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CRITICAL SUCCESS FACTORS FOR IMPLEMENTING E-RECORD PRESERVATION – THE CASE OF SLOVENIA

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Abstract:

This paper highlights organisations' experiences regarding the implementation of electronic records preservation compliant with Slovenian regulation that entered into force in 2006. An empirical qualitative research was performed in public and private organisations from Slovenia and the EU in 2011 to understand the legal requirements' impact on electronic records preservation in organisations. A subsequent research was carried out in 2020 to measure developments in the field. The comparative case study indicates a trend for the future implementation of compliant electronic records preservation. The key obstacles and incentives are identified that impact its success rate and recommendations for operational guidelines are offered that are based on international findings and encourage the implementation of compliant electronic records preservation in organisations.

Key words:

electronic records preservation, organisation experience, impact of legislation, business processes, Slovenian and EU organisations

Izvleček:

Kritični dejavniki uspeha za izvajanje e-hrambe – primer Slovenije

Avtorica predstavlja izkušnje organizacij pri implementaciji elektronske hrambe dokumentov v skladu s slovensko zakonodajo, ki je začela veljati leta 2006. V javnih in zasebnih organizacijah iz Slovenije in EU je bila v letu 2011 izvedena empirična kvalitativna raziskava s ciljem razumeti vpliv zakonskih zahtev za hrambo elektronskih zapisov v organizacijah. Naslednja raziskava za merjenje razvoja na tem področju je bila izvedena leta 2020. Primerjalna študija primera kaže na trend prihodnjega izvajanja s predpisi usklajene elektronske hrambe dokumentov. Opredeljene so ključne ovire in spodbude, ki vplivajo na uspešnost, ter podana priporočila za operativne smernice, ki temeljijo na mednarodnih ugotovitvah in spodbujajo uvedbo s predpisi usklajene elektronske hrambe dokumentov v organizacijah.

Ključne besede:

hramba elektronskih zapisov, izkušnje organizacij, vpliv zakonodaje, poslovni procesi, slovenske in evropske organizacije

1. Introduction

For many organisations, electronic records preservation is crucial for supporting ongoing business operations. Records are valuable, as they avoid issues regarding the evidence of business transactions (Ismail, Bullah Affandy, 2017, 2; Jharotia Kumar, 2018, p. 1); records preservation is the key to the success of any business organisation (Ajadejebi, Oladimeji, J.A., 2019, p. 30). The practice has significant benefits for organisations, as it protects from any threats that may damage records and ensures that the records can be accessed for active use and long-term preservation heritage use (Ismail, Bullah Affandy, 2017, p. 2; Jharotia Kumar, 2018, p. 1).

By implementing electronic records preservation, organisations have the opportunity to optimize business processes, reduce business costs, increase productivity, and compete on the national and global market (Nessi Slovenia, 2007). This poses a significant challenge for the economy in terms of the initial establishment and subsequent managing costs of the electronic preservation process (Atos Scientific Community, 2014, p. 6). This depends on legal requirements in different countries (Boté et al., 2018, p. 431); good preservation practices are not always recognized and vary country by country (Digital Preservation Coalition, 2020; Beagrie, 2004). In many cases, the expectations and limitations of legal requirements do not enable the establishment of an electronic records preservation system (Surrfondation, 2008, p. 2) and digital collections of records and cultural heritage are not available for access (Evens, Hauttekeete, 2011, p. 157). Complex legal requirements create burdens for business, generate additional costs, make it difficult and time-consuming for organisations to understand their legal rights and obligations (Australian Government, 2014, p. 1; Office of the Parliamentary Counsel, 2013, p. 3), especially for small businesses (Office of the Parliamentary Counsel, 2013, p. 3, OECD, 2010, p. 15), and they are run in a way that avoids the need for compliance (OECD, 2000, p. 14). Thus, businesses cannot comply with complex legal regulations if they do not know and understand what is required (OECD, 2000, p. 14). As written by the OECD (2000, p. 14), legislators often fail to choose the appropriate policy instruments, as they feel pressure to issue new rules or expand existing ones to cover unexpected circumstances, to close legal gaps, and to address new problems. The effect of such pressure can cumulatively lead to a loss of simplicity and deepen an organisation's inability to understand what is necessary for compliance with the resulting legal requirements. Ruhl, Katz (2015) found that if legislators measured the complexity and concluded it was overly complex, they should adjust its complexity. The theory of legislation complexity should involve an empirical measurement (quality, extra costs, perception of disproportionate complexity, volume, i.e., the length of legislation) (Ruhl, Katz, 2015; Office of the Parliamentary Counsel, 2013; European Parliament, 2016, p. 12).

Legal as well as technical, business, and infrastructure requirements are prerequisites for successful electronic records preservation (International Records Management, 2009, p. 22). The organisation's environment, harmonized with legislation and comprehensive business processes informatisation, including the switch to paperless business and electronic records preservation, significantly affect its success (Antončič, 2013, p. 141; Ngulube, 2011). Electronic records preservation should be carried out in accordance with the relevant legislation in force. Thus, organisations should be well aware of the legislative requirements to implement them in the business environment in the most pragmatic way (Charlesworth, 2012, p. 3). Reducing the complexity of legislation therefore results in its effective implementation in organisations (European Parliament, 2018, p. 1). This is why legislators should make a distinction between the mandatory legal requirements and related costs and the unnecessary administrative burdens for organisations (European Parliament, 2016, p. 31), especially

in light of the fact that simplified and well-designed regulations positively effect operating costs reductions and increased productivity. The European Commission set an obligation for its policy to reduce regulations' bureaucracy and update the complex legislation to be followed (Evropska komisija, 2008, p. 19–22; European Commission, 2020, p. 15, 37). According to the legislation, this is required for the successful establishment, implementation, and maintenance of the internal rules and electronic records preservation. For small and medium-sized organisations, the compliance costs are comparatively high, which is why they try to achieve a minimum level of compliance with the legislation (European Commission, 2015, p. xi). This correlates with the fact that not all legal requirements are suitable to all types of organisations and effective regulatory design is crucial for an organisation to achieve compliance with legislation, especially small and medium-sized organisations (SMEs), which form a major share of businesses (Gunningham, 2002, p. 3). Normally, SMEs have limited resources and the complex legislation effects them disproportionately. Following the principle of the Small Business Act (2008) "Think Small First" (6), it encourages legislators to consider the effect on organisations in drawing up legislation (European Commission, 2015, p. 6; Mallet et al., 2018).

This paper highlights organisations' participation and their experiences regarding the implementation of the Slovenian regulation on electronic records preservation, which entered into force in 2006. To understand the impact of the legal requirements on the development of electronic records preservation in organisations, an empirical qualitative research was performed in 2011 and then again in 2020, focusing on public and private organisations from Slovenia and the EU. In this light, the article also presents which factors hinder and which encourage the establishment of electronic records preservation according to Slovenian legislation in Slovenian private and public organisations.

2. Theoretical Background

2.1 Electronic records preservation

Every organisation creates records in its processes (Ngulube, 2011, 1). The development of information technologies (IT) has significantly changed the communication in business processes (Sinclair Pauline, Bernstein, 2010, 2; Cascio, Montealegre, 2016, 369). In today's information society, records are originally generated in electronic form, while technology is constantly used to convert paper records into the digital format. Electronic records increase efficiency in business processes and they are needed for demonstrating the legislative compliance of an organisation (e.g., in court, tax administration) (Mulauzi et al., 2012, p. 2; Nessi, 2007). They also enable the efficient transfer of information and reduce business costs (Sinclair Pauline, Bernstein, 2010, p. 2).

Thus, organisations are becoming increasingly dependent on the management and preservation of electronic records (Sinclair Pauline, Bernstein, 2010, p. 2; Mulauzi et al., 2012, p. 1; Jharotia, 2018, p. 1) and they must plan activities for its successful implementation. Any insufficient attention to electronic records preservation could deny them access to the important records in the organisation (Ngoepe, Walt, 2009, p. 1). An organisation preparing to provide a digital environment that is compliant with legislation and the decision to transfer records to a new digital world have a profound impact on business processes and electronic records preservation (Nessi Slovenia, 2007, p. 7). For this reason, it is important that legal requirements are not complex artifacts that are hard to capture in business processes because they are not clearly expressed, because such complexity has implications for its implementation in organisations. The important instrument for improved written legislation is the case law (Ghanavati et. al., 2009, p. 2),

which had not been available or published for electronic records preservation harmonized by Slovenian legislation until 2006 when digital preservation legislation came into force (Horjak, 2015).

Even though electronic records preservation has been the subject of research in recent years, it has not yet reached a mature level of implementation and it is difficult to access for small and medium-sized organisations (SMEs). These face many obstacles regarding the implementation of electronic records according to legal requirements and preserve electronic records in an inappropriate way (Halas et al., 2008; Olatokun, 2008). Legal requirements are the most important factors that influence organisations, especially SMEs, and the complexity of the legislative procedure is a major obstacle and should be reduced. To avoid such obstacles faced by SMEs, legal requirements should be defined for individual sectors rather than through a generic procedure (Digital Preservation Coalition, 2020). The simplifications of the legislation and the administrative procedure, as well as the usage of digital technologies would encourage development and sustainable business in organisations (OECD, 2018, 3). In our understanding, new research findings would contribute to encouraging the establishment of electronically preserved records (Jerman-Blažič, 2004, p. 932; Beagrie, 2008; Formenton, Gracioso, 2020, p. 15).

2.2 The importance of electronic records preservation

The main motives for electronic record preservation are legal and economic in nature (Brunsmann et al., 2009, p. 1). They encompass the need for efficient document management, business optimisation, solving space constraints due to records being stored in paper form (Halas et al., 2008), the speed and efficiency of business (EndEx, 2015), accessibility, and the transmission of documents (EndEx, 2015), even remotely (Lavrič, 2009, p. 440).

Reducing the space required for paper storage and utilizing the space for business operations (EndEx, 2015) is another motive that influences the decision to implement electronic records preservation (EndEx, 2015), as is the desire to protect documents from damage (fire, flood) (EndEx, 2015) or loss that could have serious repercussions for the business operations of competitiveness of the organisation (Sinclair Paline, Bernstein, 2010, p. 2). In addition to increasing the safety level compared to analogue storage, electronic records preservation also provides a business opportunity to improve business operations (Sinclair Paline, Bernstein, 2010, p. 2). Here, it is crucial for organisations to choose the right regulation to establish electronic records preservation (Sinclair Paline, Bernstein, 2010, p. 3; Antončič, 2013).

Long-term electronic records preservation in the private sector requires good electronic document management (Dečman, 2007b, p. IV 14). Dečman (2007a, p. 115–116) argues that based on the implemented regulation and subsequently implemented internal rules, a public law entity, such as the Slovenian administration, must also provide the technology that will guarantee the authenticity and immutability of the stored documents. To this, Dečman (2007a, p. 115–116) adds that many branches of the Slovenian administration are well on their way to establishing a legally binding long-term electronic records storage, while others will need to put in significantly more efforts both in the area of electronic records management, as well as their preservation. An overview of the situation in the Slovenian public sector indicates that electronic records preservation is in its initial phase (Dečman, 2008, p. 8).

2.3 Success factors of electronic records preservation

The EU regulates only those legal areas and passes only those measures that are necessary for the establishment or ensure the functioning of the union and its internal market, which is composed of national markets with differing legislations. To this end, the EU implements measures only in those areas where differences in the regulation of individual member states would cause issues in the free movement of goods, persons and services, and capital (Official Journal of the European Union C 83/47, 2010).

Regulations differ between countries and there are no indications that they will be standardized at the EU level in the future. In cases of collaborations with other EU member states, one solution is for the electronic preservation to follow the legal requirements of the other member state and that the records are kept in accordance with its regulations. Records preservation laws regulate the types and time limits of records to be preserved. Different recommendations and standards must also be taken into account. The legal validity of electronic records can be equivalent to paper documents only if the long-term digital preservation is safe and compliant with regulation (Halas et al., 2008).

The development and maintenance of preservation procedures are contingent on meeting the demands of the regulations. Different regulation standards in individual EU member states can be complex, affecting the decision to implement electronic records preservation that is in line with the law¹. The costs of the electronic records preservation can also be significantly influenced by the quality of the regulation, depending on factors, such as the simplicity, complexity, necessity, and proportionality (Horjak, Kovačič, 2011, p. 43). As Kaur writes (2009, p. 21), the increasing amount of regulation that has been passed in the manufacturing and service field can have a decisive effect on their organisation, even when implementing electronic records preservation (Horjak, 2015).

2.4 Electronic record preservation in Slovenia – legislation and implementation

Slovenia first regulated the protection of documentary and archival material in digital form in 2006 with the Protection of Documents and Archives and Archival Institutions Act (ZVDAGA, Official Gazette of the Republic of Slovenia, no. 30/2006), (Žumer, 2008, p. 75) and updated it in 2014 with ZVDAGA-A (Official Gazette of the Republic of Slovenia, no. 51/2014). The existing legal framework obligates public organisations that intend to capture or preserve records in digital form to follow the stages of a predetermined process. This involves the preparation for the capture and preservation, preparation and adoption of internal rules for capture, and the preservation of the material in digital form, monitoring the implementation of internal rules, and taking measures in case of deviations from the internal rules (internal control). They also have to follow any changes to the process and update the internal rules accordingly (Horjak, 2015; Horjak, 2019).

¹ *The requirements of the rules on electronic record preservation and their quality vary between EU member states. At the EU level, regulations are prescribed only for those areas which, due to differences in the regulations of individual EU member states, would cause issues in the free movement of goods, persons, services, and capital (Official Journal of the European Union C 83/47, 2010).*

Article 5 of ZVDAGA-A (Official Gazette of the Republic of Slovenia, no. 51/2014) states that public organisations that intend to capture or preserve records in digital form are obligated to adopt internal rules that comply with the Act. It also issued executive regulations based on it, as well as the Rules on uniform technological requirements for the capture and storage of materials in digital form, and the rules of the profession (i.e., information security). Other, private organisations, adopt internal rules according to their own judgement. Article 6 of ZVDAGA-A (Official Gazette of the Republic of Slovenia, no. 51/2014) states that legal entities governed by public law, with the exception of state administration bodies, must send their internal rules for approval to the Archives of the Republic of Slovenia (Horjak, 2015; Horjak, 2019).

In accordance with Article 93 of ZVDAGA-A (Official Gazette of the Republic of Slovenia, no. 51/2014), a fine of EUR 2,000 to EUR 5,000 shall be imposed on an organisation that captures or preserves material in digital form in a way that does not adopt internal rules or if when capturing and storing documentary or archival material, it does not act in accordance with its internal rules, or does not meet the prescribed uniform technological requirements (Horjak, 2019).

In accordance with Article 31 of ZVDAGA-A (Official Gazette of the Republic of Slovenia, no. 51/2014), the recognition of the legal validity of preserved records in digital form is based on the existence and implementation of approved internal rules. Article 32 of ZVDAGA-A (Official Gazette of the Republic of Slovenia, no. 51/2014) defines the authority of the original material on the basis of law, so that each unit of safely preserved material in digital form (records) is considered equal to an individual unit of original material (when an entity has no internal rules) if it meets the conditions of safe preservation to the same extent as the unit of original material. This procedure is also valid in cases when an organisation has approved the internal rules but did not carry out the process of preserving records in digital form in accordance with the approved internal rules (Horjak, 2015; Horjak, 2019).

Based on the data of the Ministry of Culture, the Archives of the Republic of Slovenia, 2020, we present the status of organisations with approved internal rules as of 2011, 2017, 2019, and 24 November 2020 (Table 1).

Number of organisations in Slovenia				Number of organisations with approved internal rules					
Year	2010	2011	2015	2011	2017	2019 IR*	2019 PIR**	2020 IR	2020 PIR
Legal entities governed by public law	2,846	2,833	2,155	2	9	12	9	26	9
Non-profit organisations governed by private law	7,580	7,745							
Societies and associations	21,849	22,254	24,515						
Other natural persons carrying out registered activities	11,216	11,582	12,087						
Companies and cooperatives	61,974	63,821	61,012	14	19	23		16	4
Sole proprietors	75,376	77,221	92,094						
Total organisations in Slovenia	180,841	185,456	191,863	16	28	35	9	42	13

Legend: *IR- internal rules, ** PIR- prepared internal rules²

Table 1: Status of organisations with approved internal rules (Archives of the Republic of Slovenia, 24 November 2020).³

According to the data in Table 1, two out of 2,846 legal entities governed by public law and 14 private entities in 2011 had their internal rules confirmed by the Archive of the Republic of Slovenia (Horjak, Kovačič, 2011, 46–47; Horjak 2019). In 2015 (state of the Ministry of Culture, Archives of the Republic of Slovenia, until 2 August 2015), 3 legal entities governed by public law had approved internal rules, despite the changes in the regulations (ZVDAGA-A, Official Gazette of the Republic of Slovenia, no. 51/2014). The situation continued to be devastating (from the economic and environmental point of view of sustainable business in organisations) in 2019 (state of the Ministry of Culture, Archives of the Republic of Slovenia, until 20 April 2019), when 13 years after the adoption of the legislation for electronic records preservation, only 12 legal entities governed by public law had approved internal rules and only 9 of 2,756 public authorities had approved prepared internal rules. The situation is equally abysmal among private

² Organizations may also prepare internal rules according to Article 18 of ZVDAGA by adopting a preprepared model of internal rules - PIR by the Archives of the Republic of Slovenia for their own use. If, in full and without any changes or additions, the PIR is confirmed from the archive, it is considered that the default NP persons from the archive have already been confirmed.

³ Source: Created by the author based on data published by Ajpes, 2019; Ministry of Culture, Archives of the Republic of Slovenia, 2020.

entities, as only 23 out of 168,683 (73,276 companies and 95,407 sole proprietors) (Ajpes, 2019; Horjak, 2019) have approved internal rules. In 2020, it was somewhat reasonable to expect that 14 years after the adoption of the regulations, more legal entities governed by public law will have confirmed the internal rules and established electronic records preservation that is compliant with Slovenian legislation. The data (Table 1) show that as of 24 November 2020, only 26 had approved internal rules. Compared to 2019, the number of approved internal rules in private entities is declining, which was expected, given that the amendment to ZVDAGA-A (Official Gazette of the Republic of Slovenia, no. 51/2014) does not obligate them to prepare and approve internal rules, as well as due to the fact that the case law has not developed in 14 years to support the need for compliant electronic records preservation to be established.

The analysis results of the secondary source show that legal entities governed by public law in Slovenia still have not decided to establish electronic records preservation that would be compliant with Slovenian legislation and the related mandatory prescribed internal rules by the Archives of the Republic of Slovenia. All of this despite the fact that the amended legislation entered into force in 2014 to replace the legislation from 2006 and the fact that electronic records preservation contributes to business efficiency and rationalisation. For example, most primary schools still do not have their own internal rules (Hajtnik et al., 2015) and have not established compliant electronic records preservation (Horjak, 2015; SURS, 2019), even though it has been proven to significantly contribute to business and financial efficiency. Lastly, legal entities governed by public law that already preserve electronic records, but have not adopted internal rules, are in violation of the regulations (ZVDAGA-A, Official Gazette of the Republic of Slovenia, no. 51/2014).

3. Experience with electronic records preservation in Slovenia and the EU – empirical findings

3.1 Research methodology

Our approach strategy was to study public and private organisations in Slovenia, as well as other EU organisations. Our primary source for data collection were in-depth interviews from 2011 and 2020.

Twenty-six organisations and a total of thirty-one interviewees were included in the sample case study, of which twenty-one were from Slovenia and ten were from the EU⁴ (creators of electronic records and providers of electronic records preservation). 20 organisations from Slovenia (creators of electronic records) were included in our empirical research in 2020.

⁴ *Belgium and Italy.*

3.2 Case study analysis and discussion

A qualitative empirical research was performed in 2011 limited to the study of public and private organisations from Slovenia and the EU in order to understand how legal requirements influence the development of electronic records preservation in organisations. An empirical qualitative research was performed in 2020, measuring the achieved progress level of electronic records preservation.

In this section, we estimate and discuss which factors impede (obstacles) and which factors accelerate the establishment (incentives) of electronic records preservation according to Slovenian legislation in Slovenian private and public organisations.

Twenty-one interviewees from Slovenia participated in the survey in 2011; most of them (43%) were large organisations, 29% were medium-sized, 14% were small organisations, and 14% were electronic records preservation providers. Most participants from EU countries were from medium-sized organisations; large and small organisations each accounted for 20% of the interviewees, and 10% were from electronic records preservation providers. The situation was similar in 2020: 20 interviewees from Slovenia participated in the survey, 45% of which were from large organisations, less than 35% from small organisations, and 20% from medium-sized organisations (Table 2).

Geographic territory/size of organisations	2011 empirical research		2020 empirical research
	Organisations from Slovenia (N=21)	Organisations from the EU (N=10)	Organisations from Slovenia (N=20)
Large organisations	43%	20%	45%
Medium-sized organisations	29%	50%	20%
Small organisations	14%	20%	35%
Small organisations – providers of electronic records preservation	14%	10%	0%

Table 2: Size and geographic territory of the interviewees Source (Created by the author based on the case study analysis from 2011 and 2020.

We presented the specific requirements of the Slovenian legislation to EU organisations during the interviews and asked them which of the presented legal requirements were in force in their country. An analysis of the data from case studies in selected EU countries shows that 80% of the respondents believe that the legal requirements for the establishment and maintenance of electronic records preservation that are in force in Slovenia are not in force in the interviewee's country of operation.

Only 10% of the interviewees thought that specific requirements of the Slovenian legislation, such as preparing internal rules, ensuring a mechanism of authenticity and immutability of the electronic records (i.e., time stamping of the records, electronic signing of documents), and preparing acts and sub data of the internal rules (Table 3), were also in force in their country of operation.

Validity of the requirements of Slovenian regulations in the interviewee's country of operation	Organisations in the EU		
	(N=10)		
	Large organisations	Medium-sized organisations	Small organisations
Preparation of internal rules	10%		10%
Confirmation of internal rules by the Archives of the Republic of Slovenia			
Preparation of the documents for the accreditation and hardware/software accreditation process			
Preparation acts and sub-act of internal rules	10%		
Providing a mechanism to ensure the authenticity and immutability of the electronic records (time stamping)			10%
Electronic records preservation for public organisations can only be performed by an accredited provider (Article 72 of the ZVDAGA)			
None of the above-mentioned requirements are in force in the interviewee's country of operation	10%	50%	20%

Table 3: Validity of the requirements of the Slovenian legislation in the interviewee's country of operation (Source: Created by the authors based on the case study analysis from 2011 and 2020).

Based on the empirical research from 2011, we found that 71% of the interviewees from Slovenia believe that the requirements of the Slovenian legislation are very complex for the process of establishing, implementing, and maintaining compliant electronic records preservation; five interviewees (24%) consider the establishment, implementation, and maintenance to be complex and one interviewee (5%) deemed them to be simple. 40% of the interviewees from the EU consider the requirements of Slovenian regulations to be very complex compared to the regulations on electronic records preservation in their country of operation. Most often (60%), the interviewees from EU countries believed that the requirements of Slovenian regulations for the establishment, implementation, and maintenance of electronic records preservation were complex.

According to the interviewees from Slovenia, the consequences of the complexity of the Slovenian legal requirements are reflected in the additional implementation and maintenance costs of electronic records preservation that are brought on. Organisations tend to invest especially carefully in times of recession, when they are likely to opt in only for investments that are urgent and necessary for the smooth and continued business operations. When deciding to establish electronic records preservation, the organisation always weighs what is the added value of compliant electronic records preservation compared to non-compliant electronic records preservation that is based on standards, recommendations, and best practices.

Despite the fact that the choice of outsourcing model is available in the decision-making process of establishing a compliant electronic records preservation, organisations are aware that the establishment of a harmonized outsourcing, as well as the coordination of tasks in the organisation process, and outsourcing a provider according to the legal requirements mean additional costs. Thus, the result is that organisations generally do not recognize the added value of establishing compliant electronic records preservation, even if it is outsourced, compared to the benefits of electronic records preservation that is not compliant with the legislation in force.

Interviewees from EU countries identified the main complexity to be the numerous technical requirements and procedures required for the establishment, implementation, and maintenance of compliant electronic records preservation. They believe that these procedures should be simple, otherwise they lead to increased administration in both private and public organisations. It is easier for large organisations to provide adequate staff to support such administrative procedures than for medium and small-sized organisations. They believe that the process of establishing electronic records preservation should be simple and should not represent an obstacle to the organisation's business operations.

Some interviewees think becoming acquainted with the Slovenian legal requirements for the establishment of electronic records preservation is extremely difficult. What is more, even when they get acquainted with them in detail, they find the requirements to be very complex.

9 years after our first research on the establishment of electronic records preservation in accordance with Slovenian legislation, our empirical research in 2020 found that 85% of the interviewees still perceive the requirements of Slovenian regulations for the establishment of electronic storage as complex or very complex, despite the updated legislation in 2014.

Legal requirements in Slovenia	2011 empirical research		2020 empirical research
	Organisations in Slovenia (N=21)	Organisations in the EU (N=10)	Organisations in Slovenia (N=20)
Not complex (simple)	5%	0%	5%
Very complex (complex)	71%	40%	30%
Complex	24%	60%	55%
Not estimated			10%

Table 4: Slovenian legal requirements of electronic records preservation
(Source: Created by the authors based on the case study analysis from 2011 and 2020).

The empirical evidence from our study in 2011 led us to the realization that according to over half (52%) of the Slovenian interviewees, the investments costs in electronic records preservation that is harmonized with Slovenian legislation (including specific requirements) increases by over 40% in comparison with investments in other EU countries. For 29% of the interviewees, investments in electronic records preservation increase between 10–20% compared to investments in other EU countries.

One of the interviewees from Slovenia emphasized that when calculating investments, it is necessary to take into account the share (%) of investments from changes in employee culture, which is more difficult to measure.

The EU interviewees also assessed the costs of investments for the establishment, implementation, and maintenance of electronic records preservation, taking into account the specific requirements of Slovenian regulations. For 50% of the interviewees, investments in Slovenia are higher by 20% to 40% compared to the country they come from. For 20% of them, investments are over 40% higher and they are 10% to 20% higher for another 20% of the interviewees.

The 2020 empirical survey of interviewees from Slovenia also concluded that the costs of investments in electronic records preservation that is in line with Slovenian regulations (including specific requirements) increases by 21–40% compared to investments in other EU countries, according to most interviewees from Slovenia (35%).

For 30% of the interviewees, investments in electronic records preservation increase between 10–20%, while for 20% of the respondents, investments increase by over 40% compared to the investments in their country of origin.

Increased investment in electronic records preservation based on Slovenian legal requirements in %	2011 empirical research		2020 empirical research
	Organisations in Slovenia (N=21)	Organisations in the EU (N=10)	Organisations in Slovenia (N=20)
10–20%	5%	20%	30%
21–40%	29%	50%	35%
Over 40%	52%	10%	20%
Not estimated/no data	14%	5%	15%

Table 5: Investment in electronic records preservation (Source: Created by the authors based on the case study analysis from 2011 and 2020).

The empirical research from 2011 detected a further obstacle that, according to the interviewees from Slovenia, is preventing electronic records preservation that is harmonized with legislation from taking hold in Slovenia. For 71% of the interviewees, the biggest obstacle to establishing harmonized electronic records preservation is the necessary financial investment. For 67% of the interviewees, the lack of knowledge and human resources are also obstacles. 52% of the interviewees identify deficient case law as an important obstacle, while 48% of the interviewees believe that the obstacles are the clear, but complex legislative conditions for preparing internal rules. For 24% of the interviewees, the obstacle is the accreditation of the hardware and software (80% of these are public organisations for which the use of accredited equipment is mandatory). 10% of the interviewees identified the lack of support of the Archive of the Republic of Slovenia (certifier of internal rules) as an obstacle, and 10% of the interviewees identified the risk in ensuring the durability and reliability of the stored electronic preserved records as an obstacle.

The interviewees from EU countries identified obstacles why, in their opinion, compliant electronic storage has not taken off in Slovenia. 70% of the interviewees believe that the obstacle lies in the clear, but complex, regulative conditions for preparing internal rules, and 70% of the interviewees believe that the obstacles are the necessary financial investments. 50% of the interviewees see the lack of accredited hardware and software as an obstacle. 30% identify the lack of case law and the lack of knowledge and human resources as obstacles, and 20% perceive the support from the Archive of the Republic of Slovenia to be insufficient. One interviewee identified the risk of ensuring the durability and reliability of the electronic preserved records as the obstacle.

The survey interviews of Slovenian organisations in 2020 reached similar conclusions about the obstacles preventing the successful establishment of compliant electronic records preservation, even though the legislation regulating electronic records preservation was updated in 2015. Most organisations (60%) believe that the obstacles are the clear, but complex conditions for preparing internal rules.

Obstacles to the implementation of electronic records preservation that is compliant with Slovenian legal requirements	Organisations in Slovenia (N=21), 2011	Organisations in EU (N=10), 2011	Organisations in Slovenia (N=20), 2020
Clear, but complex regulatory rules for preparing internal rules	48%	70%	60%
Lack of accredited hardware, software equipment	24%	50%	10%
Lack of case law	52%	30%	20%
Insufficient support of the state archives, the certifier of internal rules	10%	20%	5%
Risks in ensuring the durability and reliability of the stored electronic documents	10%	10%	5%
Lack of knowledge and human resources	67%	30%	55%
Necessary financial investments for compliant electronic record preservation	71%	70%	50%

Table 5: Obstacles to the implementation of compliant electronic records preservation (Source: Created by the authors based on the case study analysis from 2011 and 2020).

A few important factors were identified as incentives that could boost the implementation of electronic records preservation. The empirical research from 2011 identified some factors that will encourage organisations to establish electronic records preservation according to Slovenian legislation. For 57% of the respondents from Slovenia, financial and development incentives by the state would encourage compliant electronic records preservation. 43% of the interviewees would encourage published case law, 38% are in favour of removing administrative barriers (preparing and approving internal rules). 75% of the respondents who consider the removal of administrative barriers as crucial come from small and medium-sized organisations. 33% of the interviewees would encourage the Slovenian legislation to be adjusted to the legislation of other countries.

Based on the answers and opinions of the interviewees from selected EU countries, we identified various incentives for encouraging compliant electronic records preservation in Slovenia: 50% of the respondents believe that it is necessary to remove administrative barriers for the preparation of internal rules, remove the requirement for implementing accredited hardware and software equipment, and to publish case law. 40% of the interviewees mentioned that financial and development incentives from the state are important factors that would encourage electronic records preservation. For 30% of the respondents, the removal of the requirements for business compliance with standards or the acquisition of ISO 9001 and ISO 27001 certificates are important incentive factors. 20% encourage removing the requirement for time stamping, and 20% believe an important incentive would be to adapt Slovenian regulations to the regulations of other EU countries.

The empirical survey in 2020 led us to similar conclusions regarding the incentive factors. For most interviewees (50%), the adaptation of Slovenian regulations to the regulations of other EU countries is a factor that would encourage them to establish electronic records preservation. For 45% of the organisations, the incentive would be removing administrative barriers (preparing and approving internal rules) that would encourage organisations in Slovenia to establish compliant electronic records preservation. For 25% of the organisations, the incentive that would encourage organisations would be the financial development of Slovenian state incentives; the removal of requirements for implementing accredited hardware and software equipment would also be an incentive for 15% of the respondents.

Factors that could stimulate organisations to implement compliant electronic records preservation	2011 empirical research		2020 empirical research
	Organisations in Slovenia (N=21), 2011	Organisations in the EU (N=10), 2011	Organisations in Slovenia (N=20), 2020
Incentives for the implementation of electronic records preservation compliant with Slovenian regulation			
Financial-developmental state incentives	57%	40%	25%
Removing administrative barriers to regulations (preparing and approving internal rules)	38%	50%	45%
Removing requirements of implementing accredited hardware and software equipment	10%	50%	15%
Removing requirements for business compliance with standards or the acquisition of ISO 9001 and ISO 27001 certificates	14%	30%	5%
Removing the requirement of time stamping of electronic documents	5%	20%	
Publishing case law	43%	50%	20%
Incentives by the regulator – state archive	14%		
The adaptation of Slovenian regulations to the regulations of other EU countries	33%	20%	50%

Table 6: Incentives for the implementation of electronic records preservation based on Slovenian legal requirements (Source: own empirical research, 2011, 2020).

4. Conclusion

The findings of our empirical studies in 2011 and 2020 present a wide view of an important topic for organisations and public institutions: the establishment of electronic records preservation that is compliant with Slovenian regulations. The findings were also based on data differentiated by the status of organisations with approved internal rules or prepared internal rules. This article presented the main obstacles and incentives that can significantly boost implementation of electronic records preservation that is compliant with Slovenian legislation in Slovenian private and public organisations, something of which regulators need to be aware.

The findings of this research provided an overview of opinions of Slovenian and EU organisations regarding the impact Slovenian legislation has on the implementation of electronic records preservation. The main purpose of this article was to find the critical incentives to encourage electronic preservation that is compliant with Slovenian regulation from the perspective of sustainable development.

Organisations' experience with implementing electronic records preservation that is compliant with regulation that came into force in 2006 indicate that 14 years after passing the Protection of Documents and Archives and Archival Institutions Act (ZVDAGA and its amendments), Slovenia faces a challenge of whether the regulation is

realistic in terms of it being successful, i.e., results in the expected implementation results in practice, and whether the regulation justified the expediency and cost-effectiveness of its creation as it was intended, i.e., for accelerating the transition and efficiency of introducing electronic records preservation in organisations' business processes. According to its Article 5, legal entities governed by public law that store documents in electronic form and that have not implemented and confirmed internal regulations at the Ministry of Culture, State Archive of the Republic of Slovenia, are in breach of the regulation in force (ZVDAGA-A, Official Gazette of the Republic of Slovenia, no. 51/2014).

In this article, an empirical case study of public and private organisations from Slovenia and the EU found that most (97%, thirty out of thirty-one interviewees) consider the regulations for the establishment and maintenance of compliant electronic records preservation as complex or very complex. Similar conclusions were drawn in our own study in 2020, in which most (88%) of the organisations still deemed the regulations for the establishment of electronic records preservation as complex or very complex, despite the changes to the legislation with ZVDAGA-A (Official Gazette of the Republic of Slovenia, no. 51/2014).

It is therefore reasonable to conclude that meeting the legal provisions and encouraging legal entities governed by public law and private enterprises to implement electronic records preservation will require changes to the legislation. The study findings on organisations in the EU indicate that the regulations must be streamlined, they must consider expediency when being implemented by organisations, especially in cases where the regulations determine the technical and technological conditions. The case study results show that compared to other EU countries that continue to operate on the level of good practices and recommendations, Slovenia requires more extensive investments for the establishment, implementation, and maintenance of electronic records preservation if organisations are to introduce it in compliance with Slovenian regulations with all their specific demands.

To encourage it in organisations, it is important to provide an environment that will enable a compliant implementation of electronic records preservation and the transition to paperless operations, which can have a deciding impact on the quality of the regulation and the correlating legislator's determination of on the complexity, necessity, simplicity, and proportionality when introducing amendments to the regulation. Based on the comparison of the progress of compliant electronic records preservation being implemented in Slovenia and the EU in 2011 and 2020 and the publicly available records of the State Archive of the Republic of Slovenia on the number of entities operating with compliant storage practices, we have indicated a trend, i.e., the level of development that can be expected in the field. The key critical factors for success that could encourage the development of electronic records preservation in Slovenian public and private organisations are Slovenian regulations being adjusted to the regulations of other EU countries, removing administrative barriers to regulations (preparing and approving internal rules), and removing requirements for implementing accredited hardware and software equipment.

In order to increase the success rate of public services and boost the economy, we propose the regulation framework of electronic records preservation to be simplified, which would improve the efficiency of business operations implementing compliant electronic records preservation. We propose the adaptation of the sample internal rules so that they enable legal entities governed by public law to effectively, and most of all easily implement electronic records preservation.

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POVZETEK

KRITIČNI DEJAVNIKI USPEHA ZA IZVAJANJE E-HRAMBE – PRIMER SLOVENIJE

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V recenziranem prispevku je predstavljen in analiziran doseženi nivo na področju zakonsko skladne hrambe dokumentarnega in arhivskega gradiva v različnih organizacijah v Sloveniji in primerjalno tudi v Evropi v zadnjih 10 letih.

Na podlagi empirične kvalitativne raziskave, ki je bila izvedena leta 2011 in v katero so bile vključene javne in zasebne organizacije iz Slovenije in EU, je bilo oblikovano izhodišče za razumevanje, realizacijo in vpliv zakonskih zahtev na hrambo elektronskih zapisov pri večjem številu ustvarjalcev tovrstnega gradiva.

Po skoraj 10 letih je bila leta 2020 izvedena še druga raziskava. Ta predstavlja nekakšno nadgradnjo prve. Z njo smo želeli definirati in kvantitativno opredeliti dosežke desetletnega razvoja in s tem opredeliti tudi dejanski napredek na obravnavanem področju.

Primerjava dobljenih rezultatov kaže, da se stanje na tem področju v obravnavanem obdobju ni bistveno spremenilo. Tako 85 % vprašanih meni, da je področna zakonodaja kompleksna ali zelo kompleksna. Kot problemi se navajajo še pomanjkanje znanja, finančna zahtevnost izvedbe elektronske hrambe itd.

Rezultati pa tudi kažejo na spremembo dejavnikov, ki stimulirajo implementacijo e-hrambe. Na osnovi rezultatov te raziskave lahko predvidevamo nekatere osnovne smernice in trende prihodnjega izvajanja zakonsko skladne dolgoročne e-hrambe, hkrati pa so na podlagi te raziskave oblikovana še priporočila za operativne smernice nadaljnje implementacije zakonsko skladne elektronske hrambe dokumentarnega gradiva.

Vsebina recenziranega prispevka daje uvid v primerjavo rezultatov 10-letnega razvoja predmetnega področja. Ker gre za relativno hitro razvijajočo se dejavnost, ki je zelo odvisna še od mnogih drugih dejavnikov, kot so izrazit porast »velikega podatkovja«, vedno večja implementacija umetne inteligence v informacijskih sistemih, ne nazadnje tudi zahtev in posledic pandemije covid-19 itd., bo treba za objektivno oceno dejanskega stanja izdelati še kar nekaj raziskav, ki bodo metodološko primerljive tudi z raziskavami, predstavljenimi v tem prispevku.