THE INTEGRATION OF IRPA VERSUS RPA SOLUTIONS IN THE ECONOMIC PROCESSES - IN THE AUTOMOTIVE INDUSTRY. A CASE STUDY.

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Abstract

The major challenges of this post-pandemic era will be those related to the automation of as many steps as possible, related to economic processes, existing in companies in Romania and beyond. This case study aims to highlight the advantages and disadvantages of the two automation solutions in the SAP area, one native iRPA (Intelligent Robotic Process Automation) versus one purchased from another software provider, namely UiPath - the RPA solution. The authors of this scientific article will refer, from the data collected in the research they carried out, to everything that means the adaptation of the professional accountant to the changes that come with the adoption of these technologies, why these technologies are welcome and why their role in economic activity is more than necessary. The authors of this article will also refer to everything that can be called the advantages of implementing a "core system" solution - based on complex integration with regard to the solutions of the same company that implemented or created the ERP type solution (knowing that the implementation, in our case of SAP, can be done by any of the implementing companies in our country and not only).

Keywords: *iRPA – intelligent Robotic Process Automation, AI - Artificial intelligence, modalities of integration iRPA with ERP – Enterprise Resource Planning, Accounting, Processes. Business, Economics*

Clasificare JEL: *M15, M21, M31*

1. Introduction

Returning after everything that the COVID-19 pandemic meant, at work, physically, for the accounting professional, meant a rethinking of what he does daily, of the way in which economic processes can be supported by his input, using the systems of ERP type, in the present case the authors will refer to SAP. It may seem paradoxical, but this period in which people did not physically go to work changed the way economic processes can be approached through the lens of intelligent technologies, in this case iRPA or RPA, but also the involvement of AI - artificial intelligence.

A series of steps, stages, that the accounting professional used to do in the economic processes he was dealing with, are now automated to a very high percentage, intelligent technologies helping to achieve them (repetitive things have been greatly removed, as well as execution errors). The industries in which the economic processes suffered (that is, they had to be

modified) because otherwise they no longer corresponded to what technology offers at the present time, were those in the automotive, oil&gas, pharmaceutical and many others.

In this research, we referred to everything that the automotive area meant, being involved in the process of redesigning the economic processes that were part of the technological change that the authors specified at the beginning.

2. Literature review

A series of articles mention the importance of adopting and adapting RPA-type solutions, Ai-type solutions as well as even solutions from the mechatronics area in economic activity [1]. These solutions will help, around economic processes, to eliminate redundant work, the verification of a large data sets, the import and export of the data from the ERP systems [2], etc. In the studies that the authors searched for, the role that must be played by the adoption of such intelligent technologies is mentioned, must be, the benefits they come with.

As far as specialized literature is concerned, there are a number of articles that mention the contribution that intelligent technologies, such as RPA or iRPA, have on economic processes, with the aim of making economic processes more efficient, as well as reducing the cost that such a process he has it [4].

However, quantitatively, not much is known about the effects of the introduction of these technologies in the production process, their maintenance being a, sometimes critical. That is why the authors of this article have set some of their objectives regarding the implementation of such technologies, moreover, they have also made a quantitative analysis on the perception that end users have on the way in which the adoption of RPA has on work their everyday life. A series of objectives, which those who implement and establish, in theory, at the beginning of projects to implement RPA-type solutions, are, very often, unachievable in practice. That's why the purpose of this article was to highlight certain minuses, which, in reality, are visible.

As mentioned in [5], RPA-type solutions help to automate existing economic processes, by creating those software robots or "bots" that can read, replicate, verify and then execute a series of "steps " within the automated process. Another aspect treated by many users, is about how you can automate what each of the users does manually, in short, show the software robot what to do, then let it do its job. Moreover, RPA type solutions can now interact with a series of applications from various areas of activity, in the present case we will limit ourselves to highlighting the way in which this solution analyzed by the authors has to do with the system of ERP type, namely SAP.

The specialized literature also deals with aspects related to the companies that implement such solutions and how they adapt what they offer, based on RPA-type solutions, that is, it can be discussed that some entrepreneurs really want such RPA-type solutions [6]. The challenges of tackling increasing caseloads, large volumes of digital data and maintaining examination efficiency to adhere to tight criminal justice system deadlines persist. As the field looks towards techniques for improving efficiency, forms of automation are both simultaneously touted as a potential solution, whilst also attracting criticism. The potential for techniques which mechanise parts of the digital forensic examination process, and do it reliably, is great, however developing the capability to do this remains a challenge.

This work provides an introductory discussion to Robotic Process Automation, a form of service task automation. Its potential application is debated, and two case studies are offered demonstrating potential areas of applicability. An objective evaluation is offered, debating whether technology has a place in improving efficiency in this field [7] [8].

It is clear that, the introduction of RPA has brought major changes in terms of the execution of certain steps in the processes that each company has implemented, it is important to see the efficiency with which these IT solutions come, something that is without a doubt and perhaps a must of the years in which we live [9] [10].

3. Research methodology and mesults

The figure below shows the automation steps used to integrate iRPA – AI – ERP on a project used in modeling for an economic process, based on exploratory research:

Figure no. 1 Integration of iRPA - AI - ERP

What is shown in the figure 1, can be cataloged as part of an automated process that those in the automotive industry have implemented and which the authors will analyze through two solutions, one classic RPA (UiPath) the other through through iRPA - the integrated solution from SAP. It is very clear that the current use of digital technologies will lead to a faster performance of certain tasks found in the economic processes used by companies. In the figure 2 we will show, schematically speaking, how the solution looks like an iRPA type solution, you know that we were dealing with a combination between "Basic RPA" and intelligence (we are talking here about Machine Learning (including Deep Learning), Artificial Intelligence, NLP - Natural Language Processing, etc).

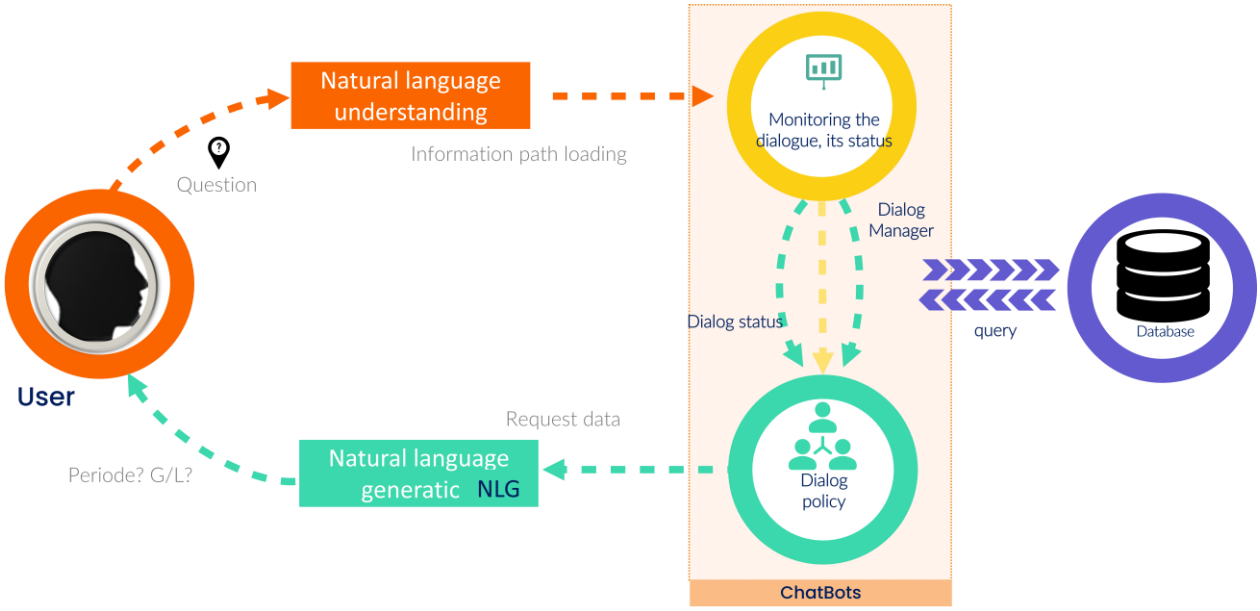

Figure no. 2 Integration of iRPA – end user – NLP utilization steps

Based on the image above, we created three working hypotheses, from which we started in the research we undertook, the authors thinking that the results obtained (quantitatively speaking, i.e. a questionnaire to be answered by all those involved) will influence, in the future, how other companies will choose the optimal intelligent solutions:

- H1 - the involvement of RPA (basic RPA) can bring advantages in the context in which the development / adaptation of IT solutions can be modified at any time?
- H2 - the stability of RPA versus an efficient solution based on "intelligence" one, as and example: iRPA?
- H3 - the advantages of implementing a "core system" solution - based on the complex integration regarding the solutions of the same company that implemented or created the ERP type solution (knowing that the implementation, in our case of SAP, can be done by any of implementing companies from our country and beyond.

Based on the above hypotheses, we defined five questions, so that we could understand how two implementations were perceived, using RPA and iRPA type solutions, what were the differences that could be, meant for the company managers, as well as for those who want to implement, in the future, such solutions, as follows:

- Q1 - using the solution created based on an adjacent SAP application, based on classic RPA, is it easier to use?...compared to an existing iRPA solution in the same ecosystem?
- Q2 - the solution integrated with SAP - iRPA, do you think it is easier to use?...but the solution based on UiPath?
- Q3 - which of the two solutions works easier, the response times being better? UiPath (1) vs iRPA (0)?
- Q4 - which of the solutions seems easier to implement? UiPath (1) vs iRPA (0)?
- Q5 - if you had to work with any of the solutions, which would you prefer? UiPath (1) vs iRPA (0)?

This questionnaire was sent to a number of 116 people, 80 answered, the rest apparently were not interested, among those who answered are some people involved in the implementation process (team leaders TL, business consultants BC, architects process AP), others only users of automated economic processes (workers at the work line WL, verifiers of the resulting products VP, packers of the finished products PP), the results being:

Table 1: The matrix of satisfaction / team

Question Title	**Q1**	**Q2**	**Q3**	**Q4**	**Q5**
TL (5)	5 (1)	5 (1)	2 (1) / 3 (0)	4 (1) / 1 (0)	5 (1)
BC (15)	15 (1)	12 (1) / 3 (0)	15 (1)	15 (1)	15 (1)
AP (6)	6 (1)	6 (1)	6 (1)	6 (1)	6 (1)
WL (32)	16 (1) / 16 (0)	31 (1) / 1 (0)	32 (1)	32 (1)	28 (1) / 4 (0)
VP (10)	10 (1)	10 (1)	10 (1)	10 (1)	10 (1)
PP (12)	12 (1)	12 (1)	4 (1) / 8 (0)	8 (1) / 4 (0)	12 (0)

Note: 1 - yes; 0 - no

After analyzing the results obtained, we can say that the degree of satisfaction was inclined towards the automation solutions offered by those from UiPtah, the conclusions of the authors of this work being that this solution is adaptable to several implemented technologies and that working with it is much easier.

A number of team leaders have leaned towards the solutions offered by those of UiPath because they saw in them an independence regarding the realization of any automation regarding the applications they manage. It is clear that, the use of a solution from SAP, even if it is integrated with the SAP system, can only be used for this, so not for other applications, which is still a minus, to be taken into account.

However, iRPA type solutions are also usable in several situations, where classic RPA type solutions bring a series of disadvantages such as: if the UI changes or the system is upgraded / the scalability of these solutions / their maintenance / stability software robot. It is however clear that iRPA type solutions are somewhat used, their integration requiring more work time to create a software robot, they use a series of necessary tools (in the case of SAP we are talking about the use of SAP CAI - Conversational AI - related with an iRPA - intelligent Robotic Process Automation). A great advantage, however, with which they come, is the part of integration with other platforms, such as: SAP Conversational AI Web Client / SAP Conversational AI Mobile SDK / Webchat - platforms of the SAP company or other adjacent tools such as: Amazon Alexa, Line, Messenger, Skype, Microsoft Teams, Slack, Telegram, etc.

Updating those who work in the automotive company regarding what the intelligent platforms achieve is a wish for those who run a company producing sub-assemblies, in order to try to be as independent as possible in terms of making the products that are required of them.

In the figure below, figure number 3, the authors detail the creation of a software robot using the SAP BTP (Business Technology Platform) application, this software robot being integrated through SAP CAI (Conversational AI) with a series of applications that can be used either from mobile or from the process desktops used in the company.

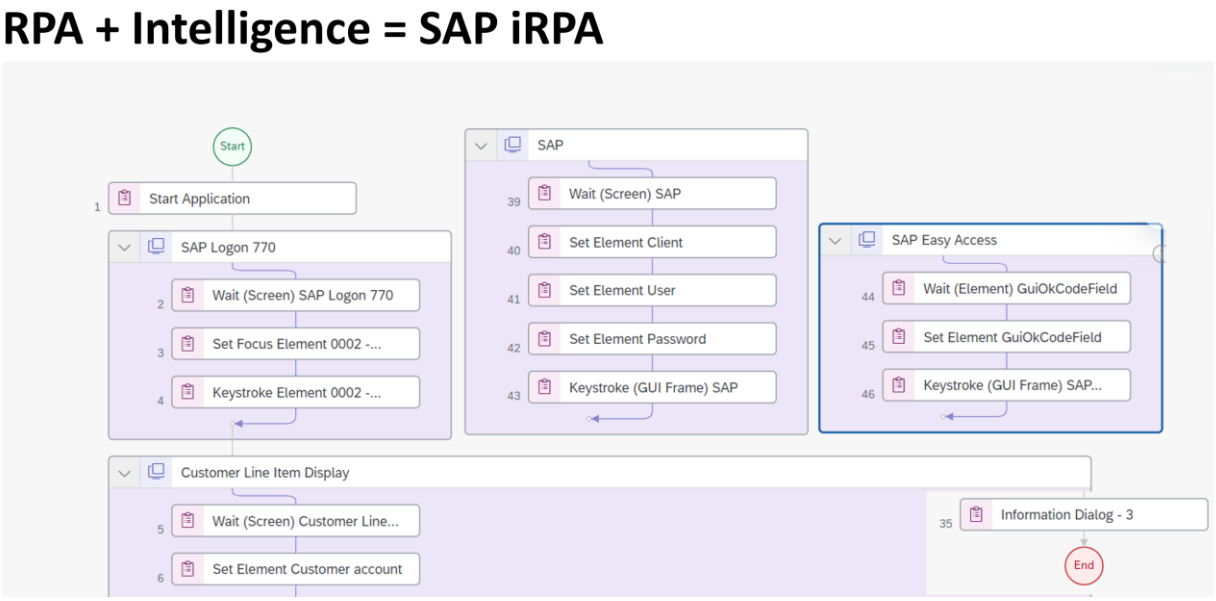

Figure no. 3 iRPA model integration with ERP system

In the image above it can be seen that creating a new software robot is really that difficult to do, but the logic from which it starts must be one in accordance with the process that it will automate, as well as referring to how much such a solution makes the work that an employee used to do manually more efficient. Any software robot is created to eliminate manual work, which is otherwise boring, so that the employee can focus on developing other work steps in terms of modeling the existing processes in the company he works for.

4. Conclusions

As the authors have specified throughout this article - a case study carried out in an automotive company - the involvement of intelligent technologies is becoming day by day something to be considered regarding the activity carried out in a company. The different events happening in the world, from pandemics, wars, etc. will lead companies to choose alternative solutions in terms of replacing certain manual steps performed by their employees, so the automation of economic processes will become a trend from now on.

However, the current study has highlighted one thing for sure, companies are opting for automation solutions with which they can connect to several existing applications, that is, they are not usable only in a specific context. After all, this trend is normal, thinking that a configuration for a certain system can be used for other automations, with the change of certain steps and with a somewhat minimal configuration, something agreed by the specialists in the field.

Anyway, in the project that was the basis of this article, both solutions were used, those in the company thinking that for certain operations the solution from SAP - iRPA + SAP CAI can be used, but certain steps, as well as the integration with other applications , had to be done in UiPath for greater flexibility. The project was a success, which led the company's management to think about other automations in future projects.

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