they still have constraints. Among the constraints is that the evaluation process is not done based on detailed analysis. In addition, there is no or lack of strong supporting evidence to strengthen the decision-making process when choosing which process or task should be automated (Syed et

al. 2020). Table 2 shows a summary of the influence of RPA on organizational planning.

3 Research Methodology

The aim of this study is to understand how to do proper planning in a successful RPA project. Thus, this study uses a qualitative case study method (Walsham 2006) through an interpretive perspective to gain a deep and comprehensive understanding of the issues of this study. A case study allows a researcher to study an issue based on various forms of real phenomena that exist in this world (Yin 2013).

A global company operating in one of the largest oil and gas industries in the world has been selected because it has been using RPA since 2015. This organization is seen as a strong giant company and is always sensitive to the latest technological developments in the market and has great competition in the international market. Thus, by making this organization as a single case study for this research, it can provide implications and contributions in the research regarding the influence of planning in the successful implementation of the RPA project. In addition, this single case study can help researchers to understand the influence of RPA at each level of management within the F&A unit in the selected organization in more depth.

Qualitative data is gathered through semi-structured interviews with various respondents that are using the RPA system in the F&A unit. Interviews were originally scheduled to last for one hour but in some cases lasted up to two hours. In total, 25 hours of interviews were undertaken with 14 respondents. The interview session involved respondents from various parties in the organization involved to ensure that the issue of the study is accurate and existent. Table 3 is a summary of the list of respondents who have been interviewed for this study. The names and positions of the respondents have been changed for confidentiality. Each interview has been recorded and copied verbatim and is recorded. After the transcription process is completed, researchers identified the issues and identified themes continuously by repeatedly reading the transcripts.

Table 3. List of Respondents

	Name and Position	Interview Session	
		Frequency	Duration (Hour)
1	Sabri, Vice President of Finance and Accounting Unit	1	1
2	Adam, Vice President of Financial Operations	2	3
3	Clara, Human Resource Manager	1	2
4	Henry, Operation Manager 1	2	4
5	Aaron, Operation Manager 2	1	2
6	William, Operation Manager 3	1	2
7	Melissa, Unit Manager 1	1	1
8	Jennifer, Unit Manager 2	1	2
9	Olivia, Head of Continuous Improvement Unit (Finance)	1	1.5

10	Jason, Senior Manager of Continuous Improvement 1	1	1
11	Benjamin, Senior Manager of Continuous Improvement 2	1	1
12	Isabella, Financial Unit Operation Specialist 1	1	1.5
13	Lucas, Financial Unit Operation Specialist 2	1	1.5
14	Noah, System Control Manager	1	1.5
Total			25 Hours

In addition to interviews, document review is also used in this study. The acquisition of data according to this method is to enable researchers to better understand and confirm the things mentioned by the respondents in the interview (Myers 2013). The document usage approach also helps researchers as it can increase the reliability of the interview data. It can provide more accurate information to compare with the primary data because the document can confirm the correct spelling and title or name that has been mentioned in the interview. In addition, the document can provide other specific details on the issues discussed during the interview. It can also act as a reference and provide clues to understand the issues in this study. The relevant documents from each person who was interviewed were reviewed with a recorded story. The documents were collected at the end of each interview, with the researcher asking if the respondents could provide the documents related to the story being told.

4 Findings and Analysis of the Study

This section will explain about the influence of RPA on planning within the organization. Among the aspects that will be discussed are project management, communication and change management, and followed by support and training.

Project Management

Although RPA has various benefits, the implementation of RPA in various fields including the accounting field shows that most organizations do not do a good job in socializing RPA between various departments or groups before launching their RPA initiative (Zhang & Liu 2019; Lacity & Willcocks 2016a). The RPA implementation process involves more than just configuring robots. However, it requires a process of redesigning tasks, navigating stakeholders with various areas of responsibility such as security, IT, and audit compliance (CFO Innovation, 2018). In addition, it also covers the navigational process of problematic business units which includes the coordination of several business units. Before an organization can begin implementing RPAs, organizations need to assess the business landscape and stakeholder interests, their operating conditions, the talents they have, as well as the readiness of senior executives to combine human and virtual manpower. According to Melissa,

"So, I think project management skills as well as stakeholder engagement skills. For example, if something happens, how do you involve various units and departments to make decisions together and move forward ... "- Melissa, Unit Manager 1.

Therefore, corporate logic helps to explain that effective project management skills are very important to ensure the successful implementation of RPA projects in this organization. This was also acknowledged by Jennifer, whose project management skills are very important in the RPA implementation process. She also emphasizes good project management skills compared to IT skills.

"... What I think is important to lead a project like robotics, is project management skills. Therefore, you do not need to have very strong IT knowledge because we have IT staff to help us do all the programming. But, you need to have excellent project management skills to really manage the entire implementation phase... "- Jennifer, Unit Manager 2.

In addition, an effective project should have careful planning as well as a realistic project planning timeline. The project timeline is very important to ensure that the project remains transparent and organized. This is acknowledged by Jennifer,

"... So, first you need to really have a realistic project plan and implementation date..." - Jennifer, Unit Manager 2.

Figure 1 shows an example of a timeline for an RPA project. It can be seen from the diagram below that the RPA project takes about a year which includes the process of planning, reviewing, designing, testing, up to the launch of the robot.

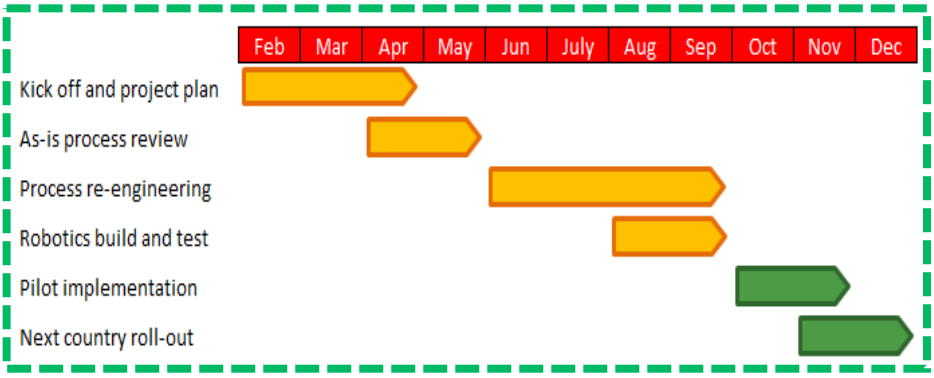

Figure 1. Example of RPA Robot Project Timeline
Source: Document

The implementation of RPA in this organization is based on the ESSA approach, namely eliminate, standardize, simplify, and automate. According to Henry,

"The first and most important thing is not about automation. Automation is the last thing. We follow the ESSA approach. ESSA is about eliminating, standardizing, simplifying and then automating. So automation is the last"- Henry, Operation Manager 1.

The first step in the ESSA approach is to eliminate processes or measures that are perceived as unnecessary or overlapping. As Henry explains,

"... the first step when someone enters an office is what they do on screen, which website do they visit, what bank statements are involved, what they extract, what tools they use, is it Excel, which screen need to go to ERP. They map every step and process and they eliminate unnecessary steps…"- Henry, Operation Manager 1.

Then, the second step in the ESSA approach is to standardize the process so that it can produce consistent output especially for processes involving various countries. This is explained as follows,

"... and then because this organization is a global company, we have many of the same processes around the world and in different countries. Which one can you standardize? So in Malaysia we do it this way, Thailand we do it that way, Singapore we do it this way. But then we realized that the truth is Indonesia is the fastest. Can we standardize this process as Indonesia does? That is why it is referred to as the standardization process…"- Henry, Operation Manager 1.

The third step in the ESSA approach is to simplify this process. Without standardization measures, it will complicate the task replication process in the robotic system. This is because it will be more time-consuming and more difficult to generate code and build robots. According to Henry,

"...and then we can simplify. Are the steps too complicated for us to grasp? Or during the account matching process, we may not need to match all those accounts with multiple accounts. But in fact we only need to match one account, and it still gives the same result…"- Henry, Operation Manager 1.

Finally, once all the above steps have been completed, the last step in the ESSA approach is to automate. In this step, the RPA is decided whether it can be implemented within the organization or not. We can see that this step is the final step because the organization does not want to make hasty decisions for task automation without undergoing thorough measures and so that they are more careful in the RPA implementation process. As Henry states,

"... After you have identified all the following steps, then finally we arrive at the final process. We started discussing whether it could be automated. And that's where the

RPA comes in. So, RPA is not the first, but it is the final solution… "- Henry, Operation Manager 1.

Apart from the ESSA approach, figure 2 shows the low cost automation (LCA) action plan followed by the RPA automation process. There are seven phases of RPA implementation. The first phase is to identify opportunities that can be automated. The second phase is the End-to-End (E2E) process review which is a process that requires reviewing the system or service from beginning to end and providing a complete functional solution. The third phase involves the re-engineering and selection of LCA. This phase includes activities that simplify, standardize, and digitize the process. The ESSA approach is the approach involved in this phase. Then, the fourth phase is the business needs design phase which involves the process of detailing the business needs design. The fifth phase is solution design which is the process of making solution design in a more technical language. Next, the sixth phase is build and test. This phase is the phase that involves the actual robot. The robot will be inspected and will go through a user acceptance test before it is launched. The final phase is the implementation phase of the semi-automation process. This phase is the phase where the robot is launched directly to the user. This phase also involves the process of hypercare after launch to ensure that the performance of the robot is closely monitored. Then, once the hypercare is completed, it will be carried out normally and maintained until there is a benefit from the robot.

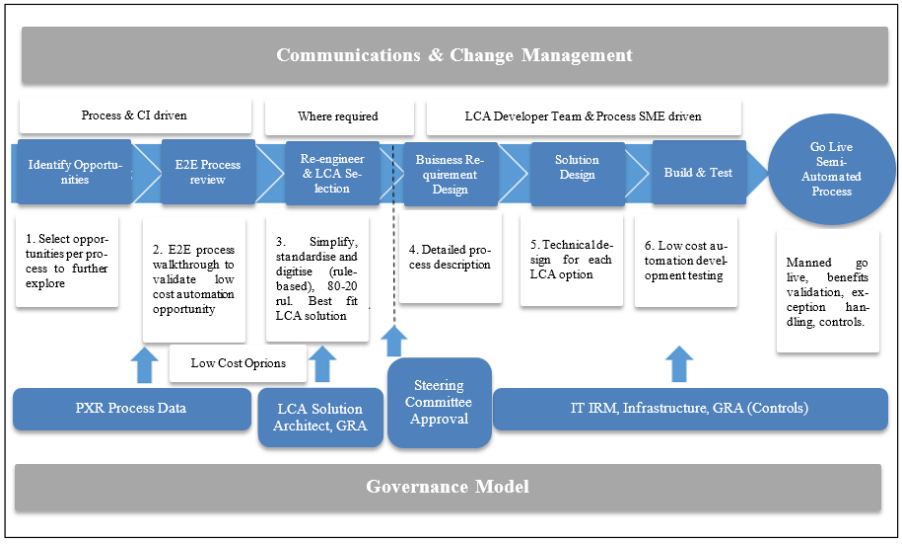

Fig. 2. LCA Action Plan
Source: Document

Communication And Change Management

Implementing RPA sounds easy, but it can also be something complicated and challenging if not implemented properly. While in the planning stage for the implementation of RPA, most organizations will focus on strategic and tactical planning aspects to enable the automation to succeed (Asatiani & Penttinen 2016). However, organizations should also consider human elements such as the coordination of organizational culture, values, and behavior in order to achieve the desired results. Therefore, it can be seen in the action plan in Figure 2 earlier that all the phases of the LCA action plan involve a governance model that covers the process of communication and change management at each phase. This shows that this organization places great emphasis on effective communication and change management in the success of RPA technology. This is stated by Benjamin as follows,

"So, involvement and change management is very important when launching this new technology so that they clearly understand the business case or the reason for the change, how they will be affected by the change and what the expectations of each unit" - Benjamin, Senior Manager of Continuous Improvement 2.

Besides, this statement is also supported by Isabella who stated that clear communication is very important for employees so that they can accept the changes that occur.

"First, they communicate. The most important thing they tell us is what will happen, before they really happen. They will have a committee or a briefing that explains this change, why this change was made, what is the objective of this change, how this will benefit us and things like that…"- Isabella, Financial Unit Operation Specialist 1.

Support And Training

RPA is able to influence the tasks performed by employees in the F&A profession and change their roles. Thus, it provides an opportunity for employees to move or change jobs elsewhere in the organization due to the significantly reduced workload. As a result, the need for additional training for new ways of working is needed. As William explains,

"... training is provided. Basically, it is during the implementation process because our lower level staff are not required to operate robots, but for them, training is more on how to work. So, in the future, robots will do this. So, now your job has changed. You focus on things that robots do not do… "- William, Operation Manager 3.

Therefore, support from management and support from the IT department is very important for the successful implementation of a new technology. Clara recognizes the importance of support and training to employees in the profession and strives to provide the best for all employees. According to Clara,

"... we try to provide adequate support and training to employees. Initially, there were issues in terms of employee adaptation to the new job reshuffle. However, that is

our goal which is to provide solid support and training "- Clara, Human Resource Manager.

Apart from that, according to William, he found that support from the robotic development team is also important in the successful implementation of RPA. According to him, although the development team does not have F&A skills, their team has been trained to understand the skills in the profession to smoothen the RPA implementation process, especially if there are any problems or issues that arise.

"... for the support aspect, I can say most of them are accepted, especially from the robotic development team. Although they are a team for software development, they really understand the need for accounting. That means, for example, I say, "Well, we need to do this step, this step, this step". They can really understand and they can suggest a way out of how the better way we do things logically so that we can achieve the objective. So I think that is a very good team that we have, and I remind you again that they have no accounting or financial background at all ... "- William, Operation Manager 3.

In this organization, it is recommended for the management to be aware of the need to invest in employees and also support the training of their personnel. The goal is to provide employees with a positive future outlook on technology. In addition, this organization is also improving the existing process through increasing volume and further training related to RPA software. The process manager, Melissa, stated that they get more benefits in terms of process quality and continuous improvement compared to what they originally planned.

"... Actually when we do more intensive and effective training, we find that there is a better improvement in terms of the quality of their work. So, effective training and learning are important in this organization even though it is time-consuming and looks tedious..."- Melissa, Unit Manager 1.

5 Discussions and Conclusion

Digital transformation is a long-term strategic initiative, especially to streamline the process and improve the effectiveness of work within the organization. The success of the implementation of digital transformation strategies in the organization depends on the skills of management in project management and their ability to prepare these professionals to face new work patterns. Good preparation is always the key to success and to reduce the risk of project implementation failure. The results of this study also found that the implementation process of RPA in this organization is successful because this organization has made initial planning by standardizing and coordinating its resources to produce a smooth new project implementation process. These findings are in line with previous studies stating that change management skills by introducing RPA projects carefully can influence the successful implementation of RPA projects (Hallikainen et al. 2018; Rozario et al. 2018; Asatiani & Penttinen 2016).

Table 4. RPA Planning Summary

RPA Planning	Explanation
Project management	Effective projects should have careful planning as well as a realistic project planning timeline.
Communication and change management	The organization should help employees to clearly understand the changes that will take place.
Support and training	Support from the management and IT unit is essential for the successful implementation of the RPA implementation project.

Job changes and fear of losing a job bring negative influences and can even sabotage automation plans. Therefore, the management team in this organization has stated that they should have good communication and change management skills with employees in each phase of RPA implementation to ensure it runs smoothly and effectively. Respondents also stated that effective two-way communication from top management to them further enhances their acceptance of job changes in this organization. Every step of the RPA implementation process must be communicated to the entire team so that its implementation runs smoothly and effectively. If employees can understand every implementation step, including the risks that will be encountered, then, the organization can limit the margin of error while the RPA is implemented, even make employees to accept the implementation of this new technology more easily.

RPA is a very influential digital transformation tool and can improve business performance as long as the right strategies and measures are taken into account. Although the purpose of RPA is to take over certain processes and tasks from humans and transfer them to robots, human capital skills are very important in a successful transition process. Therefore, solid support and incentive training are very important in the successful implementation of this robotic technology (Britton & Atkinson 2017). The findings of this study also show that this organization places great emphasis on its human resources because human resources are still valuable assets after the implementation of robotic systems. In addition, the IT team needs to understand RPA technology in depth to maintain the quality of the system and to educate other individuals. If the organization chooses to develop the RPA on its own, then the IT department needs to participate in the RPA development, testing and implementation (Lacity & Willcocks 2016a). Table 4 shows a brief description of the RPA planning.

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