



TECHNICAL UNIVERSITY OF CLUJ-NAPOCA

ACTA TECHNICA NAPOCENSIS

Series: Applied Mathematics, Mechanics, and Engineering  
Vol. 65, Issue Special I, February, 2022

## EFFICIENCY OF THE APPROVAL PROCESS AT THE LEVEL OF A MINISTRY, THROUGH THE USE OF THE IDEF 0 METHODOLOGY

Iuliana MOISESCU, Lucian Ioan TARNU, Aurel Mihail ȚÎȚU

***Abstract:** The processes carried out at the level of the central public administration, especially those aimed at issuing approvals and opinions, are still ineffective, for the most part. Even if the civil servants fulfill their tasks, respect and implement the normative acts, there is a variable number of instructions, orders, norms, regulations, procedures, etc. which must be taken into account and implemented at the same time, which makes the entire approval system hard to be understood. Also, the deciding factor often interferes with the activity of civil servants, sometimes leading to a slowdown in the approval process or even to blockages. In this context, a solution for streamlining an approval process, which takes place at the level of central public administration, could be graphical modeling through the IDEF 0 methodology.*

***Key words:** management, quality, graphic modeling, central public administration, public services.*

### 1. INTRODUCTION

As the processes that take place at the level of the ministry have a high degree of complexity, which involves the correlation of normative acts, instructions, regulations, implementing rules, in the context of a large volume of documents, which must be processed in a limited time by a restricted number of civil servants, we considered implementing a methodology that has proven useful both in US government agencies and in business. Thus, we set out to use the IDEF 0 graphic modeling methodology for one of the nine processes that take place simultaneously in a single approval commission, set up at the level of the Ministry of Culture [1]. The National Commission of Museums and Public Collections (NCMPC) [2] has in its sphere of attribution the granting of the following categories of approvals and accreditations: approval for the establishment of museums and public collections, approval for museum re-accreditation, approval for museum reorganization, authorization of laboratories,

conservation, restoration of movable cultural assets, expert accreditation, approval of temporary exports, approval of economic operators for the sale of movable cultural goods, approval of classifications of movable cultural goods, endorsement of loans of movable cultural goods. The complexity of these nine separate processes, which take place in the same commission, where each type of approval is based on specific legislation and regulations, causes a difficult management. Quality management specialists consider that quality improvement "represents the foundation of knowledge-based management, respectively the improvement of all processes and results of these processes, in order to ensure the satisfaction of customer needs, in an efficient manner" [3]. In this context, we consider that the graphic modeling by using the IDEF 0 methodology can add value to the development of the approval process and can streamline the activity of the above-mentioned scientific commission." Modelling with IDEF0 method in order to ease the complexity of applying and

tailoring the processes” [4]. We specify that this type of modeling can be applied to all approval processes within the ministry, on different branches of specialty, starting from written culture, performing arts, cinematography, intangible heritage, to movable and immovable heritage. In order to optimize a process, it is absolutely necessary to thoroughly deepen all the activities and resources used in that process. In order to model a process, "major activities, decision-making practices, interactions, constraints and resources are taken into account" [5].

## 2. APPLYING THE METHODOLOGY FOR A MINISTRY

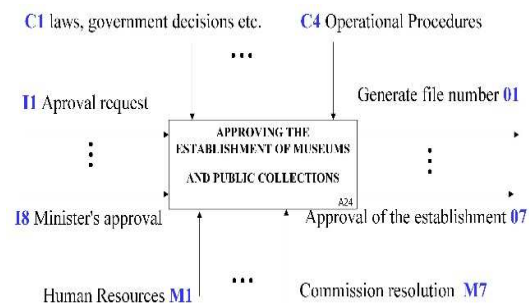
The Integration Definition for Function Modeling (IDEF) methodology was developed by the United States Air Force, starting with the Integrated Computer-Aided Manufacturing (ICAM) program, which was developed in 1970 [6]. IDEF 0 is a methodology created specifically to model a system, including decisions and work carried out within an organization, streamlining the system through functional analysis and the development of internal and external communication. IDEF 0 provides the opportunity to identify important functions within a system. Also, by the IDEF 0 method can be highlighted the errors in the analyzed system, and also the processes that are carried out properly. Thus, by using IDEF 0 you can model the functions of a system, which includes processes, actions, operations, activities, and also the relationships between the information and objects that underlie those functions. The advantages of using an IDEF 0 modeling are multiple, such as:

- flexibility, as different stages in the life cycle of a process can be sustained;
- conciseness, providing an easy understanding;
- rigor and precision.

The IDEF 0 language has a standardized form, so the models are well defined, well structured, easy to understand, easy to modify and use, and can be extended to any depth of detail [6]. "The goal of developed IDEF is to enable experts to comprehend problems from different views and levels of abstraction" [7]. At the same time, the specific language used through the IDEF 0 modeling methodology offers the possibility to

connect different components, which are characteristic and structural of a certain process, establishing relationships between the following elements: box, arrow, inputs, outputs, constraints, mechanisms, resources, control. "The use of a process modeling methodology has numerous advantages, created solely to optimize the process task" [8].

An important element of the IDEF 0 graphic modeling is represented by the "Activity box", shown in figure no. 1, which has the role of defining which is the analyzed activity or process. The box, as it is called in the specific language IDEF 0, must be rectangular in shape and the corners must be represented in a square shape. To each box is assigned a number, which is used to quantify a function. Cassettes represent every major function of the modeling process. These functions are broken down or broken down into more detailed sub-processes, until the studied process is described at the necessary level in order to support the objectives set by the researcher. The top-level diagram in modeling provides the most general or abstract description of the process represented by the model. This diagram is followed by a series of diagrams called child diagrams, thus providing more details about the analyzed process.



**Fig. 1.** Diagram of the analyzed process regarding the Approval of the establishment of museums and public collections

We specify the fact that for the graphic modeling we had as a starting point the Process Map, made for the Ministry of Culture and which we elaborated within the doctoral research. Through the Process Map we systematized the processes that take place at the ministry, resulting in: management processes, known in the specialized literature as decision or decision processes, central processes, support or

basic processes, map which is shown in Figure no. 2. The specialized literature recommends a decomposition into sub-processes, which should

be done vertically, from top to bottom

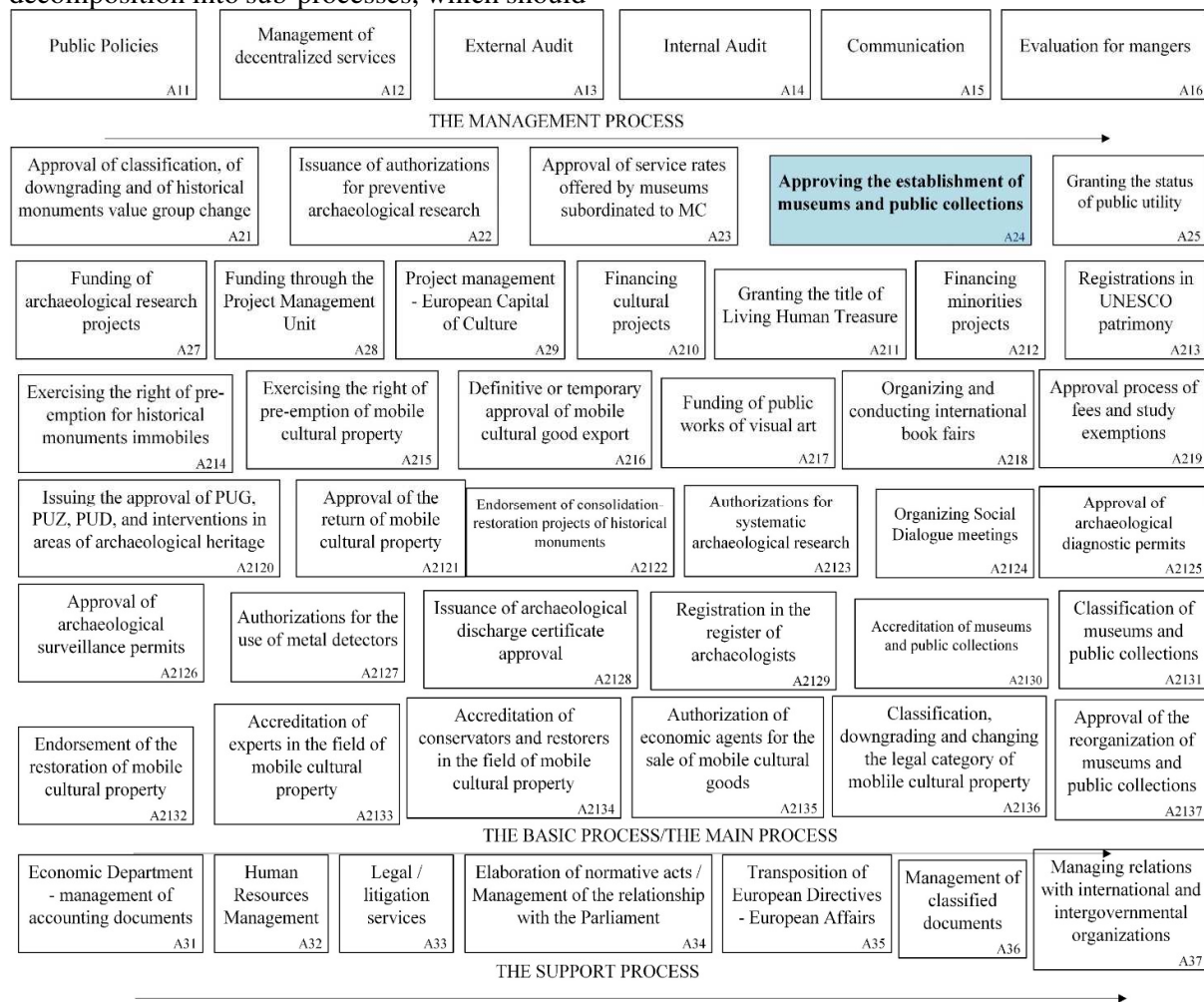


Fig. 2. Top - level diagram Process map for the Ministry of Culture

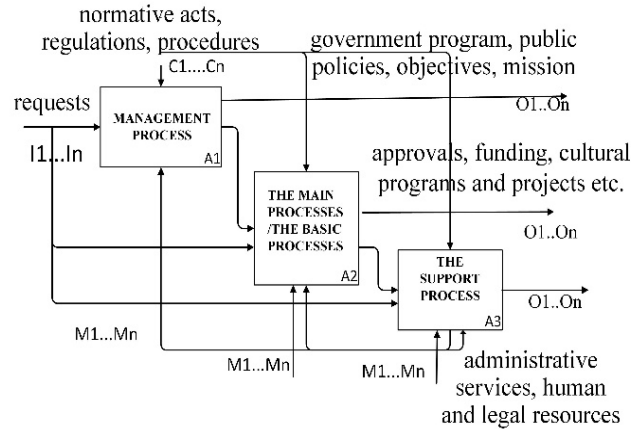
Another clarification is that graphic charts should be designed to include a minimum of three and a maximum of six boxes [7]. Each process carried out within the ministry has been assigned a specific number. In the present paper we aimed to graphically model a single process, using the IDEF 0 methodology, namely the process called "Approval for the establishment of museums and public collections". We mention that the graphic modeling could be applied for each process that is specified in figure no. 2.

Another specific element to the IDEF 0 modeling is the arrow, with the role of transmitting data or objects related to functions, to be fulfilled, as seen in figure no. 3. According to the IDEF 0 standard, there are the following

meanings for the position and role of the arrows, as also represented in figure no. 3:

the arrow that is represented as being inserted through the left side of a box has the direction of input (Input);

- an arrow that is inserted into a box, through the top of it, represents a Command or Control;
- the arrow that appears on the right represents the output (Output).
- the arrow that has a connection at the bottom of a box can have the following meanings:
  - with the tip up, has the meaning of Mechanism, respectively are identified which are the means that support the function;
  - with the tip down represents the so-called calls (Calls) that provide details.



**Fig. 3.** Process Map Diagram for the Ministry of Culture broken down into three levels

Thus, as can be seen in figure no. 3, the Inputs, which are rendered as entering box A1, may also be inputs for box A2 or A3. For example, an input can be a government strategy, such as that referring to the support of the cultural sector during the Covid-19 pandemic, and this input must be implemented by the departments that carry out the support activity, but also by those that ensure management processes or basic processes. If a citizen requests an approval, it is managed by the specialized departments that provide the basic processes, with the help of the other structures that provides support. Calls are applicable to all three types of processes, each structure needing the most important categories of resources: human, material, technological and financial. The resources can be identified in the graph by the letter M, according to the specific IDEF 0 language.

Another stage preceding the graphic modeling by the IDEF 0 methodology was the one through which we participated in a series of consultations with the specialists within the ministry, respectively in process analysis meetings, together with civil servants who are involved in the approval process and which contributed to the elaboration of specific normative acts.

Also, for a deepening of the entire approval system, we requested points of view regarding the approval process and to other specialists within the ministry, such as public managers,

public policy specialists etc. We point out that a number of important pieces of information were provided by the beneficiaries of the public services, which, through the notifications sent to the ministry, led to the identification of the “weaknesses” that should be remedied or eliminated. In order to analyze in detail, the whole process regarding the approval of the establishment of museums and public collections, the specific normative acts, regulations, working instructions and operational procedure were studied, which currently exist in the form of an unfinished project. In this context, we systematized what are the main activities specific to the analyzed process. Thus, an important stage was the elaboration of a process diagram with all the activities carried out within the approval process, a diagram which is presented in figure no. 8. This process required several revisions to all activities carried out in the process in question, in order not to omit an essential step. Next, the activities represented in figure no. 6 were integrated in the sub-process " Decision of the Scientific Committee". Subsequently, each activity was grouped into sub-processes, as shown in Figures no. 4, 5, 6 and 7.

The activities that are part of the Submission of documentation sub-process are the following:

- submission of application and documentation for accreditation.
- the distribution, by the head of the Cultural Heritage Department, of the request and the documentation submitted to the secretary of the NCMPC;

● the secretary records the application and the submitted documentation.  
The activities represented in figure no. 5 were included as an integral part of the sub-process called “Documentation analysis”.

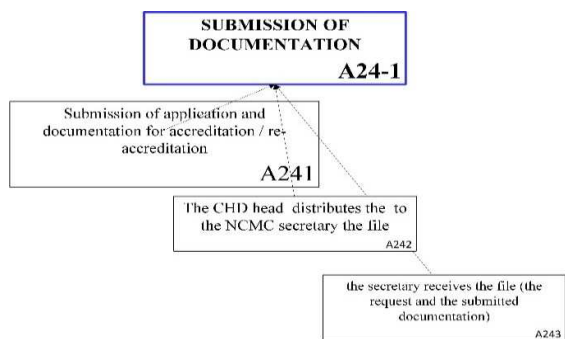


Fig. 4. Activities specific to the sub-process Submission of documentation

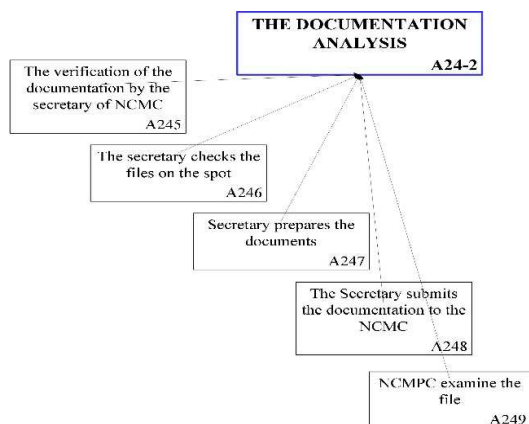


Fig. 5. Activities specific to the "Documentation analysis" sub-process

The "Decision of the Scientific Committee" has the following activities: rejection or approval of the application by the NCMPC, as mentioned in figure no. 6.

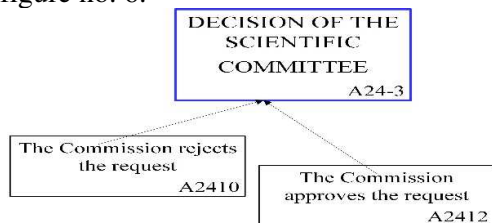


Fig. 6. Specific activities of the sub-process "Decision of the Scientific Committee" NCMPC

The last sub-process was called “Issuance of the opinion”, the activities represented in figure no. 7 being part of it.

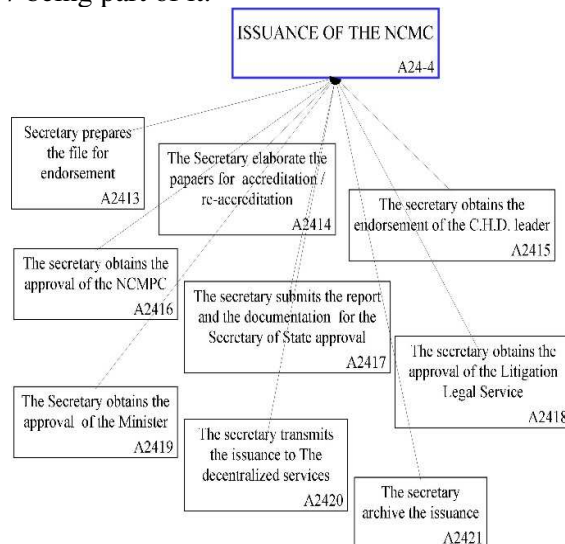


Fig. 7. Specific activities of the „Issuance of the NCMPC approval” sub-process

By making the diagram on the flow of activities carried out in the process of approving the establishment of museums and public collections, we managed to establish more efficiently a classification of important sub-processes for the analyzed process, thus resulting in a number of four sub-processes. These sub-processes were transposed, through the IDEF 0 methodology, in a child-type diagram, which is shown in figure no. 8.

The specific language used in the IDEF 0 methodology was also applied in the graphical modeling and, according to the ICOM code [9] used by the IDEF 0 methodology, we reproduced the following elements: I = Inputs; C = Control; O = Outputs; M = Mechanism.

In figure no. 8, the first sub-process “Submission of documentation”, marked with A24-1, has as a first input, marked with I1, the request of a legally constituted organization to obtain the approval regarding the establishment of a museum or a public collection. A second input is marked with I2 and is the required documentation that an organization must submit, along with the application for approval. On the sub-process Submission of documentation, control operations are exercised, noted in figure no. 8 with C, as follows:

- C1– represents the normative acts that stipulate which are the organizations that can request the approval and which are the documents based on which the approval can be obtained;
  - C2 - represents the norms stipulated in the Rules governing the functioning and organization of NCMPC;
  - C3 - refers to the instructions or orders issued by the minister regarding the approval methodology;
  - C4 - the operational procedure represents the description of the specific activity of NCMPC, based on the normative acts, instructions, norms or orders issued by the minister.

We specify that all four types of control, respectively C1, C2, C3 and C4, are applicable to each sub-process specified in the diagram, as shown in figure no. 8.

The inputs I1 and I2 related to the sub-process A24-1 have as output the generation of a registration number, which is highlighted in fig. no. 8 with O1, and a second output represents the communication that is transmitted to the applicant, being marked with O2.

Also, from the sub-process A24-1 starts an output, which becomes input for the sub-process denoted by A24-2, called "Documentation analysis". This sub-process has an input, respectively I3, representing the "opportunity report" prepared by the NCMPC secretary, regarding the verification of the documentation, the application and the field trip, in order to certify the ones specified in the file. Input I3, input I1 and I2 are processed by the NCMPC secretary and become outputs, as follows:

- in case the secretary finds that the documentation is not complete, he draws up a report, addressed to the head of the specialized structure, by which he informs about the rejection of the request, generating the output O3;
- the secretary elaborates a response by which the applicant is informed that the file is rejected,

thus generating the output marked with O4. If the inputs I1, I2 and I3 are drawn up in accordance with C1, C2, C3 and C4, then the arrow starting from the output of sub-process A24-2 becomes the input I4, generating an input I4. This input is part of sub-process A24-3, called the "Scientific Committee Decision" and refers to the preparation of the agenda for the NCMPC. During the NCMPC meeting, the minutes, represented by the code M5, which we consider as a specific mechanism for sub-process A24-3, are drawn up by the secretary of the commission, based on ballot papers, which are recorded in the chart under the code I5. If the application is rejected, the output of O5 is generated, respectively negative opinion, which is communicated to the applicant. If the majority of the committee approves the application and the related documentation, in this case the output O6 is generated, which will become input for a new sub-process, namely "Issuance of the opinion", which has the reference number A24-4. For this last sub-process, the following elements become the input:

- the note drawn up by the secretary of the commission is, in the first phase, endorsed by the head of the specialized structure, being identified in the graph by the code I6;
- I6 is endorsed by the Deputy Minister who coordinates the specialized structure, generating the input marked with I7;
- I7 is assumed by the head of the institution, becoming the input noted with I8.

Input I8 will be the basis for issuing the approval for the establishment of a museum or public collection, which represents the output represented in the graph by the code O7 and which will subsequently be communicated to the applicant. In addition to the resources already mentioned above, for the sub-process A24-4 will be taken into account the resolutions of the scientific committee, which have M7 as code number and ballot papers, which will be, in the context of this sub-process, the mechanism noted with code number M6.

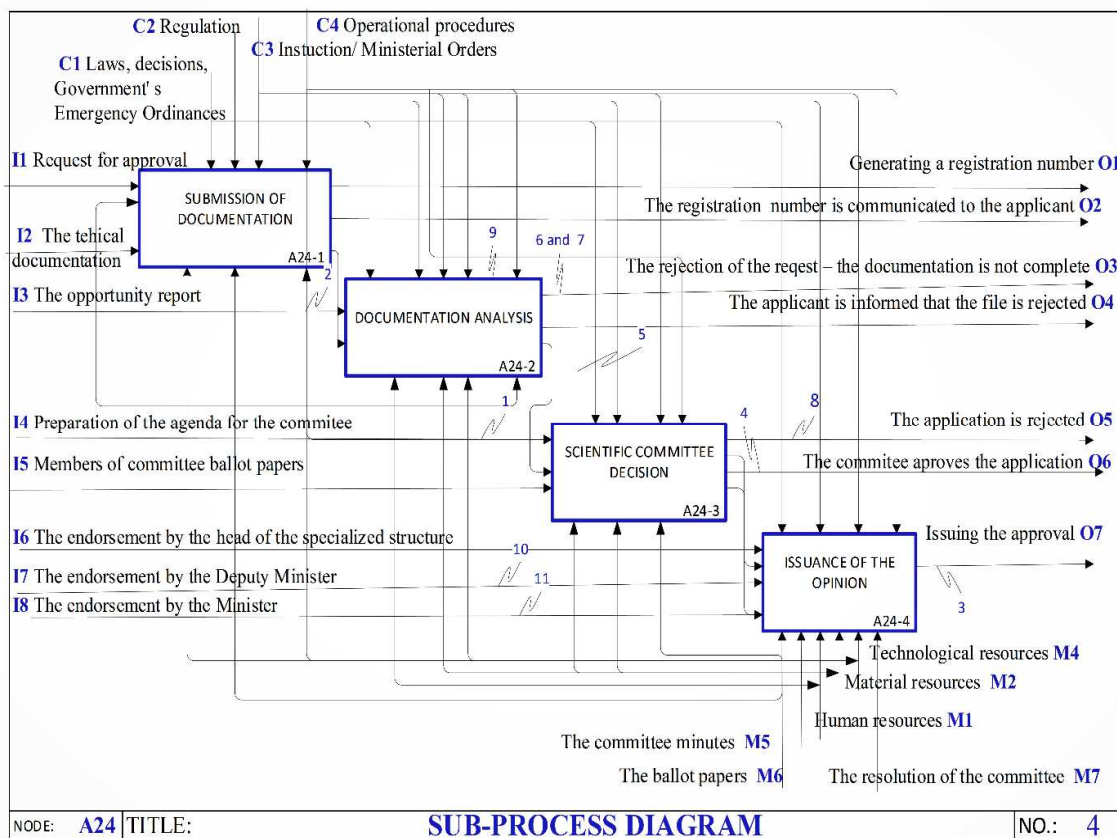


Fig. 8. Specific activities to the sub-process Issuance of the NCMPC opinion

which we consider as a specific mechanism for sub-process A24-3, are drawn up by the secretary of the commission, based on ballot papers, which are recorded in the chart under the code I5. If the application is rejected, the output of O5 is generated, respectively negative opinion, which is communicated to the applicant. If the majority of the committee approves the application and the related documentation, in this case the output O6 is generated, which will become input for a new sub-process, namely “Issuance of the opinion”, which has the reference number A24-4. For this last sub-process, the following elements become the input:

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We consider that another benefit, resulting from the use of the IDEF 0 graphic modeling methodology, is the critical analysis of the analyzed process, bringing to attention certain “constraints”, as they are called in the specific language used.

Their role is to identify the weaknesses in the endorsement process. Awareness of the non-

functionality of a process can lead to the opportunity to identify a number of remedies or improvements. It is important to note that "the responsibility for quality management lies with top management and coordinators and the development of a quality-oriented policy that includes the general guidelines of the organization and the establishment of responsibilities for all activities involved in achieving the organization's objectives" [10]. In the context of the critical analysis performed on the approval process, a series of constraints were identified, in response to which, in order to eliminate them, we formulated certain proposals, as shown in tables no. 1 and 2 below.

Tabel 1

**Defining the identified constraints**

Nr. crt.	Constraints
1	lack of quorum - situation in which the meeting cannot be organized;
2	lack of human resources (e.g. absence of commission secretary, lack of personnel to process the transmission of opinions);
3	the opinion was not sent to the beneficiary due to human error;
4	logistic: lack of internet connection for organizing the online meeting;
5	lack of legal support: the contracts of the members of the scientific commission have expired and no new contracts have been drawn up:
	<ul style="list-style-type: none"> <li>the minister does not agree with the proposed persons;</li> </ul>
	<ul style="list-style-type: none"> <li>the proposed persons expressed their refusal to be part of the commission;</li> </ul>
6	the applicant does not receive information on the obligation to complete the documentation;
7	there is no possibility to send the missing documents in electronic format;
8	the applicant cannot contact the secretary of the commission, in order to communicate with him or her important data, such as: modification of contact data; change of contact person; suspension of the approval process due to lack of funding or specialized staff;
9	inability to process the large volume of files received for a meeting;

10	delays in approving the commission opinion by the Deputy Minister who coordinates the specialized structure;
11	delays in signing the opinion by the minister (medical leave, Covid or no delegation of responsibilities).

Tabel 2

**Proposals for resolving constraints**

Nr. crt.	Proposals for resolving constraints
1	early verification of the agenda of the committee members and establishment of clear deadlines for the meeting;
2	whereas the legislation in force stipulates that during a medical leave the civil servant cannot delegate his duties to another person, we propose a number of at least three deputies for the secretary of the commission;
3	given the fact that, currently, the official way to send a notice is exclusively through the Romanian Post, we also propose the option to scan the document and to send it in electronic format to the applicant;
4	we consider that by sending the opinion in electronic format it is possible to check more easily if the opinion has been sent;
5	this problem can be solved by using existing hot spots on business phones;
	we propose to start the process of selecting and approving the members of the scientific committee six months before the expiry of the term of validity of the contract, which usually ends for a period of two years;
6	we propose to include in the communications sent to the beneficiaries the recommendation that they provide all their contact details, especially the e-mail addresses where they can receive information about the submitted application;
7	creating a platform for submitting documentation and requests for obtaining approvals;
8	generating an e-mail address for each approval commission, through which information could be sent (currently the commissions do not have e-mail addresses and, consequently, do not have yet the practice of communicating through such a tool);
9	human resources management according to priorities and the volume of activity carried out;
10	hiring specialists in the field of cultural heritage at the Deputy Minister Cabinet,



	such as: archaeologists, museographers, experts in mobile heritage etc.;
11	the minister may delegate tasks regarding the signing of opinions issued by the ministry to a Deputy Minister, in the context in which his or her activity is intense: government meetings, hearings, parliamentary activity, meetings with delegations from the country and abroad, trips to the 95 institutions under the coordination of the ministry etc.

### 3. CONCLUSION

The central public administration needs a rapid and real improvement of the whole system, so that the public services, which are provided to the citizens, could be efficient and serve, as they are designed to be, the public interest.

The strategies developed by the government exist, at a theoretical level, they are constantly disseminated to ministries, but we believe that the only chance to improve public services, so implicitly the process of communication with public service beneficiaries, are the optimizations that must come from within each institution, but especially within the specialized structures. We base this conclusion on the fact that a thorough knowledge of a process belongs to those who are actually involved in the process.

This paper involved a considerable effort to communicate with the specialists within the specialized structure, who know the legislation, regulations and all the activities that must be carried out, so that, finally, an opinion is sent to the citizen or beneficiaries of public services. As the most developed area, in terms of performance and efficiency, remains the private sector, respectively the business area, we considered it appropriate to transpose these practices to the state public sector.

Thus, we considered that an increase in the quality of public services can begin with an analysis of each process that takes place at the level of a public institution.

From the specialized literature, studied in the context of doctoral research, we identified one of the ways in which a process can be critically

and efficiently analyzed, namely graphic modeling. In order to graphic modeling, we opted for the IDEF 0 graphic modeling methodology, as we considered it to be the most suitable to be used in streamlining complex processes.

Graphic modeling using the IDEF 0 methodology managed to highlight each element that is part of a process, clearly defined which are the documents that result from each sub-process, which are the resources that are needed to run a process.

Also, by the graphic modeling of IDEF 0, it was established which are the control instruments to which the development of each process must relate, in the context in which a public institution has the obligation to implement the normative acts in force.

By identifying certain constraints, with the help of graphical modeling we contributed to the identification of ways in which the process, which was subjected to analysis, could be improved. At the same time, through the information that has been provided through graphical modeling, it can be easily established which are the inputs and outputs that could be taken into account in order to build an IT platform.

We propose the construction of an IT platform, which should be specially designed for the submission of documentation by a citizen, in order to obtain an approval from the Ministry of Culture.

At the same time, we consider that graphic modeling could be applied to every process that takes place at the level of a ministry and could contribute to the efficiency of the approval system.

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### **Eficientizarea procesului de avizare la nivelul unui minister, prin utilizarea metodologiei IDEF 0**

**Rezumat:** Procesele derulate la nivelul administrației publice centrale, în special cele care au ca finalitate eliberarea de aprobări și avize sunt, încă, ineficiente, în cea mai mare parte. Chiar dacă funcționarii publici își îndeplinesc atribuțiile, respectă și pun în aplicare actele normative, există un număr variabil de instrucțiuni, ordine, norme, regulamente, proceduri etc. care se impun a fi luate, concomitent, în considerare și impementate, fapt care conduce la îngreunarea comprehensiunii întregului sistem de avizare. De asemenea, factorul decident, interferează, adeseori, cu activitatea funcționarilor publici, conducând, uneori, la încetinirea procesului de avizare sau chiar la blocaje. În acest context, o soluție pentru eficientizarea unui proces de avizare, care se desfășoară la nivelul administrației publice centrale, poate fi modelarea grafică prin metodologia IDEF 0.

**Iuliana MOISESCU**, Sc.D Student, <sup>1</sup>University Politehnica of Bucharest, Faculty of Industrial Engineering and Robotics, Splaiul Independenței nr. 313, 6<sup>th</sup> District, Bucharest, Romania, e-mail: [iuliana\\_moise@yahoo.com](mailto:iuliana_moise@yahoo.com); <sup>2</sup> Ministry of Culture, 22, Unirii Boulevard, 3<sup>rd</sup> District, Bucharest, Romania;

**Lucian Ioan TARNU**, Lecturer Ph.D, Lucian Blaga University of Sibiu, 10 Victoriei Street, Sibiu, România, [lucian.tarnu@ulbsibiu.ro](mailto:lucian.tarnu@ulbsibiu.ro);

**Aurel Mihail ȚIȚU**, Sc.D Professor, Lucian Blaga University of Sibiu, 10 Victoriei Street, Sibiu, România, [mihail.titu@ulbsibiu.ro](mailto:mihail.titu@ulbsibiu.ro); Academy of Romanian Scientists, 54 Splaiul Independenței, 5 District, Bucharest, Romania; Romanian Association for Alternative Technologies Sibiu, 10 Victoriei Street, Sibiu, Romania.