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# DOCUMENTATION MANAGEMENT AND THE AUDIT TRAIL IN PUBLIC ADMINISTRATION[4]

**Abstract**

Our world and the issue of its public administration are transforming the form of complex digitization. The ensuing changes are also affecting processes within public administration organizations and include the modernization of documentation management. The question remains as to how document management can be effectively set up for modern public administration. As such, the research objective of the present paper is the design of documentation management and the audit trail to ensure the effectiveness of public administration. From fulfilling this goal, we can hypothetically expect a significant simplification and streamlining of documentation management, which will provide, among other things, information sufficient for conducting auditing activities and ensuring the effectiveness of the public administration system – the audit trail. Analytical testing is used to meet this objective, where documentation processing intervals were measured on a selected sample of 284 documents in the field of public administration organizations. The sample included directives, work procedures, forms, and operating rules that constitute controlled documentation. The conclusions of this research have primarily yielded a schematic workflow of documentation management in public administration. The proposed documentation management workflow will specifically enable public administration to increase efficiency, consistently implement the audit trail, and increase computerization, which will contribute holistically to the development of public administration.

**Key words:** Administration; Audit; Documentation; Management; Trail

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# 1    INTRODUCTION

VÁCLAV KUPEC - JAKUB SIEBER - İSMAIL ONUR BAYCAN

The world is continually transforming (Kupec et al, 2020, p. 1) consisting of the digitization of our environment (Saniuk – Grabowska – Straka, 2022, p. 2), which is transforming basic paradigms (Jafari – Azarian – Yu, 2022, p. 1) of data digitization (Martínez-Olvera, 2022, p. 198) and cybernetic systems (Zizic et al., 2022, p. 2). This trend is fundamentally impacting public administration (Adamcová – Imrovič, 2019), which is holistically perceived as the administration of public affairs (Erneker – Pána, 2017, p. 11) and which affects us all. It is therefore a crucial task to address this phenomenon with appropriate erudition substantiated by research.

Due to these structural changes (Gu et al, 2022, p. 1), processes within public administration organizations are also changing, primarily through the influence of the eGovernment phenomenon (Rodriguez-Hoyos – Estrada-Jimenez – Urquiza-Aguiar – Parra-Arnau – Forne, 2018, p. 263). The current understanding of this concept consists mainly of the intensive use of information technology to provide modern public services (Arshad – Asghar, 2020, p. 41), including the provision of information and services by the media to meet the needs of citizens At the same time, public services are founded on the proper management of individual processes and the management and tracking of documentation (Šprochová - Imrovič - Lukáč, 2018).

Such management of relevant documentation specifically includes management of processes and conversion of archives to electronic format (Plattfaut, 2022, p. 1). Data, information, and knowledge are part of sophisticated documentation management (Doležal – Máchal – Lacko, p. 256), as essential components of public administration as a whole. Documentation management also includes the audit trail according to Directive 201/45/EU, as an important element of effective public administration (Kuneš – Polanská – Galočík – Paikert, 2022, p. 32) that assists with its management (Nzechukwu, 2017, p. 590).

"The management of public affairs is currently a highly treated issue, all the more so as the public pressure on public authorities is constantly increasing to manage public affairs more efficiently, quickly and closer to the citizen." (Marišová – Lichnerová – Machyniak, 2021, p. 156). According to the theses thus articulated, an elementary problem emerges (P1) of how to effectively set up the management of documentation of modern public administration. The research objective (A1) of this paper is therefore to design documentation management and audit trail that ensure the effectiveness of public administration.

## 2	LITERATURE REVIEW?

This chapter presents a selection from the literature based on a review of the literature and content analysis to define elementary concepts. The methodological approaches of literature review (Machi – McEvoy, 2012, p. 3; Bell, Bryman, and Harley, 2011, p. 18) and content analysis (Weber, 1990, p. 10; Gavora, 2015, p. 345) were applied to texts from the electronic databases Web of Science Core Collection, Scopus, and ProQuest. Both the literature review (Paciarotti and Torregiani, 2021, p. 428) and content analysis (Seuring and Gold, 2012, p. 544) were conducted in 2022 and satisfied multiple scholarly criteria.

The searched and researched terms included the English terms "Public Administration", as well as "eGovernment", "Documentation Management", and "Audit Trail" as the basis for the entire review. The researched terms were mainly selected from the fields of "Economics", "Law", "Management", "Political Science", and "Public Administration". The results show an increasing tendency toward scholarly treatment of these concepts. The literature review represents the fulfillment of a subordinate objective of the entire text and an important basis for the research part of the text.

### 1.1 Public Administration

According to the theories of Matei – Antonovici – Săvulescu (2017, p. 763), public administration represents a basic subsystem of societal systems. "In one of the many definitions of public administration, it was stated that it is the fulfillment of individual and collective needs of citizens, resulting from the co-existence of people in society, realized by the state and its dependent organi." (Szynowski, 2019, p. 151). This is further developed by Zyberai, as the concept of public administration implies a need for the existence of a governmental apparatus to carry out a policy of formulated executive authority (2021, p. 33).

At the same time, the definition of public administration contains formulated rules that are implemented by the bureaucracy for the public (Edwin – Anuoluwapo, 2020, p. 105). "The role of public administration is a bridge between politics and society and this is achieved through the exercise of the working responsibilities of public servants, which represents the guarantee and the assurance of fulfillment of their mission in the realization of services and general goods in the interest of the public." (Feka – Abdullai, 2019, p. 12). These postulates are subsequently verified by Sucupira et al. (2019, p. 72).

Aspects of public administration also include a link between changes that occur in society and changes within the organizations belonging to the system of administration (Matei – Antonovici – Săvulescu, 2017, p. 763), which

is supported by other theories (Lahat, 2018, p. 229; Dobrolyubova, 2021, p. 61). "Public administration is also legitimately considered an individual and special service for the public." (Kuril, 2018, p. 493). At the same time, Ospanova adds from a society-wide perspective that the calling of public administration is to ensure the stable development of society and social life (Ospanova, 2018, p. 1255).

The area of administration is summarized by Zyberai, who points mainly to the necessity of reforming it with a view to its evolutionary development (2021, p. 33), which is also confirmed by Matei – Antonovici – Săvulescu (2017, p. 763) and by Florea – Luchian (2021, p. 20). "Today, modern public administration is understood mainly as a service to the citizen, as a form of satisfying citizens' needs arising mainly from legal requirements." (Marišová – Lichnerová – Machyniak, 2021, p. 156). Meanwhile, the electronification of public administration, and by extension eGovernment, can contribute significantly to supporting the evolution of public administration.

## 1.2 The Phenomenon of eGovernment

According to Rodriguez-Hoyos – Estrada-Jimenez – Urquiza-Aguiar – Parra-Arnau – Forne (2018, p. 263), the phenomenon of eGovernment has introduced new paradigms. And yet what exactly is eGovernment? "Electronic government (eGovernment) is the use of electronic communications devices, computers, and the Internet to provide public services to citizens and other persons in a country or region." (Garín-Muño – López – Pérez-Amaral – Herguera – Valarezo, 2019, p. 100). This definition is developed by other authors (Alruwaie – El-Haddadeh – Weerakkody, 2020, p. 1; Madleňák – Žuľová, 2019, p. 132).

Arshad – Asghar subsequently states on this issue that eGovernment is conceptualized as the use of information technology in public administration to deliver public services, improve management efficiency, and promote democratic values and mechanisms (2020, p. 41128). Kawashita – Baptista – Soares asserts that despite the diversity of motives for implementing eGovernment, the main motive is electronic access (online versus face-to-face) by external parties to government information and services (2020, p. 58). Which modern documentation management indisputably achieves.

The current results of Fan – Epadile – Qalati – Qureshi subsequently state that e-government, or eGovernment, is a complex socio-technical system incorporating citizens, companies, and government agencies that uses electronic platforms to create and distribute value to its participants. Currently, eGovernment is considered an effective tool that digitally connects all its participants and replaces the time-consuming and costly infrastructure of authorities (2022, p.

1), which is supported by the theories of Mikušová Meričková – Jakuš Muthová (2021, p. 135) or by Švec – Rak – Horecký, 2021, p. 132).

"In an ideal scenario, the goal of eGovernment is to create a seamless architecture for public services, where all systems and services are integrated across both the public and the private sectors to provide a one-stop service for citizens and organizations." (Yli-Huumo – Päivärinta – Rinne – Smolander, 2018, p. 3). Chrysoulas – Thomson – Pitropakis – Papadopoulos – Buchanan – Domalis – Karacapilidis – Tsakalidis – Tsolis conclude this topic and recommend transforming the processes of eGovernment (2022, p. 40), which is precisely where modern documentation management belongs.

## 1.3 Documentation Management

Modern documentation management integrates several areas, primarily process management and electronic archiving. The primary domain, which is process management, is understood by Plattfaut as the science that oversees how processes are executed while ensuring that the outcomes of the selected processes are consistent and of high quality (2022, p. 1). Li–Fang subsequently adds that the incriminated process management uses resources and information to transform inputs into outputs under certain constraints to achieve a series of activities with a certain logical relationship (2022, p. 4).

The aforementioned processes, in the context of the field of documentation management, are defined by Knežević – Kušljić – Sivrić as a series of systemically and logically interconnected activities to which the resources of an organization contribute (2022, p. 167). Gackowiec – Podobińska-Staniec – Brzychczy – Kühlbach – Özver recommend taking advantage of opportunities for documentation management that digital transformation offers, such as real-time process monitoring, reduced maintenance costs, and implementing an infrastructure for data collection and storage to improve performance and increase productivity (2020, p. 2). (2020, p. 2).

The processes discussed, including modern documentation management, are essential for understanding the functioning of public administration organizations and also play an important role in the design and implementation of flexible information systems. They blend interrelated activities or tasks while including decision points that methodically influence the way a process is carried out to produce one or multiple results as the final output (Arias – Saavedra – Marques – Munoz-Gama – Sepúlveda, 2018, p. 378). Documentation management set up in this way reflects the needs of public administration.

As to the actual management of documentation, Doležal – Máchal – Lacko recommends that all data, information, or knowledge should be included (2012, p. 256). "The system of documentation must specify the types of

VÁCLAV KUPEC - JAKUB SIEBER - İSMAIL ONUR BAYCAN

documents needed for the project, program, or portfolio. Each type of document must be "tailored" to its purpose. For each type of document, it must be specified what information the document will contain, the format of the information, and the form of the document." (Doležal – Máchal – Lacko, 2012, p. 256). Documentation management is therefore clearly defined.

## 1.4 Audit Trail

Documentation management and the audit trail in public administration are closely linked. An analysis of the audit trail can use as its basis the definition from Directive 201/45/EU, which Kuneš – Polanská – Galočík – Paikert then transpose into the domestic environment as follows: "An audit trail includes source documents, processed transactions, and the links between them. An audit trail can be described as reliable if the link between the source documents and the processed transactions is easy to follow, corresponds to the stated procedures, and captures the processes that occurred." (2022, p. 32).

The original meaning of "audit trail" in the context of modern documentation management is derived from accounting: "A record of transactions in an accounting system that verifies the activity of the system. A complete audit trail allows auditors to trace transactions in a client´s accounting records from source documents into subsidiary ledgers through the general ledger and into basic financial statements and billings/invoices prepared and submitted by the entity." (Nzechukwu, 2017, p. 590).

Vallabhaneni also defines an audit trail as a processing trail, management trail, information trail, or transaction trail. The audit trail provides the ability to trace transactions from their initiation to their final processing, including all intermediate procedural steps. The audit trail is important for management, auditors, and civil servants (2013, p. 155). Its importance is demonstrated by the following statement: "Audit trail offer accountability, reduce fraud, show what actions were taken by people and the system, and provide the ability to reconstruct events or transactions." (Vallabhaneni, 2013, p. 155).

The authors Law and Smullen summarize the topic of the audit trail as a sequence of documents, computer files, and other records that shows how a transaction was handled in an organization from beginning to end. The authors also add that the audit trail is used by internal and external supervisors to monitor transactions (2008, p. 27). The role of the audit trail as oversight is also illustrated by the theories of Hall (2015, p. 23). Thus, based on the literature review, it is quite evident that the topic of document management and the audit trail is crucial to the constitution of modern public administration.

## 2     MATERIAL AND METODICS

The established theses described in the previous chapters were used as the basis for formulating the research objective (A1): to create a proposal for documentation management and audit trail that ensures the effectiveness of documentation and the efficiency of public administration. This model will be presented through analytical testing, which will be carried out on a selected sample of 284 documents in a selected area of public administration. These include the guidelines, procedures, forms, and operating rules that make up the controlled documentation of the department. The outputs of the proposal will be validated by analyzing the tested database of documents and presenting possible findings that can be achieved by following the process trail of controlled documentation.

An experiment testing the implementation of a controlled documentation process specified by A1 was conducted on a material sample of 284 documents with 78 employees. The authors selected the document OS 07 Směrnice BOZP [Organizational Directive 07: Occupational Health and Safety] to be used for verifying the results. This document was selected mainly due to the introduction of a revised version at the time the new documentation management process was introduced and due to the training that followed this revision. Subsequently, the period under study was selected to ensure the representativeness of the sample, set for a period of 30 days (from 15 November to 15 December).

The process will be described and set up using workflow management, which represents a general process of streamlining and verifying controlled documentation in a selected part of the organization. The goal will be to refine the process, mainly by using the data that automating the process will provide.

Using the implemented process, we will be able to identify the audit trail of controlled documentation. Systems nowadays, when set up correctly, provide sufficient depth of information to create valid and sufficient audit trails. For this to take place it is necessary to implement the steps and requirements of a process that will help in auditing it. The process workflow must include processes for checking and verifying documentation performed automatically by the Office 365 information system using Power Automate automation features.

In conjunction with the automation of the process, the time demand when distributing controlled documentation throughout the organization will be reduced, in a relationship that can be described by a formula where the value of x (time allotted for distributing documents without an automation process) is greater than the value of y (time allotted for distributing documents with an automation process).

VÁCLAV KUPEC - JAKUB SIEBER - İSMAIL ONUR BAYCAN

Formula 1: Comparing the automation of a selected process

$$\sum x > \sum y$$

Source: Author analysis

This experiment will be conducted on the aforementioned sample using the methodologies of monitoring, observation, and modeling (Ochrana, 2017, p. 35, 45, 70). The analysis of the material in question will be performed using these methods. We will verify the results of A1 by analyzing the data during the experiment of implementing the procedure presented. The analysis will focus on the following elements specified by the authors from the workflow phases (see Annex 1):

- Document visitors
- Document visits
- Average time spent on documentation
- Page Traffic by the device on the page

These analyses will enable us to obtain sufficient information flows so that the auditor can audit documentation repeatedly to ensure its effectiveness, keep the organization informed, and identify and eliminate documents that are extraneous to the process as such.

## 3    RESULTS AND RECOMMENDATIONS

The documentation management process and the subsequent automation elements contain a wealth of information that helps create an audit trail in the given process as a whole. The elements and their possible command lines are as follows:

- Responsible person: Assigned by the manager of the documentation, this person is the sole editor of the document. (The documentation manager is granted an exception, for specific cases).
- Manager control: assignment of a department by the responsible person and integration with the system.
- Revision time: = Changed+([Revision time]*365)
- Email notification to responsible persons: format DateTime(addDays(utcNow(), 30), 'MM/dd/yy)
- Reservation: created using Power Automate, it shows the document as reserved to everyone except the staff member reserving it

- Invalid document: Created using conditional formatting IF([Approval Status="Pending"] = Red)

The mapping of the process used a process workflow that helps in identifying the sequence of activities linking this process (Nyemba and Mbohwa, 2017). See Annex 1.

## 3.1 Unique Visitors

The first element analyzed was the visitation by individual employees, which was limited to one login per specific employee account. Throughout the course of the month, 75 out of 78 employees viewed the document. Their viewing behavior is recorded in the chart below. The largest increase in views can be seen at the top. The spike around 23-25 November is due to staff being trained on the new OHS methodology. This analysis element allows us to ensure knowledge of the document across the organization.

Graph 1: Unique visitors of the document
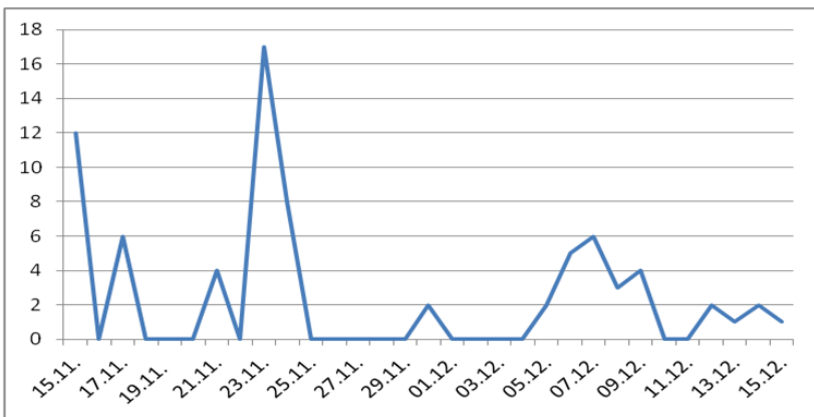


Source: Author analysis

## 3.2 Document Visits

The second element analyzed was the number of times the document was viewed without being limited to unique users. The document OS 07 Směrnice BOZP was opened 239 times during the period studied. The graph of document usage reflects Graph 1: Unique site visitors. This analysis enables us to specify the documents that have not been opened and we can therefore identify a critical component of documents and give them greater attention, impose more frequent revisions, etc.

Graph 2: Overall visits to the document
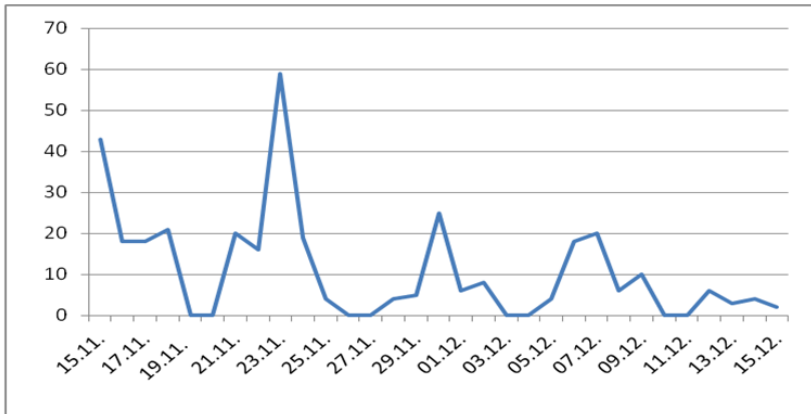


Source: Author analysis

## 3.3 Average Duration of Visit

The third analyzed element must be set up using the application and document tracking features in Power Automate, and as such is not offered for individual documents but the library as a whole. Thanks to the selection in the previous analysis points, the responsible employee selects the critical documentation and more detailed information can then be tracked here. The average time spent on a document by each employee can be monitored. The following graph shows the average views in minutes: seconds format. The average of all these durations was 4 minutes and 19 seconds.

Graph 3: Average duration for which the document was displayed
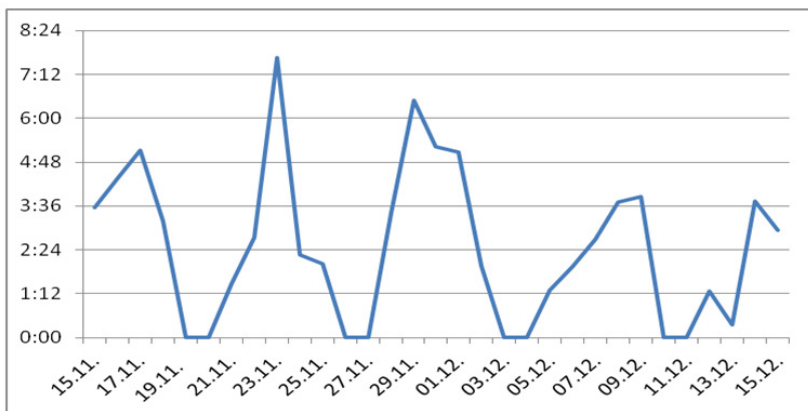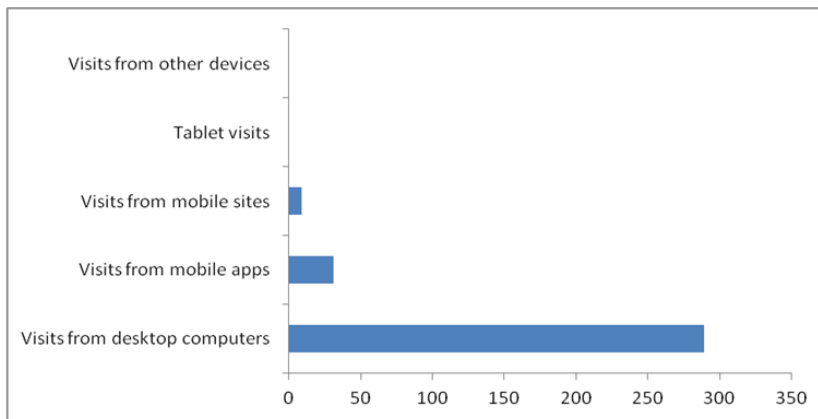


Source: Author analysis

## 3.4 Page Traffic by Web Device

The last subject analyzed is the technology used to display the documentation. This is one of the pieces of supplemental information that can be displayed at the level of the library as such. Other possible library-level items analyzed include the number of page shares, the popularity of documents visited, total traffic on all documents, and unique library visitors. Due to the interconnectedness of the digital library, there will be statistically significant savings in the implementation and distribution of critical documents across the organization.

Graph 4: Traffic by device



Source: Author analysis

## 4 DISCUSSION

The implementation of analytical elements in process management as such helps streamline the work of auditors and creates conditions for conducting an audit that is dynamic and meets the needs of today's era of eGovernment. In connection with the elementary problem (P1), we need to set up a process that can verify, control, and analyze all critical elements in the process of controlled documentation. By setting up these sub-processes, we can create the right foundation for setting up continuous process improvement and create a clear basis for auditing the process.

Following the model of Gackowiec – Podobińska-Staniec – Brzychczy – Kühlbach – Özver (2020, p. 2) this model sets up a digital transformation of the process of controlled documentation that can reduce maintenance costs and streamline the process as such. Information can be obtained that complements the knowledge and data the auditor can use as a basis for his analysis. According to Doležala – Máchala – Lacka this information can aid with optimizing the

process (2012, p. 256). The most important factor when setting up controlled documentation and associated audit trail according to Kuneše – Polanská – Galočíka – Paikerta remains for the information to contain a reliable trail of the connection between supporting documents and processed transactions (2022, p. 32).

The current research also has its limitations in terms of the time frame and sample size. Indeed, the sample consisted of 78 employees and 284 documents in a test period of one month. Another shortcoming is the direct control by individual employees, for example, when checking the readership of a document by the whole organization. The analysis specifications are set by the system for the entire library, not for a single document. It is a more complex process if the responsible person wants to set individual analyses for a document, where only critical documents can be selected. This issue can be addressed in the organization with additional scripting and a simple downstream workflow, or potentially using Power Apps.

Opportunities for the future lie in expanding the setup of analytical elements that the auditor can monitor at the document or library level. If the downstream products offered in Office 365, such as Power Automate and Power Apps, are used, these can significantly simplify and expand the information that provides information sufficient for performing auditing.

## CONCLUSION

The main research objective (A1) was to design documentation management and audit trail in a manner ensuring the effectiveness of public administration. This objective was met through the implementation of a workflow for the verification and review of controlled documentation in the organization and was recorded in a workflow diagram. As part of the verification of the model, testing was carried out in a selected area of public administration, and a sample of 284 documents was set up with a total of 78 employees. An analysis of an organizational directive on OH&S was performed to illustrate capability and provide an audit trail, wherein four areas were examined: unique visits, the total number of visits, time spent on the document, and traffic for the library as a whole. The schematic workflow of document management thereby constructed will allow for greater efficiency in public administration, consistent implementation of an audit trail, and contributing to computerization of the audit trail, which will holistically contribute to the development of public administration.

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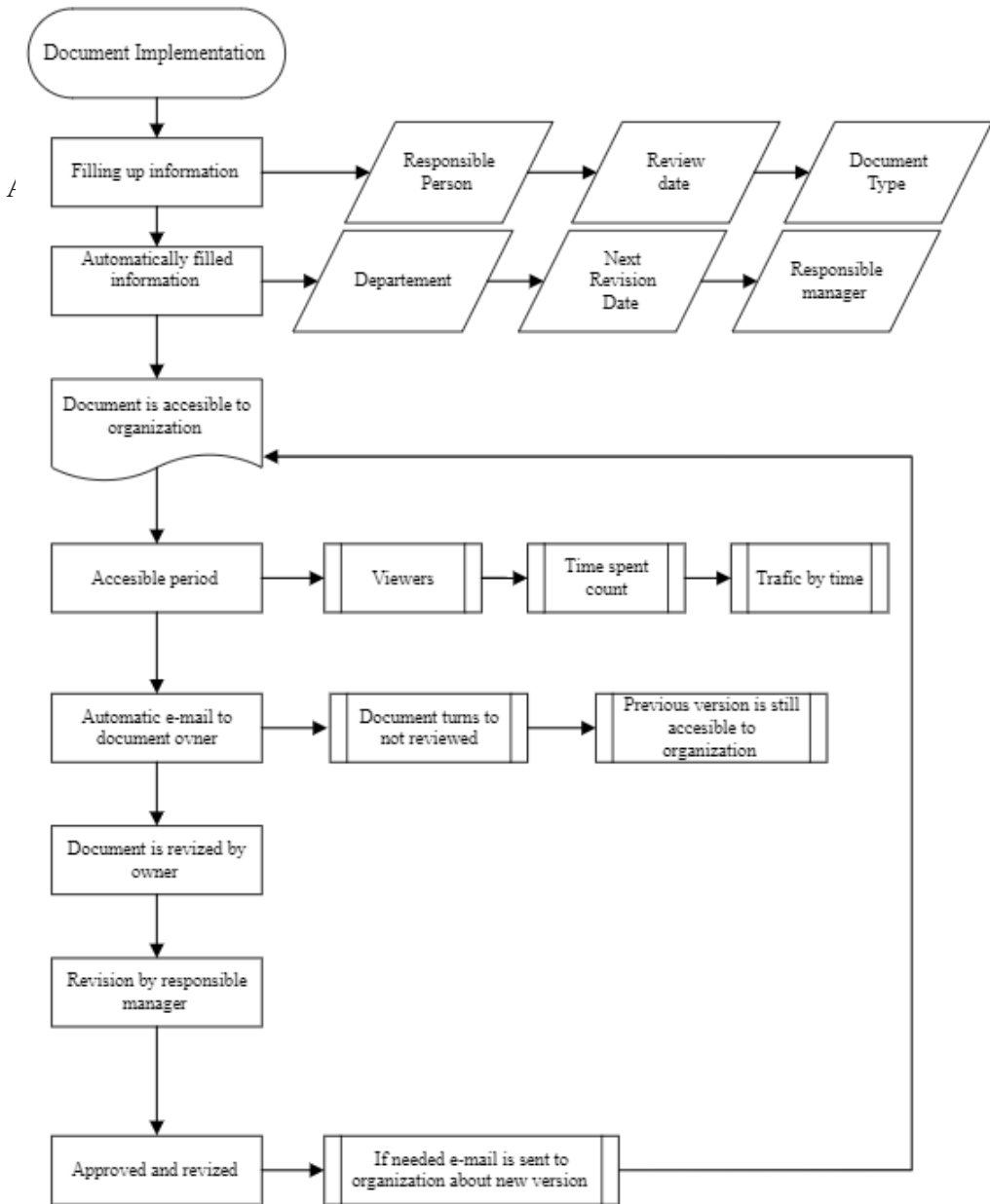
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Václav KUPEC - Jakub SIEBER - İsmail Onur BAYCAN

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