
E-Services of National Postal Operators - A "Must Have" Current Times to Ensure the Functioning of the State's Critical Infrastructure

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Abstract:

Purpose: The purpose of the article is to present the possibilities of implementing e-services into traditional business areas, using the example of national postal operators. The article presents the results of a study of the needs for the provision of e-services, on the one hand, and, on the other hand, presents the results of an analysis of the activities of selected European postal operators in the construction of strategies for the digitization of operations.

Design/Methodology/Approach: The study used the expert method, since the problems studied were characterized by the high complexity of the problem, making quantitative measurement impossible. The problem of the study concerned the potential of the designated postal operator's infrastructure to secure the flow of information in the event of inefficiency or damage to components of the state's critical infrastructure. In addition, a study was made of the potential of the designated postal operator to provide e-services. The method used an indirect form of expression of opinions by postal market experts. The experts were tasked with answering questions that were included in a special questionnaire containing the problems discussed. It should be pointed out that one of the principles for the selection of experts was their diversity in terms of professional experience. Verification of the objective was made on the basis of the CAVI survey. The survey was conducted in the first quarter of 2023. The selection of experts for the survey was carried out using the purposive selection method. The final evaluation was carried out by 18 experts. The individual indications obtained made it possible to identify indications of the digital postal operator's commitment to the security of critical infrastructure and the development of e-services.

Findings: This article examines the phenomena that are occurring in postal markets that are currently undergoing digital transformation. Understanding the new processes of digital mail handling is crucial to the smooth operation of customers of these services. The authors refer to their own research confirming the key role in the digital transformation of national postal operators. The article recommends models for serving customers from different segments of government operations.

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Practical Implications: *The conducted research indicates that the designated postal operator, would meet the expectations for securing the transmission of information in the context of critical infrastructure.*

Originality/Value: *The article presents the results of own desk research. The issue presented has not previously been addressed in discussions published internationally.*

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1. Introduction

The modern postal market has come a long way, which has influenced its current shape. The postal market in the third decade of the 21st century is constantly undergoing significant and strong changes, through external factors primarily such as e-substitution, e-commerce and digitization of services. Together, these factors set trends for the strategy of postal operators' operations and determine the current operational activities carried out in the tasks undertaken.

As a result of e-substitution and the economic crisis in the area of traditional postal services, a clear downward trend in revenues from letter business in most EU countries is noted. This trend of e-substitution is expected to continue in most countries, at least in the short to medium term.

On the other hand, it is important to point to the development of e-commerce, which is driving the growth of both domestic and international parcel and express shipments. The growing number of parcel and express shipments provides prospects not only for established postal operators, but also for new market entrants.

On the delivery side, e-commerce offers operators the opportunity to diversify their portfolios (e.g., different types of delivery), establish new business models (e.g., same-day or environmentally friendly transportation), implement new and improve existing quality initiatives and establish new postal infrastructure (e.g., parcel machines).

Thus, both parcel segments perfectly illustrate the aforementioned key market challenges in serving the CEP market and the phenomenon of e-substitution,

which is accelerating the digital transformation of mail. It is also assumed that both of these phenomena are global in nature, which is also confirmed by studies of the World Postal Union (Kuściński, 2021).

It should also be noted that e-commerce offers a dynamic setting for many different operators, including incumbents, existing competitors, as well as new entrants (Drab-Kurowska and Drożdż, 2021).

2. Literature Review

In pointing out the trends in the development of the postal market, it is necessary to point out e-postal services. E-services are considered to be those that are provided directly or through contracts with third parties, through digital channels: to individual, business and government customers in a country. The catalog contains defined 42 e-services, categorized into four groups (Stolarczyk and Sylwestrzak, 2017):

1. electronic postal and e-government services,
2. e-commerce services,
3. electronic financial services and (payment) solutions,
4. electronic support (ancillary) services.

In working out the indicated set of e-services, the focus was on the digital functionalities of the services, while their "physical" aspects (related, for example, to delivery or logistics) were excluded. It should be pointed out that although many postal operators around the world are already taking advantage of such an opportunity (for others it is still a challenge), and offering postal e-services results in improving the quality of the existing ones and introducing new ones - with added value, it should be remembered that in addition to the development of "tailor-made" services for the modern customer, it may be of interest for designated operators to cooperate with their governments.

In addition, the postal market has a key character in the framework of the functioning of the state, as it brings together entities, carrying out similar activities in the same area, while functioning both on a micro and macro scale.

If postal operators were able (and willing) to combine the physical world with the digital one, they would occupy an excellent position in the market, successfully competing with providers of (only) digital platforms (Borsenberger, 2020). It should be noted that they are also often seen, as an institution of public trust.

Besides, they have an extensive network of post offices and infrastructure with the largest coverage in the country, making them an excellent partner in the provision of e-government services, which involve the use of information and

communication technologies (ICT) to enhance the development of efficient government structures.

However, it is worth remembering that until recently, government administrations have been customers of postal operators, while being a "partner" is completely a form of cooperation. As mentioned earlier, postal platforms that provide electronic postal services can also be used to communicate between the citizen and government offices, significantly reducing the cost of providing e-government services, which is expected to support the public sector in providing more and better services with fewer resources (Budziejewicz-Guźlecka and Drab-Kurowska, 2020).

It is also important to point out a very important aspect, which is the security of information flow and resistance to cyber attacks. These elements will be analyzed later in the article. In addition, it is worth highlighting the convergence of interests, because on the one hand, postal operators are looking for opportunities to maximize their financial performance by diversifying their operations, while on the other hand, the administration is looking to "cut" costs and reduce expenses (Finger and Bukovc, 2014) is the one of the main reasons for abandoning traditional correspondence and moving to digital communication with citizens and businesses.

In addition, it is important to emphasize the functionality of e-government, which largely depends on the creation of an economic model for the objective assessment of the essentiality and economy of ICT solutions in public administration (Buko aand Tomaszewicz, 2015). As practice shows, without such a model, the administration, most often, pushes expensive systems with proportionally low utility.

3. Results - Study of the Digital Potential of National Postal Operators

Taking into account the directions of development of digital postal services, for the purpose of this article, a survey was conducted , which addressed three aspects. The first referred to the assessment of the potential of the national postal operator to secure the required level of information transmission security, as presented in Figure 1.

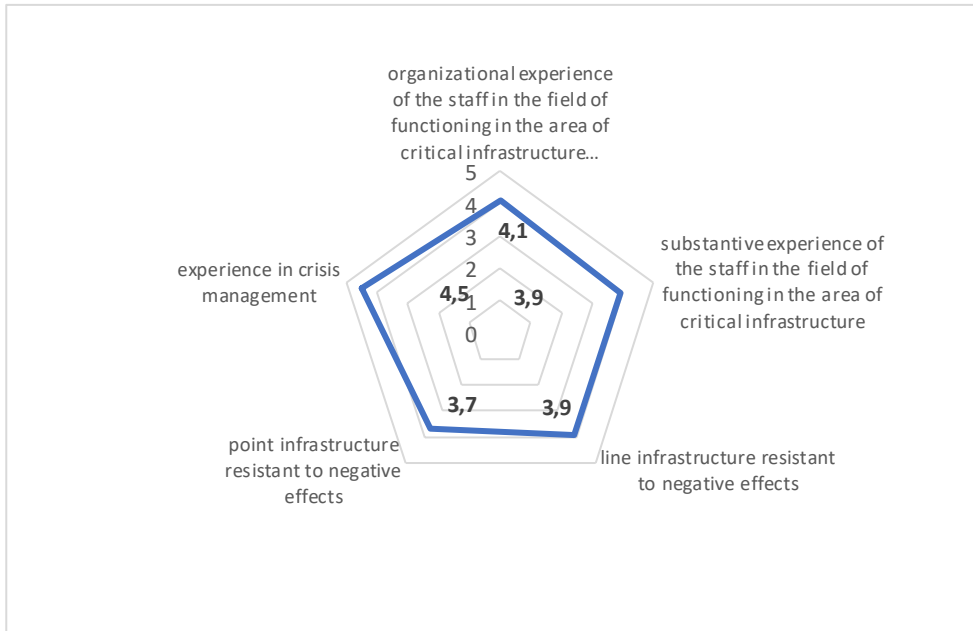
Experience in crisis management was rated highest at 4.5 points. The staff's organizational experience also received recognition, at 4.1 points. The substantive experience of the staff was rated slightly lower, at 3.9 points. Similarly, the resilience of the line infrastructure to negative effects was rated. The resilience of point infrastructure was rated the lowest, at 3.7 points.

However, it should be pointed out that the overall potential of the national postal operator to secure the required level of information transmission security should

be considered high, which means high readiness of the operator.

Another issue examined, was the verification of the preparedness of the national postal operator in the context of cyber incidents, as presented in Figure 2.

Figure 1. How do you rate the potential of the national postal operator to secure the required level of information transmission security (1-low potential, 5-high potential)



Source: Own study

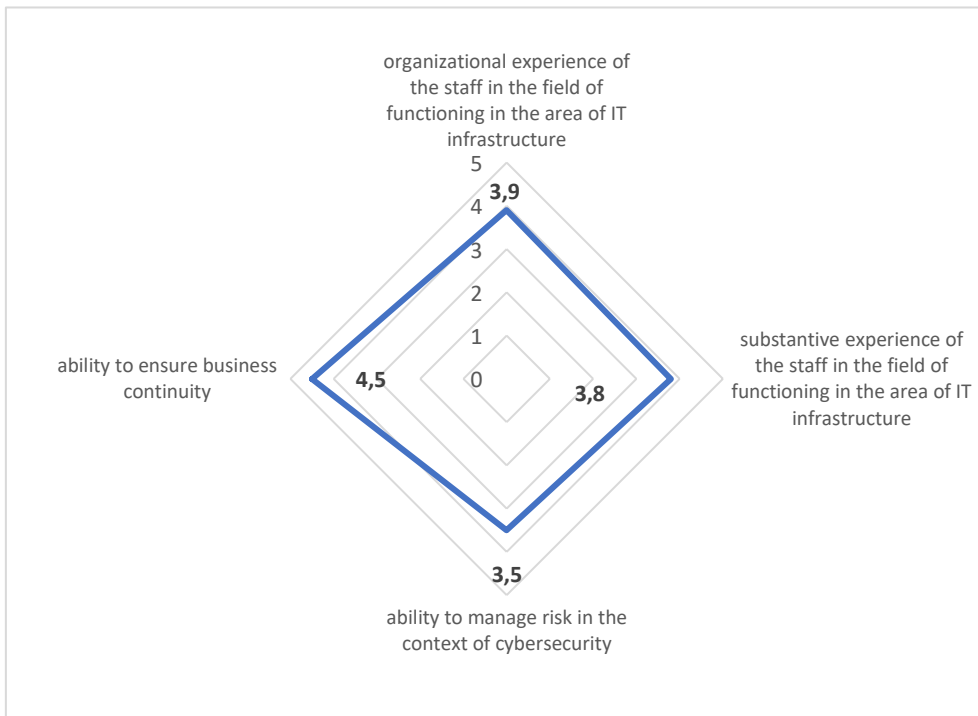
The experts surveyed rated the ability to ensure business continuity highest, with 4.5 points. They then indicated the organizational experience of the staff - 3.9 points. Substantive experience had slightly fewer indications.

The least indicated was the ability to manage risk in the context of cyber security - 3.5 points. In summary, the national postal operator's capability in the event of a cyber incident was rated well.

Another key issue was the readiness to implement e-services, as shown in Figure 3. According to the respondents, there is great potential for the development of e-services, given the increase in interest in such services by both business customers - 4.1 points - and individual customers - 3.9 points. In addition, recognition was given to both organizational and substantive experience - 3.6 points. Only 3.3 points were won by the adaptation of the e-service offer to customer expectations, which means that this aspect should be improved.

The current offer fully meets the expectations of customers. The lowest indications had the compatibility of the IT structure, which means that it needs to be modified. And this is a recommendation for decision-makers of national postal operators.

Figure 2. How would you rate the potential of a national postal operator to secure the required level of information transmission security in case of cyber incidents (1-low potential, 5-high potential)



Source: Own study.

4. Discussion

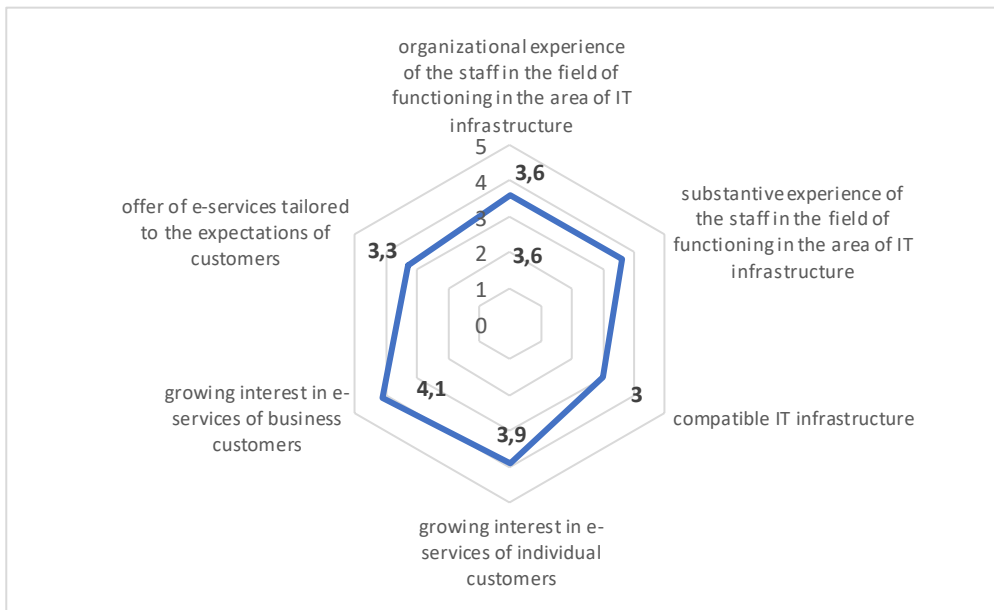
It is crucial that the nation's postal operators become more flexible and data-driven to diversify their goals and defend their core business. The transformation process towards digitization should be based on four pillars:

1. Customer interaction (Sengazani Murugesan, Sequeira, Jauhar, and Kumar 2020): greater customer engagement and the development of more customer-oriented services are needed;
2. Innovation capability: the ability not only to design new operational processes and products, but also to innovate quickly to develop new business models, with a certain level of business risk;

3. Digital culture: support digital culture through collaboration between teams and acquisition of new skills. Acquiring experts and managers who have knowledge in the BIG DATA area. In addition, increasing collaboration with external partners, through partnerships or acquisitions, which can help postal operators develop new opportunities;
4. Operational capabilities: New technologies increase flexibility in designing new value chains (Ralevic, Dobrodolac, Švadlenka, and Sarac, Duric, 2020). For example, postal operators can create open information platforms.

Figure 4 illustrates key areas of digital transformation for postal operators.

Figure 3. How do you rate the potential of the national postal operator to develop e-services (1-low potential, 5-high potential)



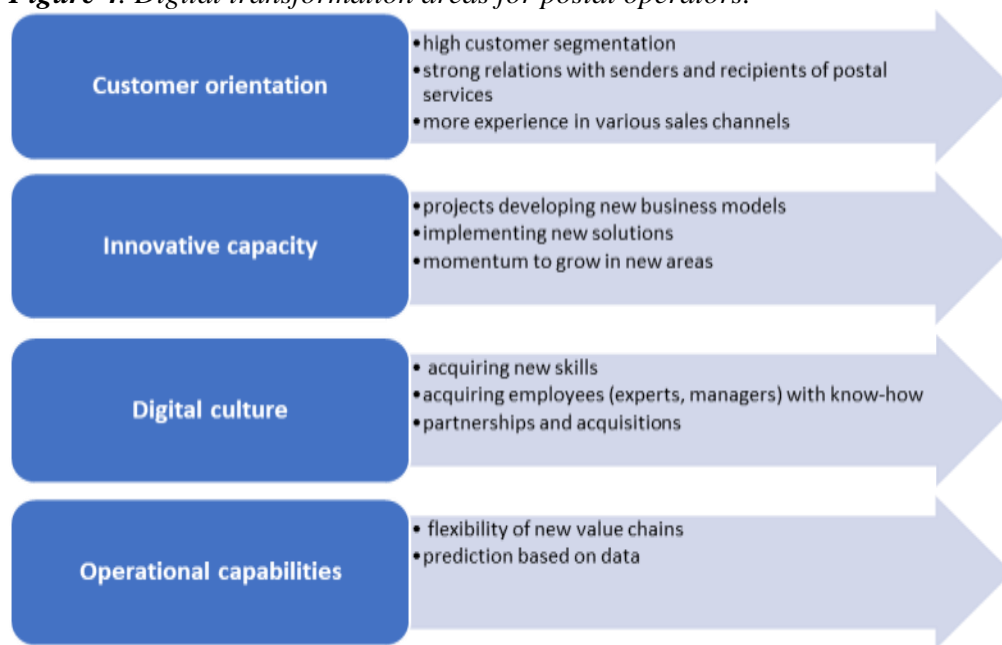
Source: Own study.

It is believed that the best path to digitization (Cseres, 2019) for a particular postal operator will depend on its strategic goals, regulatory and technological environment, as well as competitive pressures and customer expectations.

An analysis of European postal operators' activities in terms of digital strategy (Lazarević, Dobrodolac, Švadlenka, and Stanivuković, 2020), showed that the concept of digitization can be interpreted in multiple ways, treating:

- digitization as a channel: a digital product/service is considered as a new channel to interact with customers (Madleňáková, Turská, and Madleňák, 2019).
- senders and recipients of postal mail or users of postal services of the service. For example, the ability to search for a postal code via a mobile app:
- digitization as an added value to the core business: a digital product/service is considered a new revenue stream for the core business. For example, APIs in e-commerce stores;
- digitization as a digital product (Jucha and Corejova 2023). that is considered a value-added, revenue-generating product. For example, postal electronic mailboxes.

Figure 4. Digital transformation areas for postal operators.



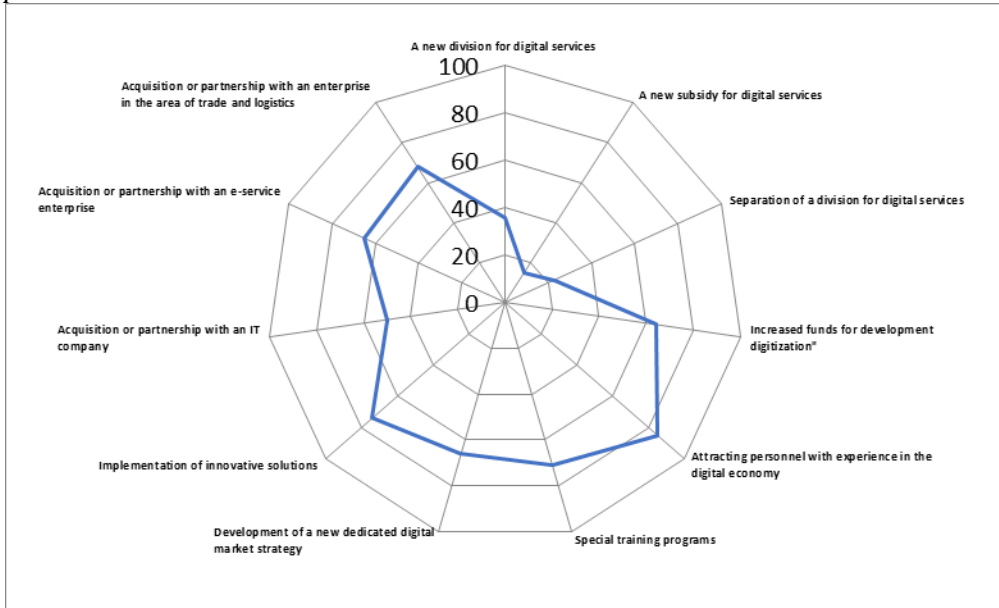
Source: Own study.

It is necessary to identify activities implemented by postal operators that will help achieve the business goal of e-service development. Based on the analysis conducted among selected European postal operators, the results of which are presented in Figure 7, it turns out that the starting point is to define a special digital market strategy. An appropriate approach to human resource management was considered important (Strenitzerová and Achimský, 2019).

The need to attract personnel with experience in the digital economy from the market was pointed out. Also, funding issues were considered crucial, pointing out the need to increase funding for the development of digital infrastructure.

The solution of acquiring or partnering with an entity that has experience in the digital economy (sales, logistics) can be considered a good practice.

Figure 5. Strategies and activities used to provide e-services in the European postal market



Source: Own study.

The analysis identified the most important decisions that are being made by postal operators expanding their operations toward the digital economy.

5. Conclusions

In the context of the information presented, the key role of states is to integrate national postal operators into the digital economy. In this view, the state would have a wide range of tools of an institutional, administrative and economic nature at its disposal to help achieve the desired goal. It should also be pointed out that heavy state involvement in the operation of incumbent postal operators, would protect against discrimination against peripheral areas.

It can be assumed that the effect of such state activity, would be to strengthen the position of designated operators, with less participation of other postal operators in this market. Complementing the strengthening model, there could be a market model that would respond to the challenges of the New Economy, the e-economy, i.e., a model in which postal operators would make extensive use of modern technologies.

It should also be pointed out that in recent years in the countries of the European

Union, within the framework of the digitization of postal services, there has been an intensive increase in the involvement of modern technologies, which both enable certified electronic correspondence between public entities, private entities and also in a C2C relationship. Summarizing this part of the discussion, it should be concluded that the conducted research indicates that the designated postal operator, would meet the expectations for securing the transmission of information in the context of critical infrastructure.

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