DIGITAL WORKFORCE ON THE EXAMPLE OF THE WIZLINK UTILITY SOFTWARE

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Abstract. The purpose of this article is to attempt to signal the change of the paradigm of thinking about the work force responsible for performing digital work in the organizations. The emergence of Robotic Process Automation software that performs tasks in a digital environment on the model of employee-users generates many challenges. They must be faced by not onlyauthors of these Information Technology tools, but business managers and researchers of social processes as well. The example discussed in this research has been developed by Polish teams. Its features (as a consequence of the adopted assumptions) make it an innovative product on the Robotic Process Automation market. The research sample were 150 executives from companies of different sizes. All of them were surveyed, and 87 participated in further in-depth interviews. The results made it possible to formulate comments on the effectiveness of work performed with the use of the business software.

Keywords: Digital workforce, Wizlink software, Information management.

Introduction

Work efficiency is the subject of research conducted by specialists in various fields of Information Technology [Gródek-Szostak, Ochoa Siguencia, Kajrunajtys, 2018; Kajrunajtys, 2016; Kuraśet al., 2009]. They mainly look for answers to the question of what it is (Martyniak, 2000) and what are the factors that shape it (Parmenter, 2016). There is a common understanding that the use of information systems (business software) increases the organization's efficiency and its ability to perform tasks that are impossible to do without software. Such goals (after their quantification) are set at the moment of accepting assumptions for new implementation projects (Ochoa, 2018).

The results of work efficiency tests performed in existing digital work environments or analysis of factors that lower this efficiency have not been identified. The research pointed to the existence of a problem in the daily operation of business applications in the positions of end users (Kajrunajtys et al. 2017).

The factor that affects the efficiency of work is the number of different business applications located in the user position used to handle a single transaction. This makes it necessary to switch between these applications and to implement the appropriate elements of the transaction in the right application. For many reasons, organizations do not take action to completely replace software with a new, integrated solution. With the advent of the Robotic Process Automation class, these decisions will probably be postponed.

The purpose of this article is to attempt to signal the change of the paradigm of thinking about the work force responsible for performing work in the organization. The emergence of Robotic Process Automation (RPA) software that performs tasks in a digital environment on the model of employee-users generates many challenges that must be faced by the creators of these Information Technology (IT) tools and managers of organizations as well as researchers of social processes in business.

The digital workforce as a phenomenon is a fact. There are many IT companies providing tools for building and running digital robots. These tools differ in many features. The example discussed in this article has been developed by Polish originators and authors. Its features (as a consequence of the adopted assumptions) make it an innovative product on the Robotic Process Automation market.

Problems with work efficiency in the digital environment

The driving force behind the development of IT tools to support work in management are two factors:

1. Technological progress responsible for supplying hardware with increasingly favourable parameters for management applications,
2. Demand generated by organizations investing in the development of IT tools to support work.

As a consequence of the accumulation of these factors, the progress that has been made in the software, the approach to its creation and methods of its production and maintenance as well as progress in the organization of work and the functioning of teams responsible for all phases of the life cycle of application software are observed. It may seem that the target client of all these efforts - the user directly at his workplace as well as the investing organization, as a whole, receive a

solution that is satisfactory and allows them to carry out more ambitious business goals without interruption. However, many facts indicate that it is not. The questionnaire surveys and in-depth interviews carried out on a group of 87 respondents made it possible to formulate comments on the effectiveness of work performed with the use of business software.

A holistic view of the organization and its synthetic economic results is represented by the level of strategic management and the key investor in IT tools. The representatives of the management surveyed expressed two expectations:

- rationalization of the total costs of job training in the organization–significant staff turnover is a major cost for organizations,
- reasonable time to prepare an employee to achieve full productivity - the more complex and extensive the IT environment is, the longer the time of preparing the employee for a fully efficient job.

The manager responsible for the efficiency of the business process expects efficient data processing and effective reporting of the project's progress. Over 60% of managers most often point to the following issues:

- easy modification of IT systems supporting the business process in order to adapt them to changing business challenges or formal and legal requirements,
- making flexible changes in user training programs, to match the changes in the work environment,
- the ability to measure the effectiveness of the work of employees responsible for handling business processes using information systems,
- shortening transaction processing time by looking for a greater scope of automation of inventory and billing work.

Direct users are responsible for the implementation of tasks in their positions according to the scope of duties. They often work under time pressure with a set number of tasks to be performed per unit of time. In their statements, most often (over 49% of respondents) pointed out the following issues that in their opinion had a major impact on the effectiveness of their work:

- intuitive operation owing to the lack of changes in the structure and layout of the application screens, and their compatibility with the screens used in the course of training – very often the on-screen mock-ups used for training offer old screenshots, which forces users to ask questions while performing actual tasks,
- hints provided by the applications are of different nature and are not always intuitively adapted to the current needs arising from the task being performed (the employee must learn to formulate questions for help)
- frequency of changes in the work environment (application screens) is the more burdensome, the more the work environment is developed (more business applications participate in transaction services).

The work of people responsible for ensuring the continuity and efficiency of IT infrastructure (IT administrators in a broad sense) also affects the efficiency of work performed with the use of business software. In their statements, 62% of respondents drew attention to two issues:

- the possibility of changes in business applications without the participation of their suppliers (developers) – this would significantly reduce the time of introducing changes expected by managers,
- independence of users allowing them to make changes in their environment in a way that does not require the work of developers.

For many years, the integration of these applications has been perceived as a way of solving problems with the effectiveness of work performed using many applications (Kajrunajtys et al. 2017; Put, 2016). However, there are obstacles to the following: diversity of applications resulting from the history of their acquisition by the organization, their number and the lack of a uniform data presentation architecture.

Integrating complicated systems in a traditional way, and thus integrating databases or dedicated modules, often causes many difficulties for employees, and what is worse, it is very labour-intensive, and managing and documenting changes in an extensive connection infrastructure is a huge challenge. It also happens thanduring integration it is difficult to ensure an adequate level of security and appropriate delegation of rights to users, if the systems have different methods of managing identity and access to data. As a consequence, some data is usually unavailable to other systems, because it is extremely difficult to control and secure information flow in such a complicated structure.

In many centres, work has been undertaken to solve the problem of efficiency on a different path than the traditionally perceived integration. The starting point was the observation of human behaviour in the sense of activities performed by users of business applications.

The first effects of these activities were referred to as desktop automation. These are actions implemented by the software, oriented towards the application interface and selective access to specific GUI (Graphical User Interface) elements at the meta level without having to know the source code of the application (Desktop Automation, 2015).

Robotic Process Automation

The Robotic Process Automation (RPA) has an approach to improving work in a multi-application environment by configuring a digital robot performing work alone or in cooperation with the user. Aguirre & Rodriguez determine the RPA as „software based solution to automate rules-based business processes that involve routine tasks, structured data and deterministic outcomes" (Aguirre, Rodriguez, 2017). RPA „can be deployed in any process that involves tasks with steps that can be logically expressed" (RPA, 2017). Asatiani&Penttinen affirm that "RPA software earns the term robot based on its operating principle" (Asatiani&Penttinen, 2016).

Kroll et al. (2016), claim that „Robotic Process Automation (RPA) — the automation of complex processes that replaces humans through the implementation of advanced software" and that "Robotic Process Automation allows employees to concentrate on more value adding initiatives, which are imperative for the bottom line of the firm" (Kroll et all, 2016). Behrens claims that "RPA is itself a type of outsourcing, but instead of outsourcing to a human being in another country, you're outsourcing work to a software robot" (Behrens, 2014).

Posma&Vanhaver share a very important observation (experts PWC). They claim that "It changes the game by allowing automation via a graphical user interface (GUI). Thanks to advancements in computer vision a robot can now interact with everything - or almost everything - displayed on a screen, freeing employees from having to undertake repetitive tasks and making the execution of these tasks much cheaper and more efficient. Configuring a robot is generally fairly easy, requiring only basic algorithmic knowledge and no programming skills" (Posma&Vanhaver, 2016).

The Institute for Robotic Process Automation & Artificial Intelligence (IRPAAI) claims that 'robots' are revolutionizing the way we think about and administer business processes, Information Technology supportprocesses, workflow processes, remote infrastructure and back-office work. RPA "provides dramatic improvements in accuracy and cycle time and increased productivity in transaction processing while it elevates the nature of work by removing people from dull, repetitive tasks" (IRPAAI, 2019).

To study the RPA software, a questionnaire of 34 questions was conducted. Over 150 executives from companies of different sizes participated in the survey. Nearly half of the participants indicated that their company reports revenues greater than a billion Euros per annum, while about 10% of participants reported revenues of less than half a million. On this basis, inter alia, list of process features that can be included in the implementation of Robotic Process Automation. These are processes that (Kroll et al., 2016):

- require access to multiple systems,
- prone to human error,
- can be broken down into unambiguous rules,
- once started, need limited human intervention,
- require limited exception handling,
- executed frequently, in large numbers or with significant peaks in workload,
- has no strategic fit.

The surveyed group claimed that RPA implementation affects all areas: Organization, Processes and Technology (Kroll et al., 2016):

- changes the organization and the way people work – 86%,
- is a significant digital transformation – 81%,
- changes the process chain – 71%.

Resuming, it is worth citing Asatiani&Penttinen (2016) three key features that demonstrate the flexibility of digital robots:

- „First, it is possible to integrate RPA with virtually any software used by a human worker, regardless of its openness to third party integration. Many corporate IT systems are proprietary with no public API's, which greatly limits their ability to communicate with any other systems. RPA solves this issue.
- Second, RPA can be implemented in a very short timeframe. Implementation time of 2–4 weeks is a blink of an eye compared to enterprise software integration, which can take months or even years.
- Third, processes automated via software robots are easily modifiable, even by the users of the system. Traditional software requires advanced coding skills to make any major modifications to the way it operates".

Robotic Process Automation (RPA) provides a digital workforce that can complement or replace people. This kind of automation differs from known (but still rapidly evolving) industrial robots, focusing on process automation or back-office functions.

Wizlink - a tool for starting a digital workforce

Wizlink tool software was created in Poland as a response to the challenge of developing systems integration technologies without interfering with the software and data structure. The initial idea was created when the concept of Robotic Process Automation was not widely known in the world. The concept of Desktop Automation was widely used.

The creators of Wizlink set as their goal the development of a set of methods that will enable the integration of business applications used at the user's position. Implementation of these methods in the software was to allow communication between computer applications without any knowledge of their internal structure and without using or creating dedicated interfaces for these applications. Thanks to this technology, application integration does not require knowledge of any technical details of integrated applications. This approach also has the feature that radically affects the usability and ease of using this solution.

Currently, the Wizlink utility software allows integrating applications without interference with:

- application source code
- internal data structure
- IT architecture of the solution
- database and its structure.

The resulting technology is based on the use of access to the program via the user's screen interface (GUI) – or more accurately – through display objects representing this interface in Windows. In the same way, data is read and written, application management is handled, menu navigation is executed and behavior is controlled. This technology currently works in all versions of Windows. , starting with XP.

The evolution of the methods used in Wizlink has expanded the basic area of technology application with the following issues:

- integration of IT systems
- automation of user's work
- extending the functionality of existing applications without interfering with their structural components.

Wizlink's tool software can be used in any industry and field of application. Wizlink is used to create a digital workforce by automating repetitive activities. This is done by creating and running scenarios whose activity mimics employees using many applications. Appeals occur at the user interface level, so the robot running through Wizlink does all its activities without changing the existing applications. Resignation from the use of the robot causes a return to the direct use of these applications in the same way as it did before the robot started. Only the contents of the databases of these applications are changed as a consequence of the robot's automatic execution of the transaction.

The Wizlink software tool consists of two components. The basic element that is used to create and run the robot's scenario is Wizlink Designer. It's an intuitive module that works in the workflow logic that allows creating a draft scenario by showing elements and connections between them. After testing and accepting, the final scenario is executed using Wizlink Runtime. Wizlink's utility software is classified as Zero-Code type products.

Zero-Code type products is an approach to creating applications in a way that does not require programming work. The author of such a product is expected to have a very good knowledge of the field for which he creates a solution. They don’t need to know the rules, programming tools (environments) or software development processes (from the source code, to compilation, to the executable code). Zero-code platforms completely change the process. Instead of exerting pressure on IT, they use the potential of developing business users themselves who have an idea for a new function. Zero code programming platforms enable fast and efficient implementation of large and small applications, without the need to thoroughly test and plan requirements.

This means that its user can be a person without programming skills. However, it is important to know the business process issues that will be described in the robot scenario.

With the Wizlink utility software, you can build scenarios of digital robots operating both in supervised and unattended mode. This is one of the decisions that the creator of the scenario makes when joining the design works. The consequence of the distinction is the runtime environment of the prepared robot. It is either a computer of a user cooperating with a robot or a virtual computer having only access rights to business applications.

Existing implementations in commercial applications allow toformulate the following conclusions:

- in organizations there is a huge potential for Robotic Process Automation applications – analysis of selected (indicated by managers) business processes in order to develop a scenario for a digital robot each time revealing further areas of candidate for a new or dramatically rebuilt robot scenario,
- training in the methodology is needed to evaluate and select the business process for automation.

Another built scenarios provide information about the factors of success using the tools in organizations that rely on Robotic Process Automation.

Conclusions

The development of the idea of integrated systems and its implementation in the form of MRPII and ERP systems has not ended the path of development of management information systems. The observed direction related to the construction of digital robots generates several new phenomena, e.g. the fear that machines will yet again disown people from their roles, as in the past. However, attention should be paid to the other consequences of this situation.

There is a demand for specialists for whom unambiguous names have not yet been established in the labour market. For example, the supplier of the Wizlink utility software uses the term "robot trainer" for a role aimed at preparing the first scenarios for clients and help in building independent ones. Another challenge seems to be the need to educate future users about the idea and use of digital robots and the criteria for choosing software tools to build and run them. The phrase "digital workforce" becomes a full-fledged notion due to the technological change provided by Information Technology.

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