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Opportunities to implement software robot farms in the processes of the public administration sector

Możliwości wdrożenia farm robotów programowych w procesach sektora administracji publicznej

The future of organizational processes lies in their robotic automation using RPA (Robotic Process Automation). This is a technology that allows for the creation of a software robot that can mimic human interactions with a process. RPA has various applications in most industries, such as banking and finance, human resources, healthcare, etc. Public organizations are also increasingly making use of RPA, which is why the article focuses on the process of implementing process automation solutions leading to the orchestration of software robots.

Key words: Robotic Process Automation (RPA), software robot, processes, public administration

Doskonalenie biznesowych procesów organizacyjnych jest ściśle związane z ich robotyzacją przy użyciu technologii RPA (Robotic Process Automation). Technologia ta umożliwia tworzenie robota programowego zdolnego do naśladowania pracy ludzkiej w aplikacjach biznesowych. RPA znajduje zastosowanie w wielu sektorach przemysłu, takich jak bankowość i finanse, zasoby ludzkie, opieka zdrowotna i inne. Organizacje publiczne coraz częściej i w coraz większym stopniu wykorzystują technologię RPA do optymalizacji rutynowych, powtarzalnych zadań. Zmiany następujące w metodach i narzędziach optymalizacji procesów posłużyły jako inspiracja do niniejszego artykułu, koncentrującego się

na procesie implementacji rozwiązań automatyzacji procesów, prowadzących do orkiestracji robotów programowych.

Słowa kluczowe: Robotyczna Automatyzacja Procesów (RPA), roboty programowe, procesy w administracji publicznej

Introduction

Due to the widespread technological changes, public sector institutions are facing new challenges related to planning and conducting infrastructural investments, including technological ones. These changes are forced both by legal regulations and the market, especially citizens, who demand quick and effective actions and decisions. Thus, an important element is the way in which public administration performs its assigned tasks, as this involves the mutual penetration of a series of legal regulations in various units, at different levels of administration. The assessment of public administration should be based on its efficiency and effectiveness. Therefore, it is worth mentioning modern models of public administration management, as the public administration system possesses all the features of organizations, on the principles of which NPM (New Public Management)[1] should function. Public management models have evolved in response to the challenges brought about by the processes of reforming public management, i.e., the emphasis on the economic aspects of spending public funds and the associated greater effectiveness of public organizations' actions. Thus, public management is defined as changes in structures and processes[2]. These changes are inevitably associated with new technologies, information systems, which are implemented in individual organizations or as a comprehensive solution for the entire public sector of a given level.

However, it is important to remember that in most public organizations, a traditional operating model prevails, and this is a phenomenon characteristic of functional organizations that operate based on traditional structures[3]. Contemporary public institutions should seek concepts

[1] S. Wrzosek, *System: administracja publiczna*, Wydawnictwo KUL, Lublin 2008, s. 45.
[2] Por. B. Kożuch, *Zarządzanie publiczne w zarysie*, Fundacja Współczesne Zarządzanie, Białystok 2003, s. 22.
[3] M. Flieger, *Zarządzanie procesowe w urzędach gmin,* Wydawnictwo Naukowe UAM, Poznań 2016., s. 100.

that will enable adaptation to changing environmental conditions and improve competitiveness in the market. The application of process concepts creates an opportunity to improve functioning, coordination, and integration of tasks, recognition of service recipients' preferences, which also facilitates information management[4].

Thus, it can be stated that a public organization is a collection of processes that intertwine and interact with each other. Moreover, process orientation requires holistic thinking about processes as activities connected to each other, whose identification allows for a better understanding of value creation, and their continuous improvement and constant refinement increase the efficiency of both the organization's functioning and the degree of satisfaction of external and internal customers[5].

A solution increasingly encountered in public sector institutions is the automation of administrative processes so that they are performed faster, more effectively, and without errors. RPA (Robotic Process Automation) technology is a solution that meets these requirements and is also financially accessible. It is also important to note the aspect of the accessibility of technology related to the fact that it does not require specialized IT knowledge. Thus, an employee of the organizational unit in which the software robot is to work can operate the tool themselves.

The aim of this article is to present the concept of orchestration of software robots in public sector institutions.

Business processes in public administration

The NPM (New Public Management) concept is the source of processes. The process approach is currently considered the most important orientation in the organization and management of modern organizations. It should also be noted that the process approach is not only applicable to large, commercial organizations. Defining process management, it has been adopted that it is "the application of concepts, methods, and tools to influence processes in the stages of identification, modeling, implementation, controlling, improvement in accordance with strategic

[4] A. Bitkowska, *Od klasycznego do zintegrowanego zarządzania procesowego w organizacjach*, Wydawnictwo C.H Beck, Warszawa 2019.

[5] A. Bitkowska, *Zarządzanie procesowe* [w:] Weiss E. (red.), *Podstawy i metody zarzadzania*, Vizja Press & IT, Warszawa 2008, s. 222.

assumptions, comprehensively encompassing the organization"[6]. The shift in focus from the outcomes of processes to the processes conducted within the organization is intended to prevent errors in the process. In addition to this, priorities include recognizing the significance of employees' roles, the development of IT tools, standardization and normalization of processes, as well as quality audits. The next level of process management development is so-called dynamic process management, which focuses on additional aspects such as: customer needs throughout the service supply chain, process flexibility, employee involvement in self-improvement of the process, the use of process intelligence, and continuous improvement of the process in a process perspective. The ultimate action is process integration, which involves continuous improvement achievable through raising the level of integration and flexibility, ensuring continuity of operations, and shortening task execution cycles in processes. Additionally, this includes the robotization and automation of processes[7].

The main goal of the administrative process is to deliver a service. To assess the process's ability to deliver a service with characteristics desired by the customer, the following process measures are used[8]:

a) process duration – the average time to perform a process consisting of all operations;
b) process flexibility – the ability to change, improve, rearrange activities, adapt to customer requirements;
c) process quality – assessment of customer satisfaction level;
d) process cost – all partial costs;
e) process timeliness – compliance with deadlines;
f) significance for the organization – revenues generated by the process;
g) significance for the customer – the ultimate level of customer satisfaction.

Implementing process management is a comprehensive action, requiring the full application of contemporary management concepts in the implementation process itself, as well as during the daily management of the process-oriented organization. This stems from the fact that process management assumes a series of organizational functioning mechanisms,

[6] A. Bitkowska, *Od klasycznego do zintegrowanego zarządzania procesowego w organizacjach*, Wydawnictwo C.H Beck, Warszawa 2019.
[7] A. Bitkowska, Od klasycznego do zintegrowanego zarządzania procesowego w organizacjach, Wydawnictwo C. H. Beck, Warszawa 2019, s. 19–20.
[8] Flieger M.*, Zarządzanie procesowe w urzędach gmin, Wydawnictwo Naukowe UAM, Poznań 2016.*, s. 107.

which are not positioned in the procedures of its implementation and operation[9].

Software Robots in Business Processes

Robotic Process Automation (RPA) refers to the automation of processes performed by software robots that execute various tasks[10]. A robot refers to a software-based solution programmed to carry out procedures, processes, or tasks in a repetitive manner, which are typically performed by humans[11]. Thus, RPA allows organizations to automate mass, repetitive tasks in the way a human would perform them. This is realized in systems and applications by using graphical user interfaces[12]. Therefore, RPA aims to transfer the execution of processes from humans to software robots. A robot can work 24 hours without fatigue, thus its productivity is 100%. Compared to humans, robots can perform many tasks and do not make mistakes. RPA reduces labor-intensive processes and speeds up the execution of high-volume transactional processes[13]. Thus, employees are able to perform additional tasks, which there was previously no time for.

The difference from classical business process automation lies in the scope in which previous automation capabilities were intended to assist human participants and process owners. In the case of RPA, there is the potential to replace the entire resource that takes care of workflow execution without the need for interruption or system redesign. As Brocke et al[14]. noted, RPA can also use AI to provide decision-making intelligence, flexibility, and adaptability in business process environments. Thus, RPA becomes a significant tool in process management.

To leverage the potential of RPA technology, it is necessary to select appropriate processes that contain tedious, high-effort, repetitive

[9] Flieger M., *Zarządzanie procesowe w urzędach gmin, Wydawnictwo Naukowe UAM, Poznań 2016.*, s. 164.
[10] T. Kampik, P. Hilton. "Towards Social Robotic Process Automation." SIAS Conference 2019.
[11] Ä Jovanovi, Stefan Z., and S. Ä. Jelena. "Robotic Process Automation: Overview And Opportunities." International Journal" Advanced Quality" 46.3-4 (2018): 34-39.
[12] van der Aalst, Wil MP, Martin Bichler, and Armin Heinzl. "Robotic process automation." (2018): 269-272
[13] S.Gupta ; S.Rani ; A. Dixit, "Recent Trends in Automation-A study of RPA Develop-ment Tools", IEEE 3rd International Conference on Recent Developments in Control, Automation & Power Engineering (RDCAPE), 10-11 Oct. 2019, NOIDA, India,
[14] Vom Brocke, J., Maaß, W., Buxmann, P., Maed-che, A., Leimeister, J. M. & Pecht, G. (2018). Future Work and Enterprise Systems. Busi-ness & Information Systems Engineering , 60(4),357–366, https://10.1007/s12599-018-0544-2

tasks. At the same time, such processes should have few exceptions, be structured, and routine. Thus, RPA technology can be applied in various areas and functions, such as finance and accounting, procurement, human resources, contact centers, etc[15],[16]. The area of administrative processes carried out in public administration units is also dedicated to software robots. Public institutions interested in robotization pay attention primarily to reducing time, lowering costs, improving service quality, and increasing volume. The use of robots allows shortening the time of activities such as customer service, document preparation, stakeholder response development, etc. Assigning tasks to a robot reduces overtime, and thereby lowers operating costs. Robots help avoid simple mistakes made by employees and also offer the possibility of customer service outside of institutional working hours, e.g., during holidays. An additional benefit is the ability to serve a larger number of people, orders, documents, or applications in the same amount of time.

An additional advantage of using RPA in public administration is that RPA collaborates with the existing IT architecture without the need for complicated system integration. Robots operate within the computing capabilities of the organization to automate structured administrative processes. There is no need to involve IT department employees or hire new people with IT or programming knowledge. There is also no need to purchase additional equipment, which significantly speeds up the implementation of software robots. Also, the low cost of RPA tools and the possibility of implementing a robot within a few days make this solution increasingly commonly used in public administration.

There are many divisions of software robots based on different criteria. For the purposes of this article, the division was made into[17]:

- Supervised (assisting) robots, i.e., robots designed to work alongside humans to speed up the performance of repetitive tasks, which can be activated by a human. They can be used in repetitive, manual, and highly rule-based tasks that require human intervention at decision

[15] Romao, M., Costa, J., & Costa, C. J. (2019, June). Robotic Process Automation: A Case Study in the Banking Industry. In *2019 14th Iberian Conference on Information Systems and Technologies (CISTI)* (pp. 1-6). IEEE.

[16] Ratia, M., Myllärniemi, J., & Helander, N. (2018, October). Robotic Process Automation-Creating Value by Digitalizing Work in the Private Healthcare?. In *Proceedings of the 22nd International Academic Mindtrek Conference* (pp. 222-227). ACM.

[17] Choi, D., R'bigui, H., & Cho, C. (2021). Robotic process automation implementation challenges. In *Proceedings of International Conference on Smart Computing and Cyber Security: Strategic Foresight, Security Challenges and Innovation (SMARTCYBER 2020)* (pp. 297-304). Springer Singapore.

points. They are often used in administration units, where individual robots are implemented for specific tasks;

- Unsupervised robots are robots designed for completely unattended operation in the so-called "back-office." This type of robot operates on the organization's server without human intervention and can be scheduled for automatic start-up. Robots can be activated by a fulfilled rule or condition or by a business event. They can be used in repetitive, manual, and highly rule-based tasks that do not require human intervention.

For the purposes of this solution, an example of implementation using supervised robots was used. This is due to the still high distrust of users towards new technology and thus the desire to maintain control over the robot's actions. Only supervised solutions allow both orchestration and relatively easy overcoming of barriers in the use of programmatic robots. Therefore, this model was chosen in the studied office.

RPA Application Model in Public Administration Environment – A Case Study

Changes in the work environment are associated not only with its digitization, meaning the transfer of documents and affairs to digital form as much as possible, but also with the hybrid combination of traditional, analog data processing systems with digital systems. This leads to the creation of hybrid solutions that require the development of new management methods. This hybrid nature should be understood as a very close cooperation of various kinds of workforce, consisting of people and bots, elements of artificial intelligence. This causes the implementation of business processes, delivering specific services, to involve both people and chatbots, voicebots, taskbots, and software robots created and managed within the RPA - Robotic Process Automation platform, at various stages and to varying extents. New challenges in coordinating this cooperation are related to how to efficiently manage such a complex environment and how to coordinate the work performed by different types of workforce in order to effectively achieve the intended goal. The solution in this area seems to be the concept of RPA service orchestration.

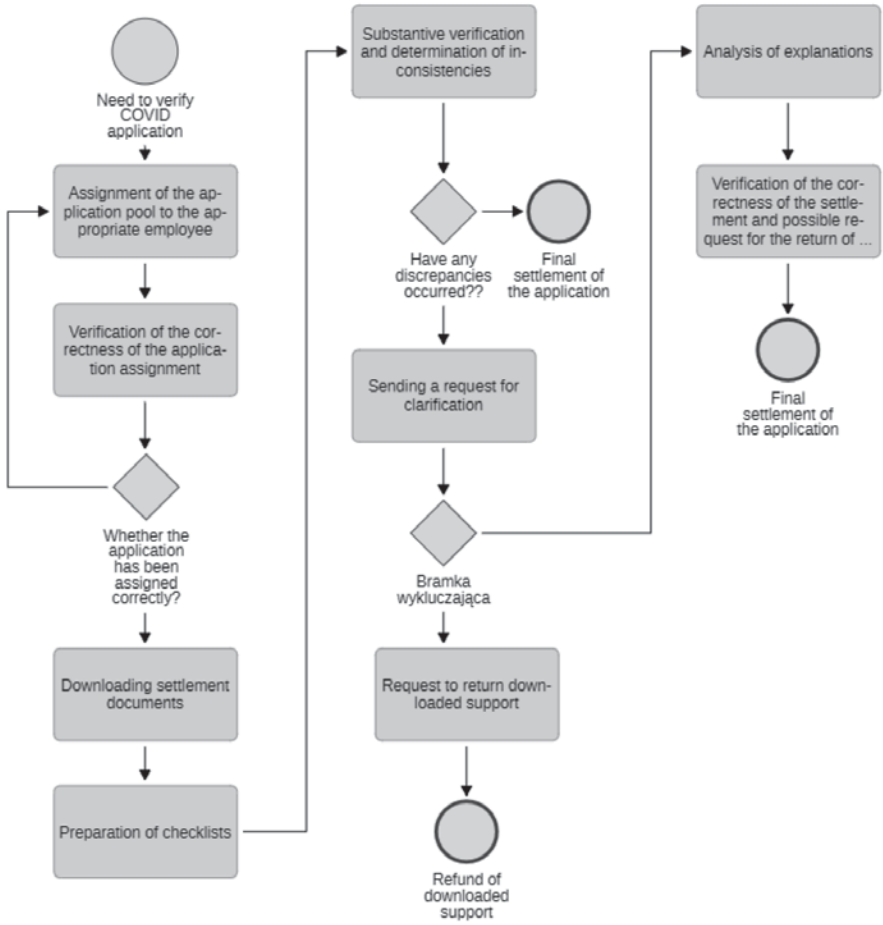
The concept of 'RPA robot orchestration' refers to the management and coordination of automated software robots in an organized and efficient manner. Thus, RPA robot orchestration is a practice that includes managing, controlling, and coordinating various RPA bots to optimize their work and collaboration with humans. The following areas are distinguished within RPA orchestration:

- Task Management - Organizing and supervising tasks performed by various RPA robots, assigning them tasks based on their skills and availability.
- Work Control - Monitoring and overseeing the activities of RPA robots, responding to potential errors or exceptions, and ensuring that the robots work as expected.
- System Integration - Cooperation and synchronization between different systems or applications with which RPA bots must interact.
- Scaling - The ability to increase or decrease the number of RPA robots as needed to better adapt to changing workloads.

Such understood RPA orchestration aims to ensure consistency, efficiency, and optimization in the use of automated processes. In practice, orchestration enables managing multiple RPA robots simultaneously and coordinating their actions in a harmonized and efficient manner, which in turn leads to process improvement and increased productivity.

To illustrate the practice of using RPA class orchestration solutions, the authors will use a case realized at the Provincial Labor Office in Krakow. Within the automation project, the process of verifying entrepreneurs' applications for COVID benefits was chosen for the application of RPA class robots. This process is presented in Figure No. 1. The goal of the process is to verify the correctness of applications and submitted accounting documentation and the final settlement of the subsidy. The process begins with the task of assigning a pool of applications for verification to a specific department employee. In performing this task, the manager should consider the types of applications submitted by entrepreneurs (entrepreneurs submitted applications in several programs) and the competency range of the substantive employee. The list of applications (over 16,500) is compiled in the form of an Excel spreadsheet. This spreadsheet also serves as a tool for monitoring the degree of case handling. The manager marks in the spreadsheet the individual stages of action

FIG 1. COVID application verification model



Source: own work

from the assignment of the case to its closure. Due to the construction of the spreadsheet, when assigning cases, the manager only considers the order of applications, ignoring the number of applications from one entrepreneur and the types of these applications. This leads to a situation where an employee is assigned cases of entrepreneurs in such a way that among the applications there are applications not handled by the employee. This, in turn, necessitates the correction of the assignment of cases. Substantive employees begin their tasks by downloading current registry data of entrepreneurs from state registers (KRS, CEIDG, GUS). Then, applications and accounting documents submitted by entrepreneurs are

downloaded from the VIATOR system. The next stage is substantive verification, during which the correctness of the registry data in the submitted applications, calculations of due benefits, and completeness of attachments are checked. In the event of detecting discrepancies, the entrepreneur is informed about them via an online platform and asked for explanations or to supplement the documentation. After supplements and explanations, if necessary, a decision is made to recognize the correctness of the settlement or calculate the due refund. The process ends when the settlement is recognized or the calculated refund is paid by the entrepreneur.

Analysis of the process identified the following areas for automation:

- Work assignment
- Retrieving documents from registries
- Preliminary verification of applications (Preparation and initial completion of a checklist)
- Handling correspondence with enterprises via the e-puap platform

The originally proposed solution involved creating 4-6 independent scenarios operating in a supervised mode and launched by a designated person. The number of applications for verification in the analyzed process was initially about 16,500.

The first robot developed was a solution that was tasked with allocating cases, taking into account all the rules. The first rule adopted was that one employee should verify all applications from a given entrepreneur. Due to the specificity of the applications submitted in the organizational unit, a division of employees who considered different types of applications was made, with the scope of each employee's work individually determined. As a result, there were situations where the manager, when assigning work to certain employees, allocated entrepreneurs and applications that matched the competence of a given employee but due to the specificity of the database used and the manual method, it was impossible to verify whether all the applications submitted by a given taxpayer entrepreneur fell within the employee's competency range. This necessitated changing the assigned applications because some of the applications were not verified, and the manager was not informed about this. The developed solution eliminated this error and both took into account the mentioned rule and verified the employee's competence in relation to all applications from a given entrepreneur. In this

way, incorrect assignments and lack of feedback on taking up cases were completely eliminated.

The next area identified for robot action was the retrieval of documents constituting the full documentation necessary for the verification of the application. This process, when done manually, was time-consuming and often generated errors requiring re-retrieval of documents. The use of a robot in this area not only eliminated errors but also reduced the data retrieval time by about three times.

In the third step, a scenario was developed whose goal was to prepare a checklist and preliminary document verification. The robot created a checklist for a given case based on a template and filled it with data from the retrieved documents. The last scenario developed in the analyzed implementation stage was a scenario for handling the Office's electronic correspondence with entrepreneurs. This correspondence takes place via computer systems, and thus the robot could naturally take over part of this work. Specifically, its task was to check whether correspondence from entrepreneurs regarding the settlement of applications appeared in the office's mailboxes and to inform the employees responsible for the case about it. Since the correspondence went to the office's main incoming mailbox, it was necessary to select those messages related to the implementation of the application verification process and pass them on to the responsible employees. Thanks to this solution, employees did not have to browse through long lists of settled cases, and only received precise information about which of their cases had received correspondence. Additionally, they automatically received the content of this correspondence.

Discussion – The Possibilities of Orchestration of Software Robots in Public Administration

During the implementation work, the work time of individual substantive employees involved in the verification process of COVID applications was photographed. Thanks to the collected data, it became possible to relatively precisely determine the effects of changes, including the indication of the time savings generated in practice for employees. These savings are presented in Table 1.

Table 1. Time savings associated with the introduction of RPA technology in the COVID application verification process

No	Action	Time to complete a single activity without RPA support [min]	Time to complete a single activity with RPA support [min]	Number of processing times per day	Number of processing per day Processing time difference per day [hh:mm]	Processing time difference per month
1	Assignment of cases to a single employee	15	5	3-5	0:30 – 50	00:11:30 – 00:18:20
2	Downloading billing documents	35-45	5	100	50:00 – 66:40	45:20:00 – 68:18:00
3	Generating chck lists	15	2	100	21:40	19:06:00
4	Handling electronic correspondence	20	4	50	13:20	12:05:20
					Razem w skali miesiąca	77:22:50 – 100:23:40

Source: Own study

For the purposes of this study, only the first stage of robot orchestration was selected for analysis, in which only four activities are supported by RPA technology. These activities include: assigning cases to employees, retrieving settlement and registry documents from government websites, preparing checklists, and handling electronic correspondence. The selected activities cover only and exclusively the first part of the application process, consisting of substantive verification of correctness. In the second part, applications are settled, and the liabilities that entrepreneurs should return are calculated. This part of the process will be automated in the next stage.

Data analysis from Table 1 indicates that the greatest time savings were generated for the activity of retrieving settlement documents. On a monthly basis, these savings range from 45 to 68 days, which equates to 135 to 204 working days. Generating checklists saves about 19 days, or 57 working days. Just these two automated activities alone can generate between 192 and 261 working days, which means that working robots replace one to two full-time employees per month. The smallest time

savings were recorded for the activity of assigning work time, as it is only two working days, but it is worth remembering that this activity was performed by the team manager and was relatively error-prone, as mentioned earlier due to the construction of the tool. Errors generated in this activity necessitated repeating the same actions by employees, delays in the process, and consequently reassignment of work or corrections in the record sheet of employees verifying applications. Interviews indicate that such a situation occurred in 5%-7% of assigned cases. Since errors were detected at various stages of work on verifying the application and these events were not recorded accurately enough, it was not possible to precisely determine the time losses resulting from these errors. Not included in the calculations is the time spent correcting or mistakes related to retrieving the wrong documents or incorrect filling of checklists. The currently used model assumes the robot is launched by one of the employees for the needs of other employees. This model, therefore, does not take into account the waiting times of employees for the robot to start. Eliminating waiting times by making the robot available to all substantive employees could further shorten the processing time of a single application. Estimated data indicate that employees lose several to several dozen minutes a day waiting for the robot to start. Allowing them to start the scenario at any time of the day would eliminate waiting time, which would consequently speed up the process. Observed changes in the attitude of employees towards the use of software robots in the studied organization unequivocally indicate that employees are becoming familiar with the technology and are no longer afraid that technology will take away their jobs, but are beginning to see it as an ally that facilitates work and changes its form. Therefore, some employees, after three months of using the presented work model, express a desire to use robots individually and indicate further areas for the application of technology. It can therefore be assumed that the organization is entering the stage of robot orchestration. Only moving to this stage will allow the institution to achieve full efficiency in the implementation of RPA to support processes."

The analysis of the data presented in table 1 indicates that the greatest time savings were generated for the activity of downloading settlement documents. On a monthly basis, these savings range from 45 to 68 days, which gives 135 to 204 business days. Generating checklists gives savings of 19 days, i.e. 57 business days. These two automated activities alone can

generate between 192 and 261 working days, which means that working robots replace one to two full-time employees per month. The smallest savings in working time were recorded for the work time allocation activity because it takes only two working days, but it should be remembered that this activity was performed by the team leader and was burdened with a relatively high number of errors related to the design of the tool, as previously mentioned. Errors generated in this activity resulted in the need for employees to repeat the same activities, delays in the process and, as a result, the need to re-assign work or make corrections in the record sheet about people verifying applications. Interviews show that this situation occurred in 5%-7% of assigned cases. Because errors were detected at various stages of work on application verification and these events were not recorded precisely enough, it was not possible to precisely determine the time losses resulting from these errors. Not included in the calculations is the time spent on corrections or errors related to downloading the wrong documents or incorrectly completing checklists. The currently used model assumes that the robot is run by one employee for the needs of other employees. Therefore, this model does not take into account the waiting times of employees to start the robot. Eliminating waiting times by making the robot available to all professional employees could further shorten the processing time of a single application. Estimated data indicate that employees waste from several to several minutes a day waiting for the robot to start. Enabling them to run the scenario at any time of the day would eliminate waiting time, which would consequently speed up the process.

The observed changes in employees' approach to the use of software robots in the studied organization clearly indicate that employees are getting used to technology and are no longer afraid that technology will make them unemployed, and are starting to see it as an ally that makes work easier and changes its form. Therefore, after three months of using the work model presented in the study, some employees express their willingness to use robots individually and indicate further areas of application of the technology. It can therefore be assumed that the organization is entering the robot orchestration stage. Only moving to this stage will allow the institution to achieve full effectiveness of implementing RPA to support processes.

Conclusion

RPA (Robotic Process Automation) offers rapid return on investment, improved processes, better customer service, elimination of repetitive work, enhanced service delivery, increased management capability, cost reduction, insight and analytics, non-invasive technology, increased compliance, scalability, and flexibility. Another function provided by RPA is the recording of manual tasks and then mimicking the entire process[18].

As the analysis shows, the use of software robots significantly speeds up the implementation of processes and additionally reduces their costs. Considering that the applied solution required 10 days of a trainer's work and the purchase of a license costing 500 PLN per month, it can be stated that the total cost of the investment in the solution paid off after just the first 12 days of the robot's operation, meaning that half a month was enough to recoup the costs. Assuming that the process being implemented will continue for at least another 6 months, it can be assumed that the investment in the original concept has already brought relatively high benefits. The application of orchestration will further increase its profitability. The solutions applied in the developed scenarios can be implemented in other areas and processes of the office, especially in handling electronic correspondence, where the same IT systems are used. Adapting robot scenarios to new tasks will take less time than preparing them from scratch. Therefore, subsequent implementations will be much more efficient, and the change in employees' mentality and the widespread recognition of the benefits of the applied solutions mean that the model of implementing software robots will change from a centrally managed model to an orchestration model, in which robots become collaborators for each of the employees. After five months of using robots, changes can be observed in the institution not only in the organizational units that use robots but also in those that have not yet implemented such solutions. Interest in technology and its application possibilities is growing. The increasing awareness of employees means that the current problem is the number of people able to program scenarios. The demand for such solutions in the office has become so great that the institution is considering establishing a special team whose task will be to prepare

[18] Cewe C., Koch D., & Mertens R. (2017, September). Minimal effort requirements engineering for robotic process automation with test driven development and screen recording. In *International Conference on Business Process Management* (pp. 642-648). Springer, Cham.

and maintain robot scenarios. It is estimated that the team should consist of 4 to 6 people who will prepare and maintain the developed scenarios.

It should be recognized that the technology used has great development potential and will be a very dynamically developing area in the coming years. The particularly rapid development of this technology and the sharply increasing number of implemented solutions are primarily due to the ease of its use, the possibility of use in any area, cooperation with most applications, and relatively low cost of licenses and scenario development.

In the case of applying solutions in public sector institutions, it should not be overlooked that public organizations base their operating model on the implementation of processes indicated by relevant legal acts. Therefore, the catalog of tasks (processes) for units of the same type is identical. Thus, an additional benefit of using RPA solutions in the public sector is the relatively easy implementation of solutions designed and executed for one office in a similar office located in another administrative unit. In the case of Labor Offices, it can be assumed that the time of implementing a solution developed and implemented in one office in subsequent offices will constitute no more than 10-15% of the time of the original development. This is related to the fact that these institutions use the same IT systems (in the same version), and the whole work will be reduced to only the correction of the robot's work environment settings.

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