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Building RPA solutions for customer-oriented processes automation

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Abstract

The concept of work has changed during the last decade when the process automation has gained an increased importance in the strategic agenda of companies. Robotic Process Automation (RPA) has emerged as a fundamental productivity enabler in several areas, such as: finance, human resources, Customer Relationship Management (CRM), administration and procurement. The authors defined as the objective of their research the exploration of RPA benefits in the CRM and finance domains through the development and implementation of an RPA solution. The solution provides support to the customers by offering them structured sales information that companies report on a regular basis. An important aspect which is also addressed in the paper is how the traditional customer-oriented services, such as: call centers, web sites and e-commerce interfaces might be automated via RPA solutions. The research findings confirm that RPA is a technology that might supports customers in their decision-making processes.

Keywords: Robotic Process Automation, Finance, Customer Relationship Management

Introduction

In present times, when companies strive to keep and even improve its competitiveness through the increase of productivity and business processes' efficiency. Implementation of Robotic Process Automation (RPA) has proved to be an enabler of the resilience, efficiency, and digitalization. By implementing RPA solutions, the work previously done by people are perform automatically, for example transferring data from multiple sources, like ERP systems and spreadsheets to e-mail and other specific systems (Lacity, Willcocks and Craig, 2015). RPA deals with repeatable tasks that usually take human an unbearable length of time to accomplish and which they typically find mundane to perform (IRPA, 2015). Moreover, RPA is seen as one of the important pillars of the disruptive technologies that drive the paradigm shift on how work should be handled in the future, and which is the role that the humans will play in defining the operational excellence.

The paper underlines the value generated by the implementation of RPA solutions relevant for customer support services bringing into perspective also a finance angle which focuses on both providing key information to clients related to their business performance connected to assumed volume targets as well as internal information channel for sales and financial departments as a premise the identification of the partner's strengths and weaknesses and further development potential related to client's technical knowledge. The first section of the paper presents the background and the literature review findings. Based on the literature review, the authors identified the main CRM and financial processes subject for automatization and how the automatization was achieved in previous similar research. A list of RPA potential benefits was also compiled. In the next sections of the paper, an RPA solution is presented based on a real business context with various implications on the process efficiency, people productivity and

decision-making. The in last two sections (*Main results and discussions* and *Conclusions*), the authors presents the research results and how they are aligned with the findings of similar research.

Background and Literature Review

Digital transformation is considered as being the process of using digital technologies to create and/or modify the business processes, culture, client experiences, the way information is generated based on existing data, and the way decisions are made in terms of time and cost. Digital transformation is one of the factors that strongly contributes to resilience, in close connection with flexibility and agility.

Moreover, organizations that ground their internal structures on digital systems could respond and adapt faster due to accessibility of the information that leads to informed and quick decisions (Postolea and Bodea, 2021a). As defined by Postolea and Bodea (2021a), the operational resilience intervenes immediately after a disruption that affect the normal, stable environment and it is reflected on areas related to short-term behavior, such as: the increase of productivity and getting additional or a simmlar value when dealing with multiple constraints. The handiest solutions are related to those processes requiring manual work.

Based on the concepts of resilience and digital transformation, Postolea and Bodea (2021b; 2021c) conducted several research based on inductive inquiries, revealing the finance perspective of the key concepts of resilience and digital transformation from an IT viewpoint. As emerging trends in the finance domain, Robotic Process Automation (RPA) was mentioned as one of the technologies contributing the most to satisfying the customers' needs, optimizing processes (both internal and external) and assuring the employees' professional development. This outcome is confirmed also by the latest survey conducted by Deloitte, in December 2021 (Deloitte, 2021). This survey revealed the perspective of 110 CFOs from the Romanian market and showed that digital transformation initiatives will reshape the role of finance function within companies, in the context of tighter margins, stronger competition and restricted regulatory policies. The finance function will be responsible to face with such challenges. Moreover, it is expected that over the next couple of years, digitalization will make the finance function better, faster and, most probably, less expensive. The survey also positioned finance as the most efficient and effective function in the context of applying technologies for automating the support processes for decision-making. 45% of the respondents agreed that automation is perceived as being synonymous to digital transformation (Deloitte, 2021). The most important benefits identified by this survey are the improve of value-added tasks, time reduction in performing the tasks and more reliable data which result in saving costs, reducing errors, enhancing workforce leverage, and improving transparency. When addressing the biggest challenges in implementing digital transformation within a company, the level of required investment, exchange information with authorities due to low degree of digitalization of the public institutions and the slow pace of employees' re-skilling have been mentioned as the main obstacles of digitalization.

RPA allows performing day-to-day business process by automating how people interact, either through user interfaces with multiple applications or through analytics and simple rules to make decisions (Horton, 2017). The RPA solution is defined as a preconfigured software instance that incorporates business rules and a predefined activity choreography to complete the autonomous execution of a combination of processes, activities, transactions, and tasks. It may be implemented in one or more unrelated software systems to deliver services and it allows human intervention only for handling the exceptions (IEEE, 2017). Within a specific context, RPA represents an umbrella for different tools and software applications that operate on the user interface of other systems in a similar way that human operator is performing. In comparison with other approaches, RPA spotlights on how actual work is being done in an outside-in or a

top-down manner, thereby performing “[if, then, else] statements on structured data, typically using a combination of user interface interactions, or by connecting APIs to drive client servers, mainframes or HTML code. “An RPA tool operates by mapping a process in the RPA tool language for the software robot to follow, with runtime allocated to execute the script by a control dashboard” (Tornbohm and Dunie, 2017). Moreover, RPA does not require to change the established processes or workflows, although the tasks are not to be performed by human operators anymore but by the software robots. In addition, RPA may be chosen as a solution either for complete end-to-end processes or just for small parts of processes, having thereby a low barrier to implement, due to the fact that RPA can perform on small processes or tasks while not changing the existing business process logic (Lacity, Willcocks and Craig, 2015).

In 2021, the Everest group has published the latest version of its report on RPA technology providers that contains a comparative assessment of 23 leading companies in the RPA domain, a description of the competitive landscape of the RPA technology market, key RPA technology trends and remarks on strengths and limitations of each RPA provider (Everest Group, 2021). Summing up the important aspects of the study, the following aspects might be highlighted:

- the *leaders’ category* (including Automation Anywhere, Blue Prism, NICE and UiPath) have a strong vision, the capability to respond to the rising demand for a holistic intelligent automation platform, and complementary capabilities such as process mining, task mining, conversational Artificial Intelligence, and process orchestration. Moreover, the leaders have a distinct focus on enhancing SaaS RPA platforms and delivering web-based design studio and orchestrator, with future development of cloud-native architecture. The categories of *major contenders* (such as: Aiwozo, Appain, and AutomationEdge) and *aspirants* (ElectroNeek and Nintex) are playing a major role in increasing competition and address their solutions on specific use cases, industry, and geography.
- an extended range of *capabilities and offerings*, such as: design, development, control and management of the robots, monitoring and analytics and robot lifecycle management are covered already through the existing functionalities provided by the providers or available via partners. There are a couple of options, such as: performance monitoring and recommendations on how the robots must be deployed and executed that are not yet available.

The main conclusion of the report is that UiPath is the RPA market leader, having the following strengths and limitations:

- The UiPath’s vision aims to enable the work environment where all routing tasks are automated and human and digital worker work in collaboration. The UiPath packages include RPA, AI, process mining, task mining, cloud API integration and analytics capabilities. Moreover, UiPath targets different user roles, by addressing their specific needs in three versions of RPA: Studio for developers, StudioX for citizen developers and Studio Pro, for professional developers. UiPath has a strong technology partner ecosystem with pre-built integrations from several providers, such as: Microsoft, Google, Oracle, and SAP.
- The lack of a web-based design studio version allows users to get started without the need of installing a thick client application.
- There is a room to improve governance features of the platform and segregation of access and authorization rights for different user roles.
- Now the UiPath platform lacks a native ability to use AI/ML to identify work distribution patterns for autonomous load distribution within the available robots for ensuring the optimum utilization of digital resources.

The authors have decided to develop the proposed automation solution by using UiPath solution StudioX (UiPath, 2022) which offers the features asked by the identified requirements. Moreover, the StudioX is a free version offered by UiPath with multiple visual options based on no-code platform available for business users such as the company's employees.

Hofmann et al. (2021) identified the following four requirements for implementing successful RPA projects:

- Available metrics needed when the decision makers are assessing the process's automation potential.
- Applicable desktop activity mining for getting a holistic picture of the processes that also account for activities performed in essential tools, such as: Microsoft Excel and Outlook.
- Conducting a profitability analysis before implementing an RPA project that compares cost-saving generated for eliminating human labor with the costs of implementing, maintaining, and running RPA.
- Process automation variation to be considered.
Considering these requirements, Hofmann et al. (2021) have proposed a five-step framework:
 - *Process pre-selection*, meaning the identification of the most promising processes to be automated.
 - *Process identification*, which requires to choose an appropriate setup for data collection by using both process mining and desktop application mining.
 - *Process assessment*, made by setting metrics (e.g., execution frequency, execution time, standardization, stability, failure rate, automation rate, etc.) and assessing the automation potential of each of the selected processes.
 - *Financial assessment*, requiring conducting a comparison between fixed and variable costs imposed by human labor versus the use of software robots (with the consideration of an amortization constraint).
 - *Decision making*, which is a well-informed selection of the best process to be automated based data and assessments conducted previously.

Syed et al. (2020) identified the following main benefits of RPA solutions' deployment:

- *Operational efficiency*, in terms of reduction in time, cost and human resources, reduction of manual tasks and workload and increased productivity, is based on reducing the number of full-time equivalent employees (FTE) by replacing them with robots with significant cut of in process cycle time, task handling time and waiting time with an extended working schedule as robots can work 24/7 non-stop thereby releasing human resources from repetitive and tedious tasks.
- *Quality of service*, by avoiding the common transactional errors such as incorrect data inputs, missed steps, and mistakes in rule-application and targets to achieve 100% accuracy from RPA implementation with a reliable and continuous service by becoming a pillar in delivering service excellence to customers or by bringing transformative customer experiences.
- *Implementation and integration*, that is supposed to be relatively easy and cheap to implement in a short timeframe, RPA typically provides a simple and intuitive interface to users and is integrated facile with existing infrastructure and systems, not requiring expensive or sophisticated systems integration.
- *Risk management and compliance*, RPA proving to be an asset in reducing risk and increasing compliance by keeping a log of work formed to ensure that tasks and processes being automated meet regulatory requirements and generating alerts for any anomalous actions against compliance regulations.

Another benefit of RPA implementation is the re-allocation of the available human resources towards creative and value-added tasks; moreover, when an RPA solution integrates different systems, an arising advantage would result in the increase of the system utilization if compared with human task-oriented version of work.

A glimpse into the future is given by the McKinsey's report on emerging disruptive technologies (McKinsey, 2013). The report states that the usage of RPA grows at the rate in which 110 million up to 140 million full time equivalent hours (FTEs) could be replaced by automation tools and software robots by the year of 2025.

Moreover, the Institute for Robotic Process Automation states that “the robots are here to stay” and when moving towards the future, humans will work together with robots to transform the way we do business resulting in humans and machines working in tandem to support decision making and assist the experts in producing more informed and better decisions across various domains (IRPA, 2015).

Methodology

Main research objective is to identify the benefits of RPA solutions for CRM and finance domains, as perceived by the solutions' users. Based on the literature review, the authors defined the following list of the RPA potential benefits to be considered and validated:

- Increase *operational efficiency*, in terms of reduction in time, cost and human resources
- *Re-allocation* of available human resources towards creative and value-added tasks; moreover, when an RPA solution integrates different systems, an arising advantage would result in the increase of the system utilization if compared with human task-oriented version of work.
- Increase *quality of service*, by reducing the common transactional errors such as incorrect data inputs, missed steps, and mistakes in rule-application and targets to achieve 100% accuracy from RPA implementation with a reliable and continuous service by becoming a pillar in delivering service excellence to customers or by bringing transformative customer experiences.
- Improving *integration* of IT infrastructure components
- Improving *risk management and compliance*, RPA proving to be an asset in reducing risks and increasing compliance by keeping a log of work formed to ensure that tasks and processes being automated meet regulatory requirements and generating alerts for any anomalous actions against compliance regulations.

The paper presents the development and implementation of an RPA solution, following the framework proposed by Hofmann et al. (2021). To validate the perceived benefits of this RPA solution, semi structured interviews with six key users were ran. The selected users have different experience in managing the related domains, from one year to more than 15 years.

The Business Context

The legal entity for which the process improvement was designed is an established regional company of a multinational group operating in several areas, such as: development of hardware products and software applications which enhance the complete integration of the data obtained the production processes, creation of automated computing, motors and drives, communications and sensors all of them addressing the automation market of the different industries – food and beverage, cement, oil and gas, pharma, etc. To ensure profitable growth of the industrial product business, the group has developed a sales framework to support the optimization of customer pricing oriented toward several performance criteria, with the consideration of the market-specific conditions and a sales system oriented on process efficiency and profitability. On a yearly basis, the group defines a catalogue containing all the products grouped on

portfolio elements (reflecting products -> family of products – group of families of products), with the prices list, as the basis for any kind of calculation, starting with the transfer price which is the price at which the regional company receives the products from the factories and down to the prices that are being offered to the clients in each of the countries where the group is present.

Transfer pricing is determined based on the risk and profit principles which relates to the market prices for the respective product thereby ensuring that the transactions which take place between affiliated companies take place at a price as if the transaction was taking place between unrelated parties. If such criteria are not met, local tax authorities may choose to adjust intra-group transfer prices that differ from what would have been charged by unrelated companies dealing at arm's length principle. OECD and the World Bank recommend intra-group pricing rules based on the arm's-length principle, and 19 of the 20 members of the G20 have adopted similar measures through bilateral treaties and domestic legislation, regulations, or administrative practice (OECD, 2022).

The local country specific customer prices are based exclusively on the list prices defined in the product catalogue which is adjusted with a discount (Customer price = list price – discount (%)) based on regional sales framework and the sales strategy defined at the group level. Moreover, the principles for awarding discounts are specifically defined in the discount guideline which considers several criteria, as it follows: type of customer (end user, distributor, OEM – Original Equipment Manufacturer or System Integrator, payment terms and reliability (advance payments, compliance with the payment due dates), proven performance (evolution of the business volume), etc. Figure 1 is a graphical representation of the overview of the discounts awarded per type of client considering the business volume.

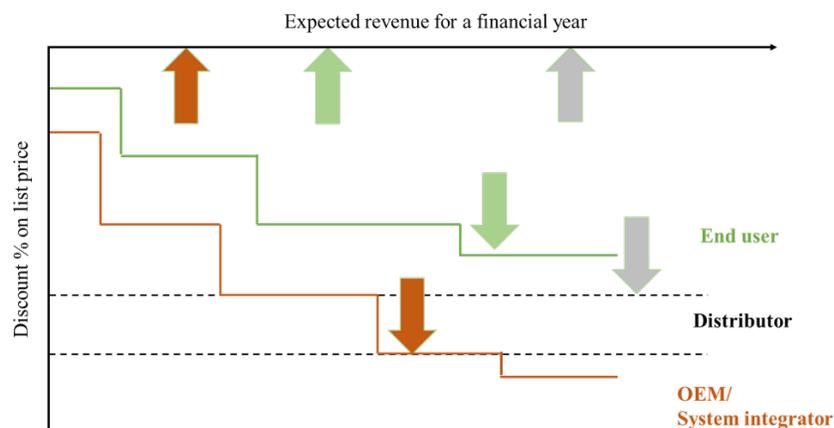


Figure 1: Discount overview, per type of clients

As illustrated in Figure 1, the sales channel represented by the distributors is the one with the highest representation from the expected business volume point of view, distributors being able to fully serve end users and to cover a demand from OEMs and system integrators up to 90% of the received requests, therefore positioning this sales channel with the highest potential to cover most of the market demands for products. Distributors become in this perspective one of the most reliable extensions of the regional company, having also a very good geographical coverage from sales point of view and ensuring availability for product distribution. Moreover, most of the distributors include in their sales strategy the option to maintain and build stocks for products which have a high rate of request, initiative which is not covered currently by the regional company from a supplier role.

The breakdown of the regional company sales per sales channel indicates that distributors generate 45 up to 50% of the business volume, OEMs and system integrators -20-22%, end users – 20% and other type of customers – not more than 10%. Based on this information, the regional company has defined a customized approach for distributors based on proven performance and further potential to develop integrated in an overall structure which promotes a non-discriminating discount system with clear and transparent established criteria for the results evaluation. For this purpose, special distributor frameworks have been designed which include discounts based on the list price defined at the product group level. To support the distributors in keeping and increasing the competitive level of the products from a price perspective, the frameworks include a volume to be reached at the level of a financial year which is agreed with the distributor beforehand and properly documented within the framework. Based on the achieved level of the business, the distributors may additionally obtain a bonus limited to a certain percentage (e.g. – 5%) if the that agreed revenue has been overachieved, calculated as pro-rata of the additional volume generated (see Figure 2 in which an example is presented). Moreover, the regional company reserves the right to adjust the discount percentages if the respective distributor will not achieve the agreed volume stated in the framework.

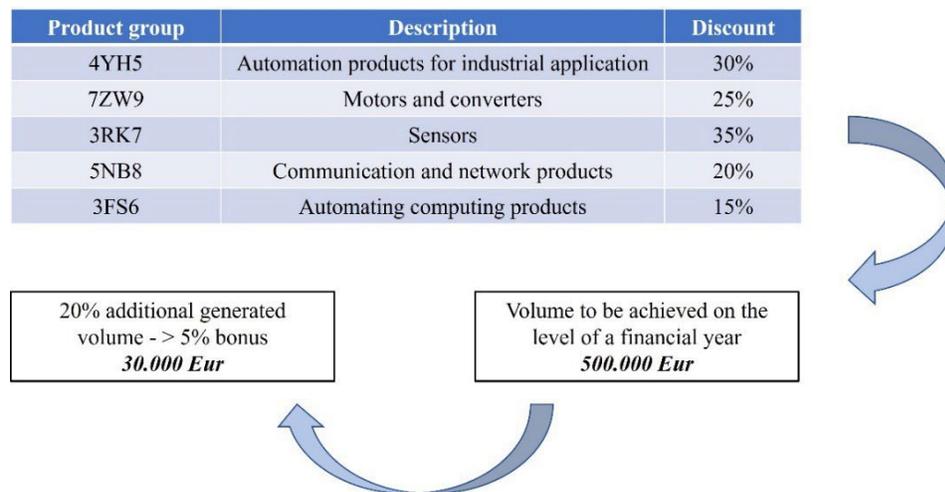


Figure 2: A discount example

From this perspective, it is of great interest for both the regional company as well as from the distributor point of view to have a clear monthly overview on the achieved performance at a product group level as defined in the framework, not only from the perspective of the potential financial impact, but also from a CRM perspective – identification of the technical competences that drove this result and establishing future levers for further business development.

Process Description and Related Implications

The regional company is using SAP, as ERP system, in which all the accounting, financial, logistic, supply-chain and commercial data is being stored. Data available in SAP is used to calculate the volumes per product group achieved by the distributors as well as for sales analysis of any kind, such as: key products

from portfolio, profitability on different criteria, low demand for certain products etc. Moreover, from an accounting perspective, the sales data referring to the performance of the distributors that may overachieve the established volumes from the frameworks is a key information out of which the related accruals derive.

From the process flow perspective, the steps to be performed monthly to reach in necessary information, both external (for distributors), as well as internal (for sales and financial departments) are requiring a lot of effort from two teams for achieving the needed data by following these steps:

- the appointed employee from the financial department, logs on in SAP and runs the sales report for the respective period which contains all the necessary data; the report is then exported in the excel format and several steps are formed in order to attain the configuration which reflects the achieved business volume on a customer level per product groups in a certain period of the year and the profitability expected to be reached.
- the report is then sent to the sales manager responsible for the addressed business segments to add the criteria set in the framework; based on the actual figures extracted from SAP and the set targets, the performance of the distributor can be established – on a product group level as well as the overall achievement. Moreover, for internal purposes the performance report of a certain distributor will include all the profitability level. The sales manager provides the performance report via email to the distributor after including all the relevant information.
- the same report reflecting the achieved performance of the distributor is sent also to the order controlling person, who calculates the accruals based on the attained results; the accruals are calculated after a deep dive analysis of the received orders and the preparation of a proper documentation for audit purposes.

When designing the steps for which the robot will be trained to follow, a few adjustments were considered in some of the sub-steps regarding additional checks thereby making the process more efficient and sounder (see figure 3).

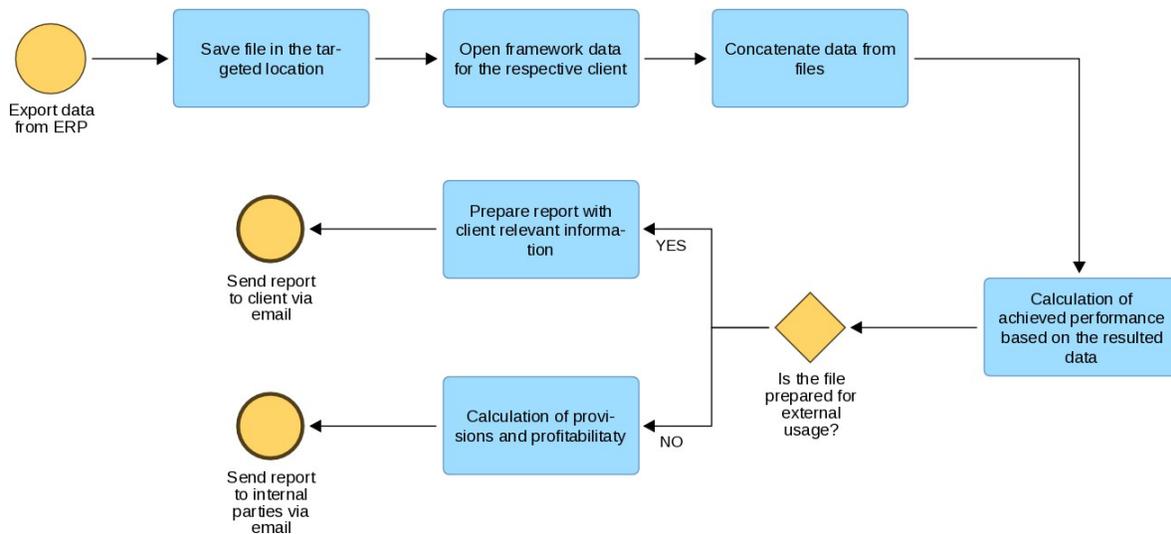


Figure 3: The process overview

Based on the analysis of the process, the authors proposed an RPA solution which aims to address the topic from the CRM perspective, by supporting the distributors with the proper information and enabling the internal sales analysis, with the additional financial component for providing the resulting data.

Proposed RPA Solution

Any RPA solution from UiPath is based on the Robotic Enterprise Framework which is a project template based on State Machines which has been created to fit all the best practices regarding logging, exception handling, application initialization and others. The template contains several pre-made State containers for initializing applications, retrieving input data, processing it and ending the transaction. All of these States, as portrayed in Figure 4, are connected through multiple Transitions which cover almost every need in a standard automation scenario (UiPath, 2022).

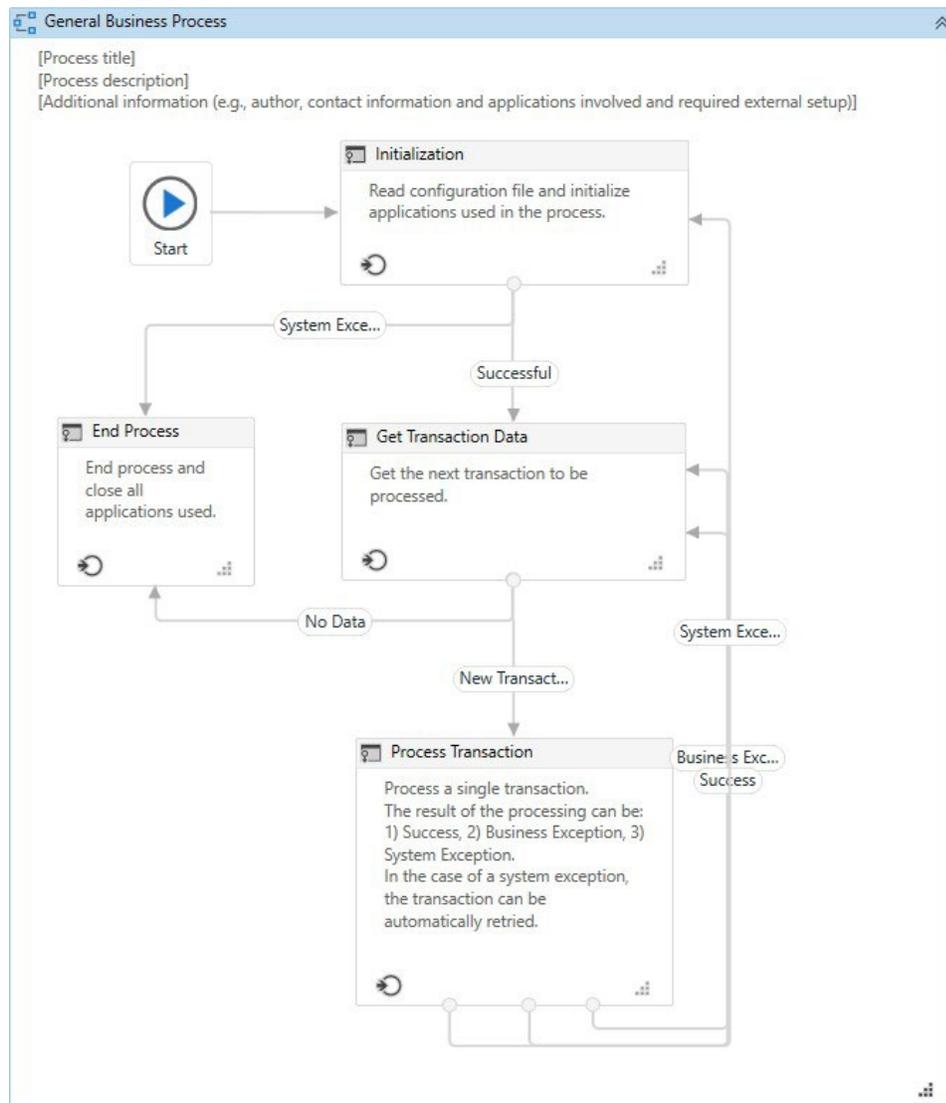


Figure 4: The Robotic Enterprise Framework (UiPath, 2022)

To prepare the implementation of the proposed RPA solution, the solution design document has been developed (see Table 1), describing the process as-it-is with comments on all the necessary steps which the robot must follow, to achieve the desired results.

Table 1: The design of RPA solution

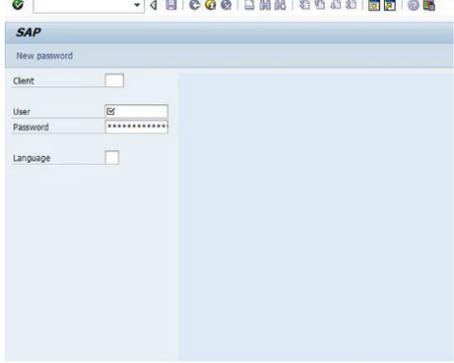
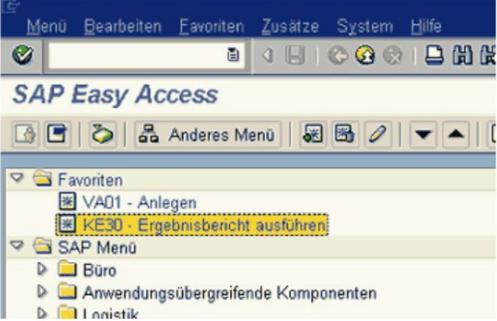
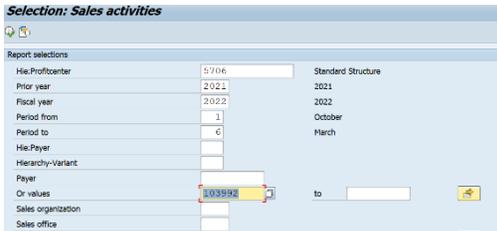
Step	As-is process description	Comments for future adjustments	
<i>1. Export sales data from SAP</i>			
1.1 Log on to local SAP system	The log on window is opened and credentials for connection are loaded. Selected language for connection – English.	For the RPA solution, credentials are extracted from Orchestrator (or Credentials Manager).	
1.2 Insert transaction to access the sales report	Write in the transaction bar the action for accessing the sales report – KE30 and run the available report for the current financial year.	Record of transaction for the usage of the robot.	
1.3 Fill in the criteria for each of the available fields to obtain the data	Fill in the criteria regarding the defined customer number in SAP, for which period the sales should be prepared, which are the product groups to be included in the report.	The criteria to be used will be stored in separate file.	
1.4 Run the report and export to .xls format	Hit the run button after filling in the criteria; selection for the currency of the figures – EUR at the exchange rate applicable in the respective day; export data in a .xls format and save the file with an intuitive title <i>customer_name_period_financial year.xls</i> .	Record of performed steps for the usage of the robot.	
1.5 Send/make available the raw report to sales manager for further editing	Send via email the file to the respective sales manager.	The robot will save the exported file on a specific cloud or server location.	

Table 1 (Continued)

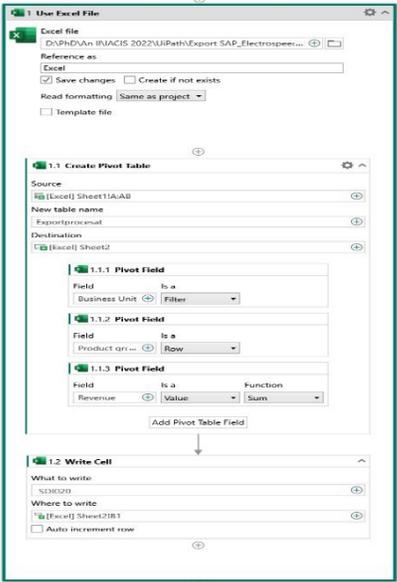
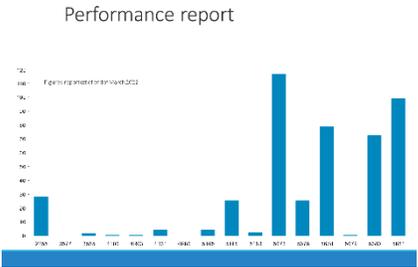
Step	As-is process description		Comments for future adjustments
<i>2. Match actual data with the framework requirements</i>			
2.1 Open file	Once the sales manager receives the file, additional checks are being performed – the customer number fits to the analyzed client, the period for the actual data fits to the latest month, the list of product group is complete.	Step to be eliminated.	
2.2 Open framework agreement and match actual data	The framework agreement is opened and a match between the product groups for which discount have been awarded and the group actual data reflected on product groups is being performed.	The robot will open the necessary file in order to access data necessary for performing the report.	
2.3 Additional checks	As the established volumes are defined in the frameworks in EUR, a reasonability check for the currency is additionally performed by the sales manager. Moreover, having in mind that the discounts awarded to the distributors refer only to the products which have a high rate of demand, some product groups will be part of the exported data from SAP but will not be part of discount lists from the framework agreements; this product groups are not part of the analysis, therefore will be deleted from the file.	Translating values from local currency to EUR; match for calculation only relevant product groups.	 <p>The screenshot shows the 'Use Excel File' interface with two tasks: '1.1 Create Pivot Table' and '1.2 Write Cell'. The PivotTable task is configured with 'Business Unit' as a Filter, 'Product group' as a Row, and 'Revenue' as a Value with a Sum function. The Write Cell task is set to write the 'Sales' field to cell '[Excel] Sheet2!B1'.</p>
<i>3. Prepare the performance report</i>			
3.1 Calculation of the achieved performance	Based on the actual data exported from SAP, a percentage of performance is calculated for each of the product groups which are part from the discount list. This report is further used also by the financial department is establishing the related accruals.	Calculations are being automatically done by the robot.	 <p>The bar chart, titled 'Performance report', displays the percentage of performance for various product groups. The y-axis ranges from 0 to 100. The x-axis lists product groups: 2306, 2627, 3053, 710, 6402, 7107, 6860, 3408, 3481, 713, 3071, 6076, 3603, 3074, 3040, and 3077. The bars show varying levels of performance, with 3071 having the highest value at approximately 95%.</p>

Table 1 (Continued)

Step	As-is process description	Comments for future adjustments	
3.2 Preparation of visual representations of the results	A power point presentation with the Think Cell graphs is prepared based on the report resulted at point 3.1.	Draft presentation will be available on the server location and will be updated by the robot with the resulted figures.	<div style="background-color: #0070C0; color: white; padding: 5px; display: inline-block;">Additional information</div> <p>Targeted volume to be achieved= 200.000 EUR Achievement level as of March, 2022= 76% Volume to be achieved by end of the financial year= 48.000 EUR</p>
3.3 Preparation of the final report	Based on power point presentation, a .pdf file is being prepared and final report is being concluded by the sales manager.	The robot prepares the .pdf presentation.	
<i>4. Send the report to the involved parties</i>			
4.1 Distributor	The .pdf file resulted at point 3.3 is sent via email to the respective distributor for which the actual data refers to.	The robot sends the presentation via email to the client.	
4.2 Regional sales team	Both the .xls file and the .pdf file are sent to the entire regional sales team in order to disseminate the information regarding the distributor performance.	All resulting files are saved on cloud/server location to accessed at any time.	<p>Subject: Performance report as of March, 2022</p> <p>Distributor performance.pdf pdf File</p> <p>Dear sender, Please find attached the Performance report as of March, 2022. Should we have additional inquires, please feel free to contact us at: salesupport@xxx.com. Best regards.</p>
4.3 Financial department	The .xls file is sent to the respective order controlling responsible in order to prepare the calculation of the accruals to be posted for the respective period.	The robot sends the .xls file with the calculation to the responsible finance person.	

The steps detailed in Table 1 refer to the actual human activities which are performed and are aimed to be executed by one single robot in the automated version of the process. The design of the RPA solution was done considering the requirements of an attended robot, the triggering event being related to the available sales data for a complete month or simply a request received from the distributor which is interested to have the performance available at any point during the financial year. Moreover, the business user has at its own disposal whenever or how many times it is needed to run through the process and receiving the necessary data – not only for external usage (e.g., distributor), but also for internal analysis related to the awarded discounts.

Main results and discussions

After RPA solution implementation, the authors have identified several benefits which relate to different perspectives: easiness in implementation, process efficiency, company competitiveness, productivity, etc. which will be further presented in this present section. The employee, perceived as part of the process loop, is considered from RPA solution perspective as human knowledge blended with robotic activities in a synchronous collaboration. The robot’s duties consist of “on-demand” activities that need to be started as

soon as they are requested. By adopting such an approach, the human is waiting for the robot to complete its task since the robot outcome is needed to complete the human task (Axmann and Harmoko, 2020), which is consistent with the description provided in the *Proposed solution* section, where the input from the financial department is needed for accrual development. From CRM perspective, the benefit derived from the proposed solution is the availability to access the figures related to the distributor performance at any time, the trigger being either proactive internal approach for analysis and strategically decisions or reactive as coming in the form of a request from a distributor.

The RPA solution addresses on how employees must deal with the systematic – seen as shortcomings and singularities - that typical automated operation systems (including ERP, CRM, e-commerce, etc.) are unable to complete a whole process, end-to-end, therefore driving the employees in highly-structured, routine tasks like transferring data from multiple input sources (ERP in the presented solution) to spreadsheets and further on to email (Lacity and Willcocks, 2015). By implementing the RPA solution, none of the computer systems nor the connecting processes are disturbed; moreover, the easiness in implementation encourages any employee from the company to become more productive in its daily routines as no special software developer skills are required to implement simple, at-hand solutions that enhance the daily tasks only by using dragging, dropping, and linking icons that represent steps in a process.

A drawback from the potential benefits that an operator should perceive from the RPA solution implementation, is the fact that some projects might fail because the technology is considered as threat – this could be either from the perspective of losing their job as software robots could replace the respective position, or even the fact that IT departments may see it as simple or dangerous. The take-away from this downside risk resides in the importance of the internal communication as well as making sure that everyone from the organization see the value that the RPA solution could bring (Lacity, Willcocks and Craig, 2015).

By addressing a CRM request as well as by feeding information to the financial department, the RPA solution addresses two different areas of a company. In the description of the actual process from the previous section, an employee from the financial department as well as a sales manager are involved in preparing the performance report, each of them applying checks at each step they perform in order to not report errors in the information they provide. Once the automation for this process is implemented, accuracy is expected to reach 100% level, as human errors like not considering the correct currency or sending by mistake the performance report to a different distributor or a wrong email address are assumed to be eliminated completely. From the cost perspective, the RPA solution requires low investments, therefore at any change of the ERP system or updates of Microsoft packages, adjustments or complete retirement of the implemented solution are easy to be considered having in mind the reduced impact moneywise. Furthermore, since the regional company in discussion already has several implemented automation solutions within the available tools (ERP, Business Intelligence tools, Microsoft office features etc.), the niche addressed by the authors relates to the linkages between them and focuses on fractions of process instead of end-to-end solutions. From this perspective, further potential of development of the RPA solution may be identified, with impact especially in the activity of the financial department, one example being the automated calculation and then postings of the already established performance a certain distributor has reached over a period.

In order to validate the perceived benefits of RPA solution implementation, semi structured interviews with six key users were ran. The selected users have different experience in managing the related domains, from one year to more than 15 years. The experienced users, having more than 10 years' experience considered the improvement of service quality as being the most relevant benefit. The users with less than 5 years' experience considered the increase of operational efficiency as the most important benefi

Conclusions

The paper presents the design and implementation of an RPA solution in the field of CRM with ancillary implications in financial domain. The RPA solution was developed in order to identify and validate the benefits of using such solutions.

RPA was identified as an important element in supporting the customers by providing key information based on actual sales data on a regular basis for assessment and decision-making processes. RPA is depicted through the several benefits that it brings to an organization, such as: RPA is an umbrella for different tools and software applications that operate on the user interface of other operation systems in a similar way a human operator would do in reality; RPA does not require the change of any internal process or established workflows, although the tasks are not to be performed by human operators anymore but by software; RPA is a solution either for complete end-to-end process or just for small parts of the process, having thereby a low barrier to implement, due to the fact that RPA can perform on small processes or tasks while not changing the existing business process (Lacity, Willcocks and Craig, 2015). The research proved that the framework proposed by Hofmann et al. (2021) is general enough in order to be applicable in several domains.

The RPA solution has also limitations related especially to the narrow portion, which is addressed by the automation. Another research limitation is that the RPA solution was developed is only for CRM and finance domains. Generalizations about the RPA benefits in other domains, such as HR, administration and procurement are not possible.

References

- Axmann, B., Harmoko, H., (2020). Robotic process automation: An overview and comparison to other technology in industry 4.0. - 10th International Conference on Advanced Computer Information Technologies (ACIT). IEEE, pp. 559–562.
- Deloitte (2021). The CFO Programme - CFO survey Romania, <https://www2.deloitte.com/ce/en/pages/about-deloitte/articles/economic-outlook-and-predictions-from-central-europes-cfos.html>.
- Everest Group (2021). PEAK Matrix for Robotic Process Automation (RPA) – Technology providers, October.
- Hoffman, A., Praetori, T, Seubert, F., Wanner, J., Fischer, M., Winkelmann, A. (2021). Process selection for RPA Projects. Robotic Process Automation – Chapter 4, Walter de Gruyter GmbH, Berlin
- Horton, R. (2017). The robots are coming, Deloitte insight report, <https://www2.deloitte.com/content/dam/Deloitte/uk/Documents/finance/deloitte-uk-finance-robots-are-coming.pdf>.
- IEEE (2017). IEEE guide for terms and concepts in intelligent process automation, IEEE Corporate Advisory Group, New York, NY: IEEE, <https://ieeexplore.ieee.org/document/8070671>
- Institute for Robotic Process Automation, IRPA (2015). Introduction to Robotic Process Automation A Primer, Carnegie Mellon University.

- Institute for robotic process automation, IRPA (2022). Introduction to robotic process automation (2015), <https://irpaai.com/wp-content/uploads/2015/05/Robotic-Process-Automation-June2015.pdf>.
- Lacity, M., Willcocks, L. (2015). What knowledge workers stand to gain from automation – Harvard business review, Process Automation section, June.
- Lacity, M., Willcocks, L., Craig, A. (2015). Robotic Process Automation at Telefonica O2, The outsourcing unit working research papers, paper number 15/02.
- McKinsey (2013). Disruptive technologies: Advances that will transform life, business, and the global economy, McKinsey Global Institute, July 2014
- OECD (2022). Transfer pricing guidelines for Multinational Enterprises and Tax Administrators, <https://www.oecd.org/tax/transfer-pricing/oecd-transfer-pricing-guidelines-for-multinational-enterprises-and-tax-administrations-20769717.htm>.
- Postolea, I.D., Bodea, C.N. (2021a). Building resilience through digital transformation, in: Education, research and business technologies – Smart innovation, systems and technologies, Proceedings of IE Conference, volume 276, 371-381.
- Postolea, I.D., Bodea, C.N. (2021b). Building resilience through the use of Intelligent Technologies: A Qualitative Research. Proceedings of the 4th International Conference of Economics and Social Sciences, 1-7.
- Postolea, I.D., Bodea, C.N. (2021c). Resilience and economic intelligence build through digitalization – an IT perspective. Issues in Information Systems, volume 22, issue 1, 335-347.
- Syed, R., Suriadi, S., Adams, M., Bandara, W., Leemans, S.J.J., Ouyang, C., Hofstede, A.M., van de Weerd, I., Wynn, M.T., Reijers, H.A. (2020). Robotic Process Automation: Contemporary themes and challenges. Computers in Industry 115, 103162.
- Tornbohm, C, Dunie, R. (2017). Market guide for robotic process automation software. Gartner report, ID: G00319864.
- UiPath (2022). Robotic Enterprise Framework, UiPath Studio, <https://docs.uipath.com/studio/docs/robotic-enterprise-framework>.