



Student Relationship Management Optimization Using Organizational Process Automation Tools

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Abstract: Organizational process optimizations are crucial to meet nowadays challenges, especially in the educational institution environment, where information flow is very intense, and actors involved are different from decision making perspective. The relations with students are one of the most important aspect of educational institutions, therefore, the more automated and digitalized is this process, the more attention can be invested to continuous improvement of other organizational processes. Our study intends to promote continuous improvement of student relationship management of universities by active usage of ICT solutions available in organization and prepare internal regulations and staff for this transformation.

Keywords: Business Process Management (BPM), Student Relationship Management, Process Optimization, Information and Communication Technology (ICT), COVID-19

JEL Classification: M15; L15

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1. INTRODUCTION

Europe, compared to other continents, although it has a high degree of innovation and receptivity to change, has failed to capture a leading place in the field of information and communication technology, hereinafter referred to as ICT (IED report, accessed in December 2020). According to the European Commission's reports (2020), the ICT sector accounts for 4.8% of the European economy as a whole, which is currently given special importance through European strategies. From 1995 to 2007, the industries in which ICT solutions were implemented and used increased productivity by an average of 0.6%, and those in which such solutions were not implemented decreased by the same proportions (Dahl et al., 2011). The development of ICT leads to major changes in the business environment (Iancu & Burciu, 2019), leading to the development of digital transformation of business processes (Türkeş et al., 2020), providing almost unlimited access to information useful to stimulate global competition (Burciu et al., 2020). In this context, it can be deduced that the ICT sector has a positive influence on both the local and regional economy and the global economy. As a result, in order to increase the positive impact of ICT on economic performance and social well-being, there is a need to improve users' digital skills for the efficient and effective use of available tools.

According to the Organization for Economic Cooperation and Development (OECD), in 2019, Romania is among the last countries in the ranking of digital public services, Internet skills and the integration of digital technologies in organizational processes. This negative aspect could be mitigated not only by intensive learning about ICT solutions in educational institutions, but also by their active use in the learning / administration process of any level (OECD, 2020). The more explicit, the more widely used and varied ICT solutions become, the higher the level of digital skills among users can increase.

The plan to improve Romania's current situation and the processes it should go through for the intensive use of ICT solutions is similar to the organizational processes within a company. According to a study by Mezgar (2006) in both cases it is necessary to take into account:

- Intensive use of human capital to optimize performance;
- Virtual collaborations through the Internet at organizational / global level;
- Process management and rapid adaptation of work procedures and human behavior.

In the epidemiological context created by the new SARS-CoV-2 coronavirus (COVID-19), the digitization process had to be accelerated so that the economy could function, minimizing the risk of the virus spreading. Universities were directly affected by the COVID-19 pandemic, the teaching activity being suspended or being moved to the online environment. Therefore, in 2020, there was a strong need to adapt, automate and digitize organizational processes to the conditions imposed by the pandemic. Thus, the university education system underwent imminent changes, and the learning processes, but also the relationships with students had to be quickly adapted to the new context.

The purpose of this paper is to highlight the importance of streamlining the relationship between student and university by implementing easy-to-use ICT solutions for both staff and students. Moreover, we will present, with the help of a case study, a way to design and develop a solution to automate organizational processes that has contributed to the optimization of work at the University of Medicine, Pharmacy, Science and Technology "George Emil Palade" in Târgu Mureș (UMFST "GE Palade") during the COVID-19 pandemic, with a minimum of effort both in terms of trained financial resources and human resources.



2. DEFINING THE RESEARCH PROBLEM

The need to increase digital skills among employees in Romania and to promote as intensively as possible the use of ICT solutions of any kind by them is recognized. Universities have an extremely important role in digital transformation (Rof et al., 2020), which are the engine of research and development of digital technologies, through advanced research infrastructures, but also through learning digital skills related and constantly updated with needs identified in the labor market. Moreover, the importance of universities is known among the digital transformation of business processes and models, both in terms of business incubators (supporting and developing sustainable innovative businesses developed by university students) and in terms of extensive partnerships between universities and economic environment. In a large and medium-sized organization, where large flows of information and standardized processes are often encountered, sooner or later there is a need to automate such processes. The most common automations occur in the relationships between hardware, information system and software applications. However, it is found that formal interpersonal relationships are becoming the subject of automated processes, and the current epidemiological context has required the automation of as many processes as possible to solve organizational problems, in order to prevent the spread of the new virus among those involved.

Multiple research in the field emphasizes the importance of business process management in streamlining work and increasing productivity. Currently, the focus is on virtualizing business processes that have a considerable contribution on the organization. Business process virtualization supports organizations to benefit from what they already have - people, money, ICT infrastructure and intellectual property - to achieve improvements in productivity, profitability and competitiveness (Young & Jude, 2004).

Our study contributes to the identification and implementation of solutions for the automation of organizational processes related to the relationship between students and the UMFST secretariat „G.E. Palade”. A survey conducted by the Student Entrepreneurship Society (SAS) during the academic year 2020 - 2021, regarding the implementation of e-learning solutions, revealed the openness of students to use digital services other than e-learning for collaboration and networking in the environment university organization (Ciucan-Rusu et al., 2020).

The main reasons that identify the need to approach new solutions to support the activities of the staff employed within UMFST „G.E. Palades” are:

- Overloading the administrative staff with a large volume of requests / requests from students: leads to decreased work performance; the secretariat does not face the challenges that may arise during the key periods of the academic year, respectively there are delays and errors that disrupt the entire activity of the organization.
- The teaching and research staff are overworked with administrative tasks that do not belong to the basic activities, especially in the key stages of the academic year (admission session, exam session, etc.).
- Students waste a lot of time and effort to synchronize with the work schedule of the secretariat or other departments within the institution and the regulated procedures (work schedule, compliance of applications or files to be submitted, etc.).

Therefore, the University, as an environment for implementing automated processes in connection with organizational optimization, must be willing to continuously transform and adapt to ensure the successful implementation of such innovation. Although such an institution cannot predict the future, it can anticipate the change that disruptive technologies such as cloud and organizational process automation can bring (Paap & Katz, 2004). One such solution is considered to be the Microsoft Power Platform, which provides different work environments: collecting and processing data of interest, creating internal applications within the organization, artificial intelligence (AI) solutions, process automation solutions, and lifelong support for the development of integrated solutions (Microsoft Inc., 2020).

Next, we will detail the process of developing and implementing the solution for optimizing relationships with students using the existing Power Platform environment within the university and we will explain the principles of operation of this solution.

3. PRESENTING THE RESEARCH FINDINGS

In order to meet the objective of this paper, we present a case study that refers to the automation of the process of choosing undergraduate topics by students of existing faculties within UMFST „G.E. Palade”, followed by the validation by the coordinating professor and the centralization of the information at the secretariat level. The solution used in this case was to develop an automated flow using the Microsoft Power Automate application that is part of the Power Platform and is available to any member of UMFST “G.E. Palade”.

To build an automated stream using MS Power Automate, developers need to know in detail all the existing processes that need to be transformed. At the same time, the data that constitute an essential asset of this flow must be entered in a unique and standardized format at the level of all actors involved. Depending on the automated flow we build, it is necessary to create a specific infrastructure in the process of initiating the process. In our case, this infrastructure that the developer has to create consists of three major steps.

3.1. Flow operating principles from the Perspective of the MS Power Platform

One of the most important applications used in the process of optimizing the relationship with students was the MS Power Platform, this is a solution that integrates most of the applications available in Microsoft 365 through *Connectors* (channels of inter-application communication in the Microsoft 365 Suite). Two essential elements with which this application operates are:

1. *Trigger* – is used to launch a flow, a trigger may include a data input from a user or a specific condition that happens recurrently. In other words, this trigger can be conditioned by a customer by launching an order, entering data, or a recurrence/pre-programming by the user. Such a *Trigger/Event* can launch a complex process to be completed or can only trigger a primary or secondary stage (Reijers, 2003).
2. *Action* (action/activity) – follow the trigger of a flow, a specification /activity or a whole set of activities that together meet the conditions of the automated flow that has been developed. All activities have a logical order thought by the developer are happening successively or simultaneously (Weske, 2007).

Any flow can have one or more actions/activities; however, it can only have one Trigger that starts with any automated flow. A flow within MS Power Automate launches when a Trigger is activated and ends with the last activity in that flow.

Next, we will detail the process of development and implementation of solutions for optimizing relations with students that have been divided into two stages: The first stage is the preparation – the identification of local needs (decision node), awareness of procedures, existing documents that could facilitate or constrain the optimization process, and the creation of the necessary infrastructure for the development and implementation of automated flow. The second stage is the development and testing of the optimization solution – this step involves identifying and integrating the most useful functionalities of the tools used and testing them in a simulated environment before moving on to actual implementation. Please see the Annex 1 below for *The Student Relationship management solution created in Microsoft Power Automate*

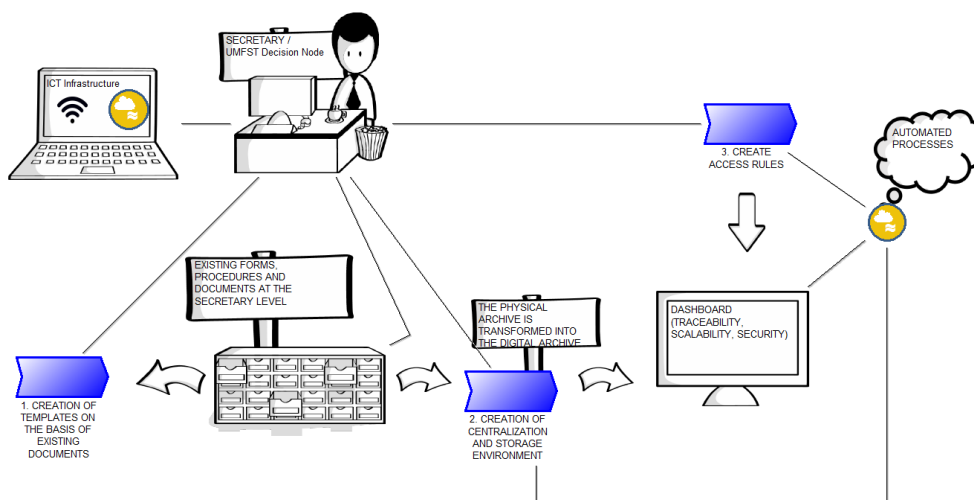
3.2. Infrastructure preparation phase

The stage of preparation of the infrastructure necessary for the development and implementation of an automated flow is very important and applicable to many other such solutions, not only in the case presented in this paper. In Figure 1 we have schematically represented the most important processes that we must carry out at this stage.

The actors involved at this stage are: the developer of the automated flow, the members of the secretary of the faculty to which the implementation of the flow is to be implemented, and a representative of a higher decision-making node (in our case was the dean of the faculty). Once the problem has been clearly defined and we have brought together the three categories of actors, together with the know-how that each hold, we can proceed to the processes mentioned in Fig. 1.

- Creating Templates based on existing documents that represent a transferable asset between students and the university.
- Creating the environment for the introduction, centralization and storage of data that is the raw material for our process.
- Sharing of access rights to flow outputs, generated documents, process records and reports where appropriate.

Figure 1. The stage of preparing the infrastructure for creating automated flows



Source: Authors' projection

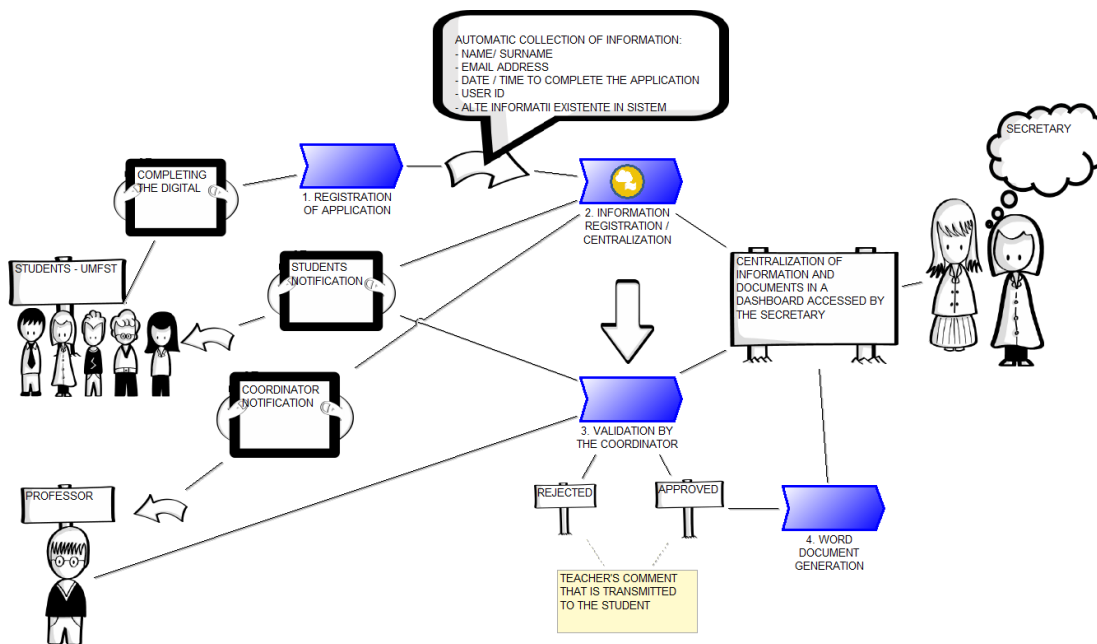
At the same time, we do not exclude the existing ICT infrastructure, the personnel involved who must go through those steps and of course the transformation of physical archives into digital archives.

3.3. Stage of development and testing of the optimization solution

At this stage, the developer must ensure a logical path of activities within the stream and simulate as many variants of user behavior as possible to ensure the feasibility of the project to be implemented. In Figure 2 we represented the automated flow that was implemented for the choice final project titles by bachelor's degree students.

First, students have an electronic form that they can fill out from any device (phone, tablet, PC). This form performs the role of Trigger with which the automated process begins. After completing and submitting the form, the data entered by the student shall be recorded in the board at secretary level. In addition to the information entered by the students, the student's name, email address and date and time when the application was submitted are automatically recorded in the dashboard. After this activity has been carried out, two others shall be carried out at the same time, the student shall be notified of the application submitted and the coordinating teacher who has at his disposal the menu for admission or rejection of the application shall be notified. If the application is rejected, the student receives notification along with the teacher's comments about the reason for the rejection. If the application has been approved, a document shall be generated which has the official form of an application within the institution, shall be automatically attached to the student who submitted it and the student shall be notified by a message containing a summary of the flow: what theme he has chosen, who is the coordinator and additional comments from the teacher. The dashboard shall record the additional information such as: application status (admitted/rejected), date and time of validation by the coordinator, and file generated following approval.

Figure 2. Overview of the implemented optimization solution



Source: Authors' projection



Finally, through the multitude of tests and adjustments on the part of the actors involved, we come to a feasible solution that can be applied throughout the organization and helps to relieve the workload of employees, and increase their productivity which brings a major benefit to the institution.

Associated risks

In the process of implementing automated solutions within the university, risks may arise such as:

- Low digital skills at different organizational levels which would make it difficult to understand the advantages of the digital solution;
- Inconsistency and incompatibility between existing hardware and software applications;
- Different/restrictive regulations and procedures from one department to another;
- Staff resistance to change because the implementation of the solution mentioned in this paper involves changing the behavior of employees;

4. CONCLUSIONS

In order to successfully optimize student relationship management using ICT solutions, the following steps should be considered:

- preliminary research: for a better understanding of processes that can be changed, digitized and automated;
- standardization of the flow of information and existing processes in relation to: document management, time management, reporting and auditing;
- solution development: creating and testing the solution at a minimum accessible organizational level to confirm the effectiveness to stakeholders; to analyze feedback and make the necessary changes;
- extending the solution to the entire organization after the usefulness and functionality at the lower level has been proven.

The pillars of a Student Relationship Management System in UMFST are:

- **Standardization** of existing documents, procedures and solutions used. This means that the data of any type is carried out only by digital methods; Unique version of work applications with internal documents (annual update of the work suite at each level); Eliminate exceptions that require a special approach and disrupt the normal and fluent course of things at the lowest possible level.
- **Virtualizing** processes at the organizational level requires you to process existing Cloud solutions for sharing Links to documents; Restricting or granting editing/viewing rights to different actors involved in the process, where appropriate; Editing common documents in real time using cloud solutions, where appropriate;
- **Automation of request and response flows** between the actors involves manually entering of specific data (related to students) only to the lowest possible level, and for other stages calling this data from the original digital source; Interconnect apps and work

environments where possible; Adapting procedures for the digital environment and delivering information the fastest and most efficient way to decision-makers.

Digital solutions for automating organizational processes can facilitate quality management within the institution, respectively ensuring the traceability of information, documents and decisions for all members involved. At the same time, digital solutions and process automation that provide an overview of the activity within the institution also create a suitable environment for efficient risk management.

As the current context has demonstrated the usefulness of digitization in the university environment, the ICT solutions already implemented at university level will be preserved, and in the future the aim is to increase the level of digitization and streamline all organizational processes.

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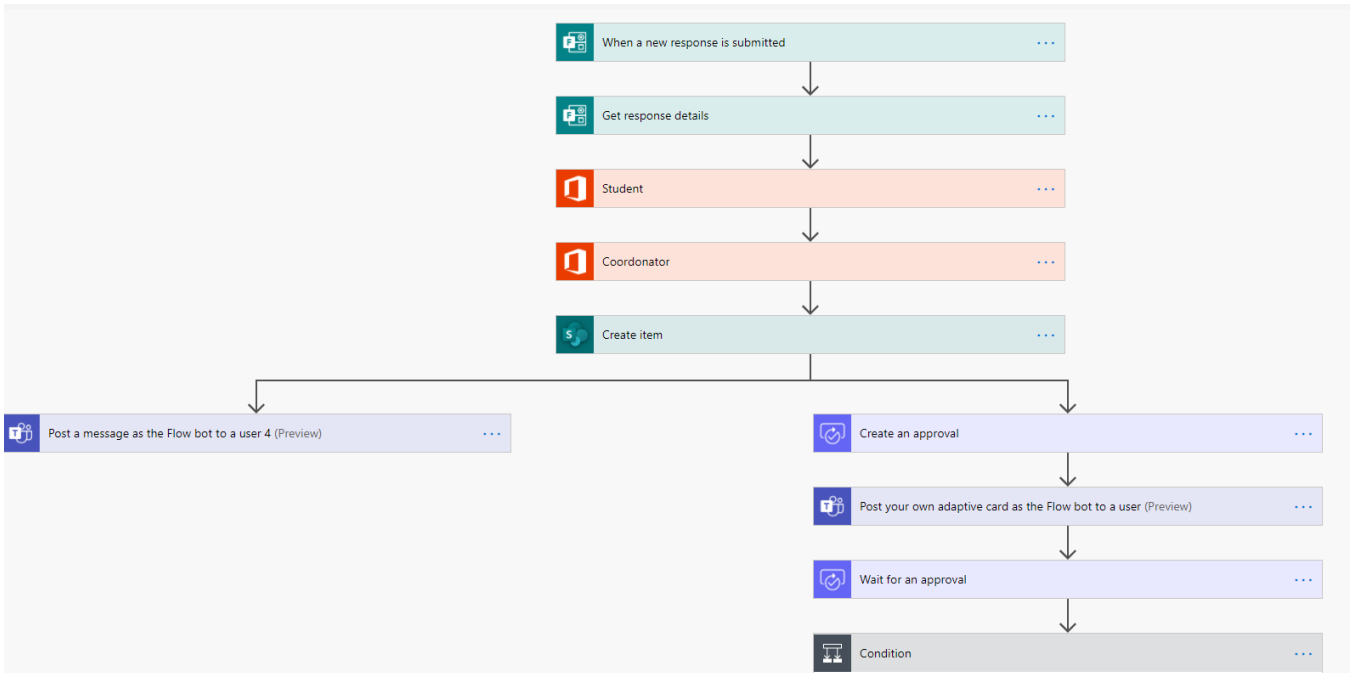
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Annex 1 Microsoft Power Automate solution created

Microsoft Power Automate flow (1)



Microsoft Power Automate flow (2)

