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Contents

- Armenia Androniceanu, Irina Georgescu
- 7 Public Administration Digitalization and Government Effectiveness in EU Countries**
1.01 Original scientific article
- Rio Yusri Maulana, Mitja Dečman
- 31 Collaborative Governance in the Digital Transformation Age: A Systematic Literature Review with Bibliometric Mapping**
1.01 Original scientific article
- Malvīne Stučka
- 61 Local Leadership During the Territorial Amalgamation Process – The Case of Latvia**
1.01 Original scientific article
- Nejc Brezovar, Kitti Pollák
- 85 Regulating Public Sector Wages in Times of Inflation and Constitutional Restraints**
1.01 Original scientific article
- 105 POVZETKI (SUMMARIES IN SLOVENIAN LANGUAGE)**



Public Administration Digitalization and Government Effectiveness in the EU Countries

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ABSTRACT

Purpose: This study continues the series of previous research carried out by the authors on digital transformation in the EU countries. It aims to identify and analyse the progress made by EU administrations in terms of digitization and effective governance in the period 2019–2021.

Design/methodology/approach: Based on selected variables from Eurostat and the World Bank databases, the article provides insights into the dynamic changes that occurred in the EU in the period under consideration. The research employs Principal Component Analysis (PCA) and K-means clustering as the primary research methods to analyse the variations and correlations among 10 numerical variables selected from Eurostat and World Bank databases.

Findings and Practical Implications: The results obtained through PCA show the impact of digitalization on government effectiveness. A comprehensive analysis of government effectiveness has been conducted using PCA, which reveals that the first two principal components account for 77.05% of the initial variance. A K-means clustering with four clusters reveals that the most significant and noteworthy increase in digitalization and government effectiveness in the EU is achieved by the Nordic countries, which exhibit high levels of digitalization and government efficiency.

Androniceanu, A., Georgescu, I. (2023). Public Administration Digitalization and Government Effectiveness in the EU Countries. *Central European Public Administration Review*, 21(1), pp. 7–30

Originality: In this ranking, clusters 2 and 3 comprise well-developed countries with a positive relation between governmental digitalization and efficiency, while cluster 4 consists of emerging countries where the correlation between digitization and governmental efficiency is low or very low, which is primarily attributed to the limited degree of digitization within government institutions.

Keywords: public administration, digitalization, digital transformation, government effectiveness, principal component analysis

JEL: I28, I38

1 Introduction

Digitalization and digital transformation reduce bureaucracy and increase citizens' access to public services, offering better transparency to documents, activities, and internal processes (Strafford & Schindlinger, 2019). The main objective of digitalization and digital transformation is to contribute to a profound change in a state's public administration, economy, and society. Digitalization and digital transformation also contribute to increased performance and efficiency in the public sector.

Studies show that European countries have different speeds in their digital transformation process. The research that is the subject of this paper is based on an analysis using a set of variables that highlight the differences between the EU states grouped in representative clusters, which reflect the influence of digitization and digital transformation on governance effectiveness.

The digital transformation of public processes and services requires public investments in infrastructure and equipment, but it makes the work of officials more efficient and faster and significantly influences the quality of public services for citizens and businesses. During the digital transformation process, a wide variety of cumbersome bureaucratic administrative procedures are replaced by simple digital applications. Repetitive and bureaucratic administrative procedures carried out manually are replaced by simplified digital operations that are particularly accessible and easy.

By using computer applications that centralize electronic documents, data, and information in different databases with simultaneous access, communication is more efficient, decisions are made more easily and public services are provided more quickly. In the European states where the digitization and digital transformation process started a few decades ago, civil servants and citizens are using successfully information technologies and digital tools to communicate and solve their internal problems or those of the citizens (European Union, 2019).

Digital technologies enable innovation and keep public administrations adaptable and fit for purpose, contributing to major improvements in the govern-

ment's effectiveness by offering innovative solutions for delivering public services to citizens and the business environment (European Commission, 2020).

"Digital first" is the principle according to which some public administrations in the EU states design their policies and strategies. A unified approach at the national level regarding the reuse of public data can help the public administration to deliver better quality services for citizens and private companies. Public administration can use the existing data to support an effective decision-making process in key strategic areas of the public sector. At the same time, administrations produce the necessary data and infrastructure to facilitate the reuse of data by public and private sector organizations to increase economic competitiveness.

State administrations have the role of driving the demand for digital technologies, and promoting confidence in the use of new technologies in providing public services and government effectiveness (Bratu, 2019). New applications such as artificial intelligence and big data are integrated into different activities already (Mura and Machyniak, 2014; Harrover, 2019; Kovacova et al., 2019; Ionescu, 2019).

Digitalization and digital transformation influence the effectiveness of governments in their process of correct management of public money to meet the needs of citizens and economic agents.

Digital transformation of government activities is a real way to increase government efficiency and effectiveness. In general, efficiency is correlated with rentability and productivity, being the expression of the relationship between the results recorded and the resources introduced into the public system. In other words, efficiency consists in maximizing outputs or results by using the minimum of inputs or resources. The effectiveness of government means the capability of it to deliver expected outputs. However, there was a wide debate that sometimes has created confusion about good governance and government efficiency and effectiveness (Koivisto, 2014). The conceptual confusion can also be increased due to other expressions that have delimited different debates, such as democratic governance, multi-level governance, new governance, good governance, effective governance, administrative justice, global governance, global administrative law, new public management and similar others (Rhodes, 1996). The different theoretical, historical and contextual roots of all these expressions can be brought to the same common denominator, namely: they can all be arguments to refer to government effectiveness. In our research, we refer to government effectiveness in the EU states, reflected by several relevant indicators: government effectiveness index, digital economy, and society index and total government expenditure (European Commission, 2021). The variables selected for this research contribute to the knowledge of the effects of digitalization and digital transformation in the administrations of the EU states. The correlations identified and analysed, as well as the grouping of the EU member states into clusters according to government effectiveness, show the effectiveness of government decisions and policies in the EU states recorded in recent years. Practi-

cally, the considered variables measure not only the digital dimension of the changes but also their intensity and effectiveness reflected by the correlations between the research variables.

The governments of democratic states need information regarding the measurement and evaluation of the economy and the effectiveness of the programs or activities carried out in order to adopt decisions and measures that contribute to the improvement of government performance. If the objectives of a government were not met or were partially met, the causes that generated this situation should be identified and at the same time, recommendations should be formulated. Government effectiveness can be known following a process of monitoring, evaluation, and reporting of the way in which the objectives assumed by the government institutions at the central, regional, or local level of a country are achieved. The monitoring process must be continuous. Thus, deviations and causes can be identified, which determine concrete changes necessary to increase government effectiveness. Governmental effectiveness can be the result of the effective development of the activities and processes brought together in the fields of activity of government institutions. Therefore, it becomes necessary to evaluate the efficiency and effectiveness of the subfields, activities, and necessary processes carried out by the state governments. The scholars (Kaufmann et al., 1999, 2011; Korvisto, 2014) propose the development of specialized audits by governmental fields and activities. The evaluation of the performance of programs and activities should be done to determine the impact of government decisions. In the evaluation process of programs and activities, a wide range of data and information regarding their performance are examined. The efficiency of the monitoring, evaluation, and change processes is reflected in governmental efficiency and effectiveness, which can increase if the internal evaluation mechanisms along the way work efficiently and governments can make the necessary changes during the governance process (Rosenbloom, 2014). In this research, the correlations between the governmental effectiveness of the EU states in the digital transformation process were analysed. Our research results show the impact of digital transformation on government effectiveness in the EU states grouped into four relevant clusters.

In this research, the correlations between digitization and efficient governance in the EU states were analysed. In the research process that is the basis of this work, the correlation between the digitization of institutions in the administrations of European states and their governmental effectiveness reflected by ten specific variables selected from international databases were analysed.

Next, the paper contains a literature overview. Then, the paper continues with the presentation of the variables included in the research and methodological frame. The following sections contain Principal Component Analysis (PCA) and K-means clustering, obtaining correlations that show that digitization has positively and significantly influenced government efficiency in most EU states. The cluster analysis facilitated the grouping of the EU states according to the intensity of the correlations between the variables that reflect digitiza-

tion and those that reflect government efficiency. The data analysis revealed that a cluster of Nordic countries was placed on top, followed by a cluster of well-developed countries and two clusters of emerging states. Then, some of their most important and significant elements of impact in 2021-2022 are presented. The last part of this work contains the main conclusions and contributions to the specialized literature.

2 Literature overview

In most EU member states, there has been an extremely rapid increase of the digital transformation processes. Four strategic axes were identified for the digital transformation of public services for the citizens and the private sector (Rymarczyk, 2021). These four strategic axes are: (1) digital public administration that consists of a process of digital transformation of public administration to that of smart government; (2) digital economy through the digital transformation of economies, in general and of small and medium-sized companies; (3) digital education through the digital transformation of the educational process through the transversal inclusion of technology in all educational processes (Stoyanova et al., 2022), but especially through the implementation of policies to acquire/increase/improve digital skills at the level of the entire population; (4) digital society meaning that citizens are leaving in a new digital social frame based on a variety of accessibilities both for work and different public services like health, social assistance, public transport, relaxation, and recreation (Lindgren et al., 2019). The implementation of these strategic changes is carried out on four levels of representation: digital infrastructure (level 1); hardware and software digital tools (level 2); digital competencies and skills (level 3); digital ecosystems (level 4 – companies, public institutions and citizens). The four strategic axes and levels reflect the fact that digital transformation is a process that requires a systemic and integrated approach, which includes the economy, administration and society as a whole (Abraham et al., 2020; Berman, 2012). The reduction of digital transformations in one or another of these areas can significantly influence the efficiency of the whole process. If in the economic fields, and especially in the business field, the effects of investments in the implementation of digital transformations have already demonstrated efficiency and effectiveness, in the fields of administration and public services, the digital transformation continues at an accelerated speed. The researchers (Avram, 2020; Novak et al., 2018) show that there are correlations and gaps between the three categories of digital transformations (economic, administrative, and social) in different states, mainly due to government strategies and investment policies that differ in content (Drechsler, 2022; Demir, 2022). In these areas, the major challenge that the government assumes, is to overcome in the next 4 years several stages of the digital transformation of government and public administration, so that it acts based on the principles of smart government characterized by the administration based on data (data-centric) and able to use analytical and predictive tools such as artificial intelligence and data mining (Yigitcanlar et al., 2021; Shank et al., 2019). Government effectiveness can be influenced by the

speed with which digital transformations take place, and in turn, it can influence the speed with which digital changes occur in the economy, administration and society. This perspective is analyzed in the research that is the basis of this work. Our objective is to demonstrate that government effectiveness is significantly influenced by digital transformations in state administrations and contributes to the delivery of better public services (Demircioglu, 2017). For this, we considered a set of specific variables, including the public expenditures made by the governments of the European states, which means total costs that also include the specific costs necessary for digital changes in administration and society. Practically, the ability of the governments of the member states to effectively manage the digital transformations in the administration in order to be able to offer better administrative and social services means governmental effectiveness, which is one of our key variables.

Digital transformation involves the use of digital technologies and data to change the way of working and interaction between public administration stakeholders (Dunleavy et al., 2006). Examples of digitalization projects include automating processes or training human resources to use new technologies in the work environment. To consider that digitalization, in the sense described above, is sufficient to ensure the transition to a digital society is a strategic error (Kitchin, 2014). In the field of e-government, for example, a few states stop at digitization meaning downloading forms from the Internet or digitalization by filling in these forms online, instead of making the transition to a full digital transformation by moving services of e-government in the digital environment (Șandor et al., 2020; Munoz & Bolivar, 2018; Mura & Vlacseková, 2018).

Digital transformation is progressing in the UE member states (Micheli et al., 2018). Studies (Szostak, 2022; Taburchak et al., 2022; Craglia et al., 2018) in the field highlight the fact that Estonia is globally recognized as the most digitalized country in the world, with a rate of digitization of interactions between the state and citizens of 99% (Sabatini et al., 2022; Stępień & Światowicz-Szczepańska, 2022). Estonia is a country where the only non-digital interactions citizens have with state officials are at marriage or divorce. All this is due to a digitization process developed over the last 20 years. From a statistical point of view, 98% of Estonian citizens have an identity card based on which they can access 99% of the services the state provides, such as online voting. In other words, for the release of any document needed by citizens from the Estonian state, they use the method of online requests or even reduce to an agreement for public institutions to collaborate and access their information from each other's archives, without having to circulate any paper from side to side. The various types of data that can circulate in the network of state databases can be stored in only one of them, by one of the agencies responsible for example for personal data of citizens, land, or taxes, and can be accessed by other agencies only with the consent of the citizen and the institution holding the information. Each public institution has its own database, created according to the interactions it has had with certain citizens. Public institutions access an interface to communicate with a national network of databases (Micheli et al., 2020). In recent years, Estonia's digital system has

expanded to collaborate with other countries such as Finland, Portugal, and Croatia, especially for the interoperability of prescriptions received by citizens of any of these countries. For example, a drug prescription received by an Estonian is also valid at a pharmacy in Portugal, if the Estonian is in its territory. Contrary to expectations, interacting with digital services is not difficult at all. Each person has a digital ID card and even a mobile ID with the same functions.

Specialists (Sun et al., 2022) consider that the main risk of digitization is data security. Regarding this, the Estonian authorities have ensured the existence of a "digital embassy", outside the country, a huge archive in which the entire national network is regularly backed up. Data stored in this "digital embassy" in Luxembourg can be safely accessed even when possible problems arise with the network and databases in Estonia. The digital system in this country is accessible and efficient. Statistical data show that the digitization of the administration and de-bureaucratization saves almost 2% of the GDP (European Commission, 2021b). In addition, each citizen saves time with each necessary document that they issue online, instead of going to a counter, saving annually, at the country level, approximately 1345 years of work, collected at the level of all citizens (International Labour Organization, 2022).

Another example of successful digital applications for public administration works in France. Statistics show that in recent years the French government has announced that it has decided to adopt and use the Office package from Microsoft 365 at the national level, as well as several services with Microsoft Azure. However, they will not be delivered from the Data Centers that Microsoft has in 13 European countries - Austria, Denmark, France, Germany, Greece, Ireland, Italy, the Netherlands, Norway, Poland, Spain, Sweden and Switzerland - but from centers owned and operated by French companies.

Similarly, in Germany, to comply with the federal government's "Cloud Sovereignty" requirements, Microsoft has proposed a model whereby the ownership and management of the cloud platform rest with the companies that own and manage the data centers from which they are delivered. Analysts estimate that the German and French models can be replicated by other countries (Kohler & Weisz, 2018). Thus, the Cloud services delivered by Microsoft could become the de facto standard in the field of public administration in the EU. Most EU states have not stopped at digitalization. They continued the process of digital transformations. First, it requires a new cultural orientation that emphasizes challenging the status quo and continually testing the best solutions. Also, digital transformation is characterized by customer/beneficiary-oriented organizational changes, supported by leadership and driven by significant challenges from the environment. Digitalization and digital transformation need a legislative framework and a governance framework for digital public services, where relevant actors can collaborate and co-create solutions with other private partners, such as citizens, and the academic or business sector.

Proponents of governance for the digital age of public services refer to two characteristics that must be found in the provision of digital public services. The authors of this governance model (UNDP, 1997) do not support the idea of

the supremacy of technology in administration but use it as a means for reorganization and for encouraging the participation of citizens in the co-creation of public policies. In fact, they emphasize the need for a fundamentally different way of organizing the processes in the administration that will lead to the rethinking of services from the perspective of the needs of citizens, but also to the elimination of redundant processes from the old administrative culture. Two of the principles enunciated by them are also found in European public policy documents, namely Government as a Platform (GaaP) and the once-only principle. If once only refers to the reintegration of services, GaaP refers to the creation of a broad, national integrated framework of digital services.

Faced with such challenges, the city halls of the Member States saw the concept of a "smart city" as way to use technology for a better life for citizens in cities and municipalities (Calzada, 2017). Unfortunately, in the rush for technological progress, city halls have lost sight of the desire to improve citizens' experience with the city, and technology has become an end in itself, not a means, as it was intended (Eom et al., 2016; Howell & Higgins, 1990). So, in a short time, the expensive investments in smart traffic lights, for example, were outclassed by Waze-type applications or other alternative urban mobility applications (Gutschow, 2019; Lee et al., 2019; Torugsa & Arundel, 2016). By the same token, parks with free Wi-Fi have proven difficult to maintain in a cyber-insecure area, and the examples can go on (Meijer & Thaens, 2021; Barabashev et al., 2022). Town halls in EU states collect and hold significant volumes of data. Even so, in some EU states, including Romania, these volumes are reduced in relation to what a city could obtain and use (Avram, 2020; Șandor et al., 2020). Regardless of the stage of digital transformation in the local administrations of the EU states, public investments in data infrastructure and their best possible analysis and decision-making capacity are essential (Pollitt & Bouckaert, 2011; Margetts, 2009).

According to the European Framework of Competences (DigiComp), there are 21 competencies grouped into five key categories necessary for the digitization of public administrations in the EU states.

Therefore, digitalization has a major impact both on public administration, the economy, and the well-being of citizens in general (Androniceanu A-M. et al., 2020). In a previous paper (Androniceanu et al., 2022) we studied the impact of digitalization on public administration, economic development and well-being in EU countries during 2019-2021, by Principal Component Analysis and cluster analysis. Digitalization is influencing the efficiency of public administration. The origins of effective governance and modern good governance lie in the structural adjustment and development support programs of the late 1980s. For the first time, the World Bank called crises in sub-Saharan Africa governance crises (World Bank, 1992). As it follows from the official documents of several international organizations, International Monetary Fund, United Nations Development Programme and the World Bank (1997) initially good governance was focused on solving the problems generated by the poor functioning of economic mechanisms (Privara, 2022). Later, the con-

cept also extended to political and public administration aspects (Duong et al., 2022). Therefore, the key aspects of good governance can be expressed as follows: a predictable and transparent policy and administration, an ethical and socially responsible government, a strong civil society involved in the management of public institutions, the existence of a rule of law, respect for democracy and human right, a functioning market economy (Androniceanu, 2019). A trans-disciplinary approach to the concept and practices of good governance can ensure a better understanding from a multi-disciplinary perspective. Also, such an approach can provide a better understanding of the challenges involved in identifying good governance solutions. Thus, we can have a better analysis and appreciate good governance practices (Chottray & Stoker, 2009, p. 214). Chottray and Stoker argue that the cross-disciplinary approach to good governance can be achieved through an investigative approach rather than drawing up a list of normative principles against which the system is checked. Governmental efficiency is directly dependent on the ability of public institutions to manage resources to solve social problems (Trettin et al., 2019). Policies and public services cannot be reformed and delivered efficiently without someone thinking about them, applying them, and solving them. The link between the effective functioning of governments and digitization depends on good governance and is reflected in government efficiency. Over time, EU governments have focused their resources on governance as a key factor that reflects variations in government efficiency. Thus, in the World Bank Report on Governance and Development, from 1997, governance means that the government deal with the national resources for effective development (World Bank, 1997). Later, in 2007, the definition of effective governance also included the way in which public officials and institutions provide public goods and services (World Bank, 2007). Specific indicators were developed by UNDP (1997) through which good governance and its impact on government efficiency could be evaluated. However, there is a growing demand for a wider range of indicators, with some countries even calling for newer or better good governance laws (Trapnell, 2011).

3 Research variables and methodological frame

In this section, the main variables together with the methodological frame are discussed. The selected variables have been chosen with respect to the purpose of the analysis, to analyse the progress towards digitization and effective governance that the administrations of the EU states have made during 2021-2022. By applying Principal Component Analysis and K-means clustering, we also examine the digital divide existing in the public administrations of EU countries. The combination of variables also used in previous research (Georgescu et al., 2023; Georgescu and Kinnunen, 2021) is important in revealing regions or countries with similar digital inequality and similar levels of government effectiveness. Also, the data were collected according to the three pillars of this research: digitalization, government effectiveness, and public administration infrastructure. The main research variables used are presented in Table 1.

Table 1. The main research variables

Variable	Variable Label	Measurement Unit	Source
OSI	Online services index	percentage	publicadministration.un.org
GEF	Government effectiveness index	[-2.5 weak; 2.5 strong]	www.maxinomics.com
EGDI	E-Government index	[0,1]	publicadministration.un.org
GOVEX	Total general government expenditure	percentage of GDP	Eurostat
ICT	Employed ICT specialists - total	percentage	Eurostat
IT	Internet use by individuals	percentage	Eurostat
CON	Connectivity	[0,100]	https://digital-strategy.ec.europa.eu
INT	Integration of digital technology	[0,100]	https://digital-strategy.ec.europa.eu
DPS	Digital public services	[0,100]	https://digital-strategy.ec.europa.eu
DESI	The Digital Economy and Society Index	[0,100]	https://digital-strategy.ec.europa.eu

Source: Our selection is based on various databases

The data set composed of 10 numerical variables was gathered from various databases for 2021 and 2022. PCA is a data reduction technique used to analyze highly dimensional datasets (Kassambara, 2017; Jolliffe, 2002). By a linear transformation, the initial data are transformed into fewer variables called principal components (PCs) which retain the maximum amount of information. The steps of PCA are the following:

1. Data standardization.
2. Computing the covariance matrix of the dataset.
3. Obtaining the eigendecomposition according to the covariance matrix.
4. Ranking the eigenvalues decreasingly.
5. Selecting the first k PCs.
6. Determination of the k-dimensional feature space.

Each PC retains a certain amount of variation represented by the eigenvalues, as seen in Table 2.

Table 2. Eigenvalues and the cumulative variance

	eigenvalue	variance.percent	cumulative.variance.percent
Dim.1	6.443949348	64.43949348	64.43949
Dim.2	1.261979872	12.61979872	77.05929
Dim.3	0.764402005	7.64402005	84.70331
Dim.4	0.566058990	5.66058990	90.36390
Dim.5	0.376224450	3.76224450	94.12615
Dim.6	0.266089177	2.66089177	96.78704
Dim.7	0.170827992	1.70827992	98.49532
Dim.8	0.091834883	0.91834883	99.41367
Dim.9	0.052638937	0.52638937	99.94006
Dim.10	0.005994345	0.05994345	100.00000

Source: Authors own computation

The first column of Table 2 displays the variation represented by the eigenvalues. Eigenvalues and eigenvectors are computed from the covariance matrix to determine the PCs. The eigenvectors are the directions of axes (PCs) while the eigenvalues are the variances captured by PCs. The other columns of Table 2 represent the individual variance and the cumulative variance associated with each dimension.

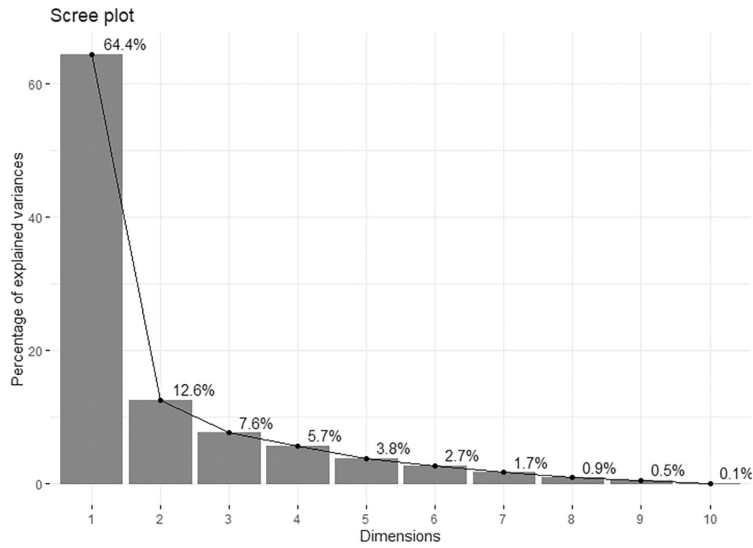
After the PCA application, the analysis continues with K-Means clustering (MacQueen, 1967) in Section 3. K-means clustering is one of the most efficient clustering techniques. The distance between the objects is the Euclidean distance and the cluster scatter is measured by variance.

4 Research results and discussions

This section contains the main results of the applied methods, namely PCA and K-Means clustering. The section ends with a comparison of our results with previous similar studies. For the application of PCA, we use the scree plot and the principle of cumulative variance to determine the optimal number of PCs. Then we use K-means to cluster the 27 EU countries into 4 clusters.

The first PC captures 66.43% of the initial variability. The second PC captures 12.61% of the initial variability. The cumulative variance is shown in the third column. The first two PCs explain 77.05% of the total variance. By Borcard et al. (2018), we retain a number of PCs which account for around 75% of the total variation. Thus the first two PCs will be retained, at time same time in accordance with Kaiser's rule (Kaiser, 1960), which says that we retain the PCs with an eigenvalue greater than 1. This is also confirmed by the scree plot in Figure 1.

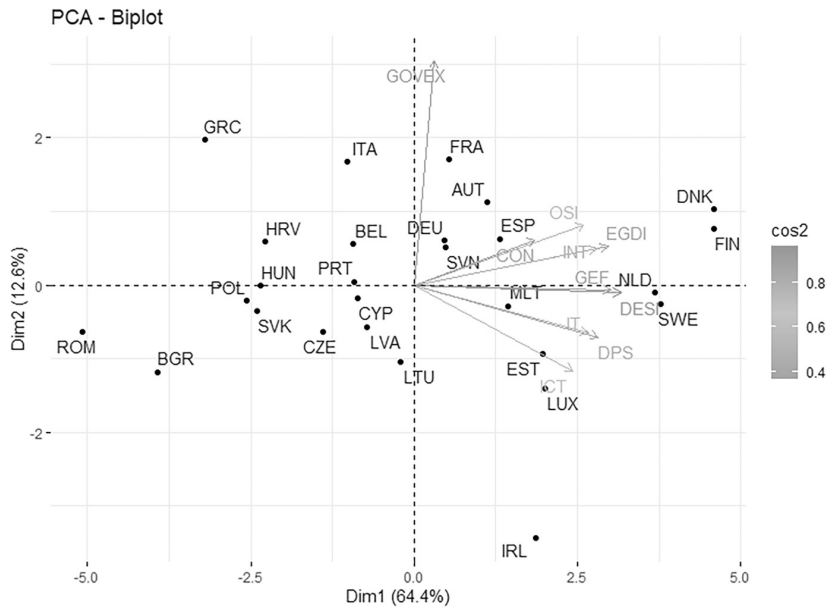
Figure 1. Scree plot explained by principal components



Source: Authors' determination

The biplot in Figure 2 displays the correlations between variables and their contributions to PCs. One can see in Figure 2 that all variables are grouped together, being positively correlated. Countries with similar features are positioned closer to each other.

Figure 2. PCA biplot with countries and variables



Source: Authors' determination

On the biplot from Figure 2, the objects are represented as points (here countries) and the vectors denote the variables (Kroonenberg, 2008). On the biplot, the variables are characterized by their correlations (Abdi and Williams, 2010). If the angle between two vectors is small, then the variables represented by vectors are strongly associated. The strong correlation between variables and PCs is shown by high cos values. High cos values indicate that the variables are located near the circumference of the correlation circle. Small cos values indicate that the variables are positioned near the circle centre. Small cos values belong to the variable CON. Middle cos values belong to ICT, IT, and OSI. High cos values belong to variables GOVEX, EGDI, INT, GEF, DESI and DPS.

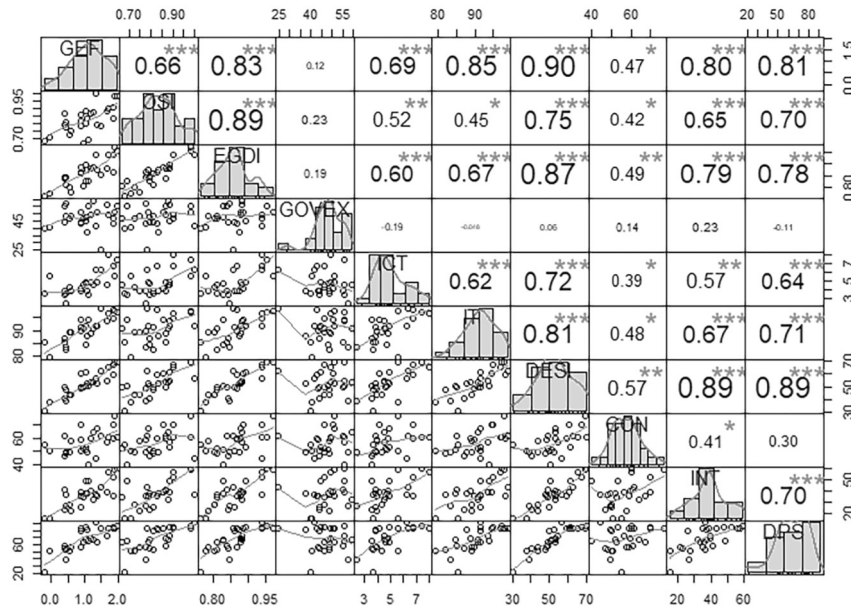
Variables situated closer to the correlation circle centre do not present so much importance for the first PCs (Kassambara, 2017).

Countries like Denmark, Finland, Sweden, and Netherlands are mainly determined by OSI, EGDI, INT, GEF, DESI, DOS and ICT. Luxembourg and Estonia are mostly characterized by ICT, DPS and IT. Malta is mostly dominated by GEF, DESI and DPD. France, Germany, Italy, and Austria are mostly dominated by GOVEX. Slovenia and Spain are mainly determined by CON, OSI, EDGI and INT. On the opposite quadrant are Romania, Bulgaria, Poland, Czech Republic, Hungary, Croatia, Slovakia, Greece, Italy. A similar representation on the factor map is obtained by Androniceanu et al. (2022), whose results confirmed that there is a digital divide between the countries situated on opposite quadrants. The countries in the right quadrant are mainly developed economies, for which digitalization, ICT and e-government index are on an increasing trend. For these countries, ICT improves the communication between government and citizens, the government services are more accessible, more transparent and more democratic. Dobrolyubova et al. (2019) confirm this assertion, that government digitalization makes more efficient public services.

On the left quadrant on the biplot in Figure 2 are positioned mainly emerging economies, between whom and the developed economies the digital divide still exists (Androniceanu et al., 2022; Mesa, 2023). During the COVID-19 pandemic, internet usage increased, making the digital gap less wide.

The governments were spurred to accelerate digital transformations. The countries lying on the left quadrant need important investments in infrastructure and experimenting with new technologies.

Figure 3. Correlation matrix



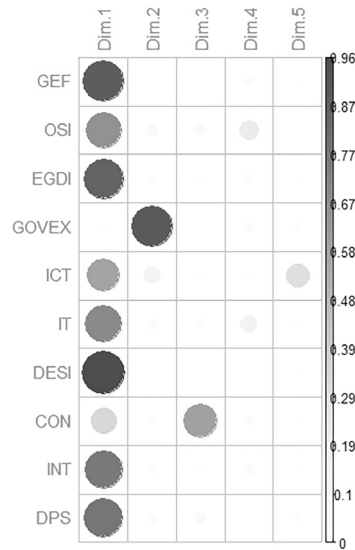
Source: Authors' determination

Figure 3 displays the histograms, density functions and smoothed regression lines together with correlation coefficients at different levels of significance (no stars mean not significant, *, ** and *** signify 10%, 5% and 1% levels of significance).

As we can also notice from the correlation matrix in Figure 3, the strongest associations are between EGD and OSI (0.89), GEF and DESI (0.9), DESI and INT (0.89), DESI and DPS (0.89), EGD and DESI (0.87), GEF and IT (0.85). GOVEX is weakly correlated with most variables. GOVEX are fiscal instruments by which the state intervenes in the economy. GOVEX is meant to be a living standard indicator, with a role in investments in innovation and in new technology. Its weak correlation with most of the indicators shows that public spending has a minimal influence in stimulating economic growth, unlike private spending (Pop Silaghi et al., 2014).

In Figure 4 are displayed the square cosines of variables on the first 5 PCs. The first 5 PCs are not correlated.

Figure 4. The cos2 of variables on the first 5 PCs



Source: Authors' determination

PC1 is dominated by GEF, OSI, EGDI, GOVEX, ICT, IT, DESI, CON, INT and DPS. The first direction will be named the impact of digitalization on government effectiveness. PC2 is dominated by government expenses GOVEX. It follows that the total expenditures are not affecting any other variable, which is what this PC separation suggests. This is because GOVEX is weakly correlated with the other variables, as shown by the correlation matrix. PC3 is dominated by CON.

The next step of the research was the application of the K-Means clustering algorithm. The steps of the K-means algorithm are the following:

1. Determination of the number of centroids. The initial centroids are selected randomly.
2. The objects are assigned to the nearest centroid.
3. The centroids are computed again and a new assignment of objects to clusters takes place.
4. The algorithm is repeated until the centroids become unchanged or until the objects cannot be allocated to other clusters.

According to the elbow method (Thorndike, 1953), the optimal number of clusters is 4. The clusters composition is the following:

Cluster 1: Estonia, Ireland, Luxembourg, Malta

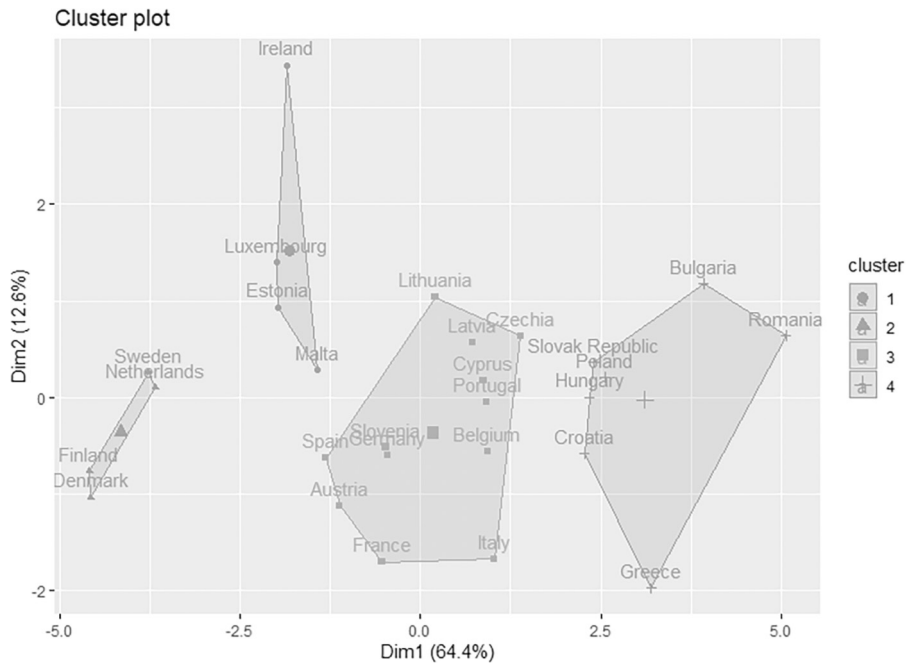
Cluster 2: Netherlands, Denmark, Sweden, Finland

Cluster 3: Belgium, Czechia, Germany, Spain, France, Italy, Cyprus, Latvia, Lithuania, Austria, Slovenia, Portugal

Cluster 4: Bulgaria, Greece, Croatia, Hungary, Poland, Romania, Slovak Republic.

In the cluster plot from Figure 5, we can see that the four clusters are well separated in the plane determined by the first two PCs.

Figure 5. Cluster Plot



Source: Authors' determination

Table 2 contains the cluster means of scaled data. The countries in cluster 2 have the highest values for all variables. The Nordic countries together with the Netherlands are the most digitalized, the implementation of IT services in public administration increases transparency and makes citizens more involved in administrative and political activities (Bernhard et. al, 2018). Citizens can benefit from e-government in three directions according to Bernhard et al. (2018): first, the living conditions such as education, health, and infrastructure, secondly the digitization of services for citizens and third, the decision-making processes made available for public scrutiny. Pérez-Morote et al. (2020) analyze an EU panel during 2010-2018 and their results confirm the hypothesis that the use of e-government services is positively correlated with the digital divide caused by income and education. Their analysis continues with a 3-cluster analysis, in which the low cluster contains most Eastern European countries together with Italy and Greece, the medium cluster is heterogeneous while the high cluster comprises the Nordic countries, France and Luxembourg. This cluster is characterized by a high level per capita, higher use of e-government, more investments in education, and a younger urban population. Ma and Zheng (2018) explore a survey of 28000 EU citizens and find that e-government performance is negatively correlated with the use of e-information and e-services.

Table 2. Cluster Means

Cluster	GEF	OSI	EGDI	GOVEX	ICT	IT	DESI	CON	INT	DPS
1	0.666	0.56	0.486	-1.216	0.907	0.874	0.731	-0.233	0.316	1.065
2	1.389	1.325	1.619	0.452	1.574	1.181	1.555	1.221	1.645	0.963
3	0.038	-0.144	-0.069	0.322	-0.413	-0.065	-0.041	0.033	0.002	0.055
4	-1.24	-0.829	-1.083	-0.116	-0.709	-1.062	-1.235	-0.627	-1.126	-1.254

Source: Authors' determination

As a result, the countries in cluster 2 also have the highest DESI index. Countries in cluster 1 are positioned second, with regard to most of the indicators. In this group of countries, Estonia is an important frontrunner in digital public services, being in the 7th place in the DESI 2021 hierarchy. Estonia is one of the most advanced digital economies, keeping online 99% of government services during the pandemic. The last position in this ranking is occupied by the countries in cluster 4, where Romania, Hungary, Slovakia, Poland and Bulgaria are positioned. Wandaogo (2022) conducted a panel data study for 139 countries during 2006-2016 and concludes that the positive effect of digitalization on public administration is higher in developed countries than in developing countries. The reverse causal effect may also happen, an effective government will induce the use of digitalization to provide online services or to improve their quality. Pakhnenko and Kuan (2023) group world countries with respect to their digital governance development. From this dataset, 69 countries have a very high level of digital governance, followed by a cluster of 46 countries with a high technological level in public administration. In this analysis, the GovTech Maturity index and its components are included. Among EU countries, Romania, Bulgaria, Slovakia, Poland, and Ireland have a GovTech Maturity index varying between 0.5 and 0.75. The three countries at the top of GovTech Maturity index for 2022 are Estonia, France, and Lithuania. Park et al. (2022) introduce the Digital Transformation Index (DTI) to study the digital divide and its causes. The study delimits three phases of digital transformation: foundation, adoption, and acceleration. 106 world countries are included in the DTI framework and grouped into five clusters, according to the five intervals of DTI scores. In the DTI ranking, USA places first, followed by Switzerland and UK & Northern Ireland. Romania places in the second interval of DTI scores, together with 31 world countries, among which: Hungary, Bulgaria, Latvia, Poland, Slovakia and Greece. DTI's significance consists in the positive correlation between income and the digital transformation level of countries.

5 Conclusions

In this paper, we applied PCA and cluster analysis to study the panel of 27 EU member states and 10 variables collected for the period 2021-2022. PCA revealed that two PCs are retained, explaining 77.05% of the original variability. The first dimension is dominated by most of the variables included in the study, therefore it was called the impact of digitalization on public administra-

tion. The second dimension is dominated by government expenses. The combination of these indicators in the composition of the first PC measures the short-term effects of digitalization on public administration and government effectiveness. In a K-means clustering with 4 clusters, we obtain that cluster 2 which contains Nordic countries places on top, followed by cluster 1, cluster 3 of well-developed countries and cluster 4 of mainly emerging economies.

The results of this paper have certain policy implications, such as the enhancement of e-government could contribute to improved government effectiveness. Other policy implications could be oriented to reduce corruption and more transparent institutions and public services (Sadik-Zada et al., 2022; Osborn, 2006).

The research results obtained about the digital transformation in the European public administration proved the fact that it increases the quality of the governance process as a whole. It must be understood that digital solutions mean more than the transfer of decision-making processes from paper to digital format. In addition, these improve the quality of governance by minimizing the influence of corruption factors, provide equal chances and opportunities to all members of society, and much greater transparency of public services and expenditures (Głodowska et al., 2023). Digital transformation of public administration makes everyone's life much simpler, more efficient, and harmonious. In some cases, in addition to improving some processes, it fundamentally changes them (Korzynski et al., 2023). Effective e-government leads to good governance. The digital divide at the country level can be reduced by urgent technological and financial support for countries with a lower level of digital transformation or in cases when this cannot be assessed. Müller et al. (2022) discuss the potential EU-added value in different directions of social and labour policy, with the purpose to move to a convergence among EU countries.

The results of our research can be used in the extensive transformation process of European administrations until 2030. As the European Commission shows, a mechanism for the digital transformation of Europe is being launched in 2030. The European Parliament, the member states, and the Commission have jointly established objectives and targets in the four key areas namely digital skills, infrastructure including connectivity, digitalization of businesses, and online public services, in line with the Declaration on European Digital Rights and Principles. In this context, government effectiveness can become a necessary and relevant indicator.

In our future research, the current research results could be completed with an increased number of research variables and with different panel data techniques, for longer time series. Alternatively, we may tackle these issues by qualitative methods or other statistical approaches.

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Collaborative Governance in the Digital Transformation Age: A Systematic Literature Review with Bibliometric Mapping

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ABSTRACT

Purpose: The article aims to provide an updated and comprehensive overview of academic research in the field of collaborative governance and digital transformation, with an emphasis on the emerging topic of collaborative digital transformation. Digital transformation is a recurrent theme in today's society, fuelled by events such as the Covid-19 pandemic, global climate challenges, and other crises reshaping the world. As societies increasingly rely on digital platforms and online communication, the prime urge and necessity of the human race – i.e., to communicate and collaborate in tackling these challenges – puts collaborative governance in digital transformation high on the agenda of governments, the private sector, and citizens.

Design/Methodology/Approach: To address this topic, we performed a bibliometric analysis using various analytical and visualisation tools to evaluate and visualise existing scientific bibliographic materials. The analysis covers 286 articles published in the Scopus and Web of Science databases over the past two decades in the area of collaborative governance and digital transformation, employing established and innovative bibliometric approaches. Graphical analyses are used to illustrate co-authorship, keywords co-occurrence, research topics evolution, and the network of influential researchers within collaborative governance and digital transformation.

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31

Findings: The results show that the relationship between collaborative governance and digital transformation is still limited and needs further study, considering that these two concepts have been emerging trends in public administration over the past two decades. In addition, the findings reveal a significant growth in research of these topics over time, although not specifically focused on collaborative digital transformation.

Practical Implications: The article provides a summary of key aspects of collaborative governance and digital transformation research and helps lay the foundations for shaping the future of this evolving field of public administration. Thus, it helps researchers understand the development of collaborative digital transformation research over the past two decades, as collaborative digital transformation is a relatively new field of research characterised by rapid growth and evolution.

Originality/Value: The research contributes to the understanding of collaborative digital transformation as a distinct research area within the broader concepts of digital transformation and collaborative governance, which is still seeking its own identity in academic literature, and offers a definition of collaborative digital transformation (CDT).

Keywords: digital transformation, e-governance, collaborative governance, collaboration, collaborative digital transformation, bibliometric mapping, literature review

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1 Introduction

The rapidly evolving digitalisation of our societies and economies, driven by data and digital tools has impacted people's lives on an individual and societal level, also bringing noticeable changes to the public sector and public governance. Transformational power has fundamentally impacted not only internal government operations, but also the government-citizen and the government-business relationship. Much of the literature has explored the concept of collaborative governance, which examines the relationships and participation of the government, citizens, and stakeholders in the decision-making process. However, the new technological disruption is paving the way for a different approach to public administration science, which emphasizes that digital transformation can accelerate and merge with existing collaborative processes and create the potential for new ones to erupt. However, the way this rapidly growing phenomenon in collaborative governance research has been labelled and has been subject to change over the last 20 years creates confusion about the delineation between core concepts, especially when it comes to digital transformation.

Collaborative governance (CG) is, as the name suggests, a type of governance that is heavily based on collaboration between a variety of stakeholders. Ansell and Gash (2008) define collaborative governance as the coordination of standards and rules jointly determined and projected to govern individual behaviour in a group context. In collaborative governance, the focus is on

governance processes that blur public, private, and community boundaries in response to the interconnected challenges that governments face today (Bradford, 2016). It is one of the main approaches towards a collaboration between the community, the private sector, and the government, and eases the state's burden in providing the community's goods and services and welfare (Kim & Grant, 2010). Within collaborative governance, collaboration can be defined as a situation where a group of autonomous stakeholders from different sectors engages in an interactive process (Hajnal & Jeziorska, 2021). Research in this field is growing rapidly and is being adopted not only in public administration, but also in various other disciplines, and has appeared in studies and practices in the American, European and Australian literature; therefore, constant improvements and clarification are needed. Several holistic frameworks and empirical studies have been published about collaborations (e.g. Agranoff, 2012; Ansell and Gash, 2008; Emerson et al., 2012). The use of multi-actor collaboration to advocate for policies, deliver services, and create public value has also led to a larger body of literature on public sector collaboration (Mischen, 2015), which has revolved around terms such as collaborative public management, network governance (Emerson et al., 2012; Rhodes, 2017), cross-sector collaboration (Bryson et al., 2015), governing collaborations (Vangen et al., 2015), and collaborative governance (Ansell and Gash, 2008).

In the context of collaboration, digital technologies have been recognised to play an important role (Bryson et al., 2015). Although not many have made digital technologies the centre of attention in this emerging literature of collaboration, the contribution of collaboration to the creation of public value and the role of structures and processes embedded in key areas has been identified across different models of collaboration: technology, leadership, governance, and collaborative capacity (Bryson et al., 2015).

Previous studies have identified two distinct roles that technology can play in interagency collaborations (Bryson et al., 2015). The first role considers technology as a tool or equipment, and thus as a facilitator of collaboration. This traditional view of technology has been thoroughly explored in the literature on digital government (Gil-Garcia, 2012; Gil-Garcia et al., 2018; Luna-Reyes & Gil-Garcia, 2014), and to a lesser extent by scholars of public administration (Bryson et al., 2011). The second role views technology as a 'nonhuman actor' (Bryson et al., 2011; Gasco-Hernandez et al., 2022), capable of providing solutions and presenting a systematic understanding of complex interactions that surpass the perceptions of individual actors (Bryson et al., 2015). This idea of technology as an actor has been elaborated in actor-network theory (Latour, 2007), which distinguishes between human and nonhuman actors and advocates for treating them equally under the principle of generalised symmetry. Despite this, the notion of technology as an actor has not been widely integrated into cross-sector collaboration or collaborative governance frameworks.

Nevertheless, in line with the development of collaborative governance trends, the intersection with technological disruption is unavoidable today. The concepts and research field of digital transformation (DT) has become well-established.

lished, due to the widespread adoption of digital technologies in society, industries, and organisational management (Nadkarni and Prüggl, 2021; Verhoef et al., 2021; Vial, 2019). DT is a process that occurs at the intersection of products, services, and media, and is centred around the use of digital technologies to transform and create value. As a research field, DT is constantly evolving and adapting to changes within the relevant area (Roth, 2019). Examining the existing literature, Vial (2019) found great inconsistency in existing research on digital transformation and, therefore, tried to define digital transformation as a process that aims to improve an entity by triggering significant changes in its properties through combinations of information, computing, communication, and connectivity technologies. Related to the digital transformation in the public sector, many recent works discuss the era of digital governance, such as e-government and digital government (Ravšelj et al., 2022). Governance in the digital era, or “digital era governance,” could be considered a contemporary umbrella term for all recent initiatives to modernise governance in public administration, based on the implementation of digital transformation.

In this review, we systematically explore the topics of CG and DT in the most cited articles from the last two decades, to observe and uncover the main trends, summarise the progress that research has achieved over the past years, and outline the limitations of the research. Furthermore, we want to provide the definition of collaborative digital transformation (CDT) as a fusion of the above-mentioned topics. The review focuses on the following research questions:

1. How are CG and DT defined in the existing literature?
2. What are the characteristics commonly used to fully define them?
3. What were the main research purposes, methodologies, and results on the most cited studies on these topics over the past 20 years?
4. If and how can we detect the concept of CDT?

This article argues that CDT is a missing and important concept that can improve research in the area of public governance in the future, enabling a better outcome of digital transformation.

Researchers emphasise the significance of categorising the literature of a particular research field based on primary development patterns to enhance comprehension of the extensive literature on the topics mentioned above. Bibliometrics is one of the most frequently utilised techniques for this purpose. Science mapping, or bibliometric mapping, is a crucial research area in bibliometrics. It monitors the scientific field, defines its cognitive structure and development, and acts as a spatial representation of how disciplines, fields, researchers, and individual documents are interrelated (Cobo et al., 2012). Despite the significance of identifying key elements in specific areas of interest, there is a lack of bibliometric studies on collaborative governance and digital transformation issues. Therefore, the goal of this paper is to conduct a literature review of the existing research on collaborative governance and digital transformation, as well as the correlation between the two. Additionally, our goal is to define the collaborative digital transformation as a new

research area that would merge the two mentioned topics. The literature review further employs bibliometric mapping to analyse the bibliographic characteristics and content of articles written by various authors from various countries, covering the period from 2002 to 2022. The objective is to collect data from the SCOPUS and Web of Science (WoS) databases and perform a bibliographic mapping using Biblioshiny tool for evaluation and visualisation. The objective is to establish a robust foundation for the concept of collaborative digital transformation. By analysing authors, research topics, keywords, journals, countries, and institutions, using a set of bibliometric indicators such as productivity, citations, H-index values, and total link strength (TLS) values, a comprehensive examination of the work conducted over the past two decades is conducted. This analysis enables a thorough exploration of the field and provides a solid basis for future research.

2 Background

The challenge for governments today is to fulfil public expectations in the era of digitalisation, where most of the population is using digital technologies as their main tools of living. Therefore, governments must adapt public service delivery and policy making to a new era of digitally driven and collaborative governance, since citizens increasingly expect to be active participants, not passive recipients in the process. Ansell and Gash (2008) explain the meaning of *collaboration* as “a governing arrangement where one or more public agencies directly engage nonstate stakeholders in a collective decision-making process that is formal, consensus-oriented, and deliberative, aiming to make or implement public policies or manage public programmes”. Multiple benefits are expected. First, bringing citizens actively on board through collaboration in the design and implementation of policies and services could increase their legitimacy and effectiveness and create the feeling of ownership. Second, citizens’ and other stakeholders’ engagement could help to gain knowledge about needs, solutions, and impacts that could otherwise be overlooked by governing actors. Third, inclusive processes could help to address the differential impacts of various policies on outcomes that address different segments of society and their effects on growth and well-being. And finally, citizens and other stakeholders can bring new knowledge and new innovative ideas to the table.

Collaboration therefore refers to the process of joint decision making (Stoker, 2004). Emerson et al. (2012) define collaborative governance broadly as the processes and structures of public policy decision-making and management that engage people in collaboration constructively, across the boundaries of public agencies, levels of government, and/or the public, private, and civic spheres, to carry out a public purpose that could not otherwise be accomplished. In the realm of collaborative governance, this approach differs from other forms of governance and decision-making processes that seek consensus due to its targeted approach to resolving complex issues and problems within the public sphere (Ansell and Gash, 2008; Emerson and Nabatchi,

2015). This is in response to the limitations and inability of governments to unilaterally address these issues (Agranoff, 2012; Bodin, 2017). Collaborative governance involves joint decision-making activities between public and private agents to increase public value by creating policies and managing resources, services, and public goods. It also aims to balance conflicting interests among the agents involved to achieve the aspirations of all parties and minimize the power asymmetries and influence of coalitions that may arise in the process (Agranoff, 2012; Ansell and Gash, 2008; Bardach, 2001; Emerson et al., 2012; Torfing, 2016).

Today's governments should make use of digital technologies as a strategic component of their efforts to modernise the public sector. The concept of digital government entails using digital technologies as an integrated aspect of government modernisation strategies and activities aimed at creating public value. This approach involves a digital government ecosystem that comprises government actors, non-governmental organisations, businesses, citizen associations, and individuals, which facilitate the production of and access to data, services, and content through interactions with the government (OECD, 2014). Consequently, there has been considerable research on digital technologies in various aspects of digital transformation in the public sector. The term "transformation" is often used to indicate significant changes, modernisation efforts, or innovation based on the integration of digital technologies into government business processes, service delivery models, and culture. This restructuring alters how government performs basic functions and governance (OECD, 2016). Other authors describe digital transformation as a means of rebuilding business models based on customer needs by using new technologies (Berman, 2012; Shi et al., 2022). Transformation can also be viewed as the process of transitioning from traditional government through the initial forms of e-government to digital government (Vlahović and Vračić, 2015).

According to McLoughlin et al. (2013), digital transformation results in digital government, which can sometimes be found as a synonym to e-government (American studies), or as a next evolution phase of e-government. Electronic government or e-government in its most generic form was defined as the use of IT in the public sector to ensure access to and delivery of government information and user-centric services (Silcock, 2001), and/or to transform government and its relationship with various stakeholders (Spirakis et al., 2010). The essence of e-government is embodied in efforts to make service delivery more efficient and accessible to citizens (Meijer and Bekkers, 2015; Meijer et al., 2009). However, the development of new literature focuses specifically on what we define as digital government, which emphasises digital innovations as something more than their digital bits: technologies drive transformations that go deeper into public organisations and their relationships with the public. Vlahović and Vračić (2015) claim that the shift from e-government to digital government requires the introduction of the initiatives needed to make deeper changes in the provision of online services through government portals into a broader government business. Janowski et al. (2018) view this move as a potential of empowering citizens and other stakeholders to con-

tribute to or lead the creation of public value, often recognised as one key feature of digital government transformation.

So, digital transformation should potentially transform citizens to government interactions in two ways: by improving service delivery and by improving relations between citizens and government (Fountain, 2004; Seifert and Petersen, 2002). Governments are progressively utilising the capabilities of digital technologies to foster a network culture that is crucial for digital transformation. In this context, collaborative governance is facilitated by digitalisation, but the digital transformation itself also depends on the collaboration between government actors and private entities. This emphasises the significance of public administrations' ability to collaborate and jointly create outcomes by sharing and pooling resources, both within and across different sectors. This means collaboration serves as a fundamental pillar for digital transformation (Vial, 2019). It is not surprising that governments are increasingly adopting inter-organisational and inter-sectoral collaboration as a crucial approach to effectively carry out the digital transformation (Edelmann, 2019).

However, following the path of digital transformation, governments often forget that in some social groups access to digital technologies and digital skills is limited at the point of digital inequality. The government should re-think policy design and public service delivery to achieve a more inclusive approach, which refers not only to citizens' access to technology but also to digital literacy. Social equity is only possible if institutional barriers to citizen inclusion are removed and opportunities for their participation through digital technologies are equitably distributed (Anderson et al., 2015). For this reason, a strategic, collaborative and all-inclusive approach to digital transformation is needed, and requires a strategy that establishes strategic and practical steps to mobilise state and non-state stakeholders to use digital technologies for a more collaborative, open and innovative government. The use of digital technologies can enable positive changes in the way public administrations conduct their work, communicate, and provide services. It can also have far-reaching impacts such as changing organisational structures and cultures, or engaging and integrating citizens and other partners in the co-design and co-delivery of public policy making (Bretschneider and Mergel, 2011; Sivarajah et al., 2015; Weerakkody et al., 2012).

The existing literature reveals a significant lack of studies that address collaborative governance on digital transformation issues simultaneously. It is mainly focused on the collaborative governance concept in general, while much less effort has been made to examine collaborative governance research on digital transformation issues. Furthermore, the literature review shows a significant lack of bibliometric studies on the topic related to the fusion of these two concepts, thus hindering a comprehensive understanding of collaborative governance on digital transformation issues. The existing paper therefore addresses these issues and contributes to the research of collaborative digital governance.

3 Materials and Methods

In recent years, bibliometric analysis has become an increasingly widespread method for the evaluation of research work (Mukherjee et al., 2022; Radu et al., 2021). In this research, we collected data from the SCOPUS and WoS databases to retrieve the documents for bibliometric analysis. The search strategy was based on the title, abstract, and keyword search. Accordingly, we use the following search queries that were utilised for SCOPUS:

1. CDT: (TITLE-ABS-KEY("e-government" OR "digital*" OR "digital transformation") AND TITLE-ABS-KEY(collaborative AND governance)) AND PUBYEAR > 2001 AND PUBYEAR < 2023 AND (LIMIT-TO (DOCTYPE,"ar") AND (LIMIT-TO (LANGUAGE, "English")),
2. DT: (TITLE-ABS-KEY("e-government" OR "digital*" OR "digital transformation")) AND PUBYEAR > 2001 AND PUBYEAR < 2023 AND (LIMIT-TO (DOCTYPE,"ar")) AND (LIMIT-TO (LANGUAGE, "English")),
3. CG: (TITLE-ABS-KEY(collaborative AND governance)) AND PUBYEAR > 2001 AND PUBYEAR < 2023 AND (LIMIT-TO (DOCTYPE,"ar") AND (LIMIT-TO (LANGUAGE, "English")),

and for WoS:

1. CDT: TS=("e-government" OR "digital*" OR "digital transformation") AND TS=(collaborative) AND TS=(governance) AND LA=(English) AND PY=(2001-2023) AND DT=(Article)
2. DT: TS=("e-government" OR "digital*" OR "digital transformation") AND LA=(English) AND PY=(2001-2023) AND DT=(Article)
3. CG: TS=(collaborative) AND TS=(governance) AND LA=(English) AND PY=(2001-2023) AND DT=(Article).

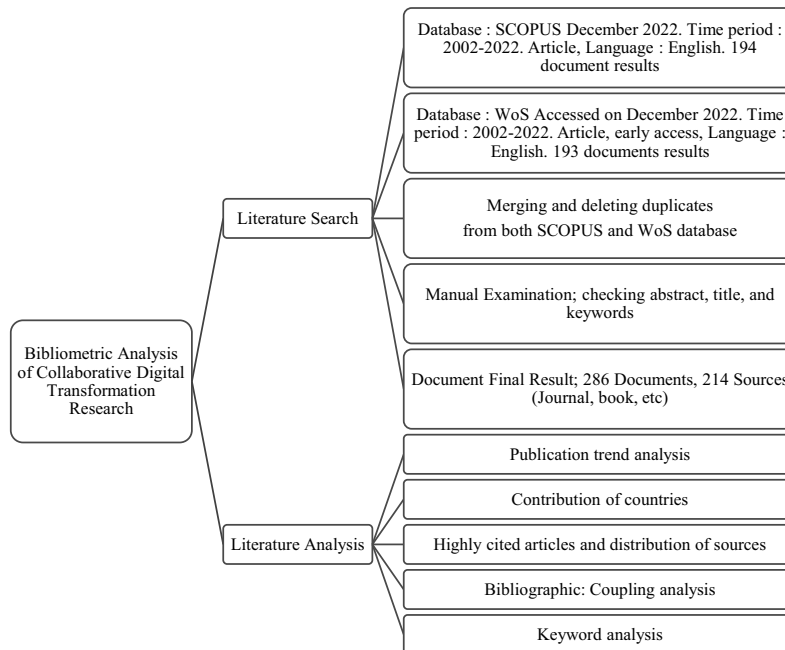
By using this queries it was ensured that all relevant and corresponding documents were captured in the search query. For the analysis, we filtered the results to articles only, whereas other forms of publication, such as book chapters, conference proceedings, and white papers, were excluded. Additionally, the search was limited to English, since it is among the most widely used languages in publications worldwide. The selected articles that were retrieved and analysed were restricted to the period 2002–2022. Finally, because of large number of the results and the limitations of the download process, we limited the selected results to the top 2,000 most cited documents from each database.

Table 1: The number of search results in SCOPUS and WoS queries focusing on digital transformation, collaborative governance, and collaborative digital transformation.

	WoS	SCOPUS
DT	392,492*	591,966*
CG	5,003*	4,410*
CDT	193	194
* Only 2000 top cited documents used		

Based on the search query, we obtained a broad set of documents from the SCOPUS and WoS databases that are associated with collaborative governance, digital transformation, and collaborative governance in digital transformation research (Table 1). First, we merged the SCOPUS and WoS databases and deleted duplicate documents matching in title. For collaborative digital transformation research, which was the focus of our research, the relevance of the results was tested by manually reviewing the documents retrieved in two consecutive steps (Figure 1). For collaborative digital transformation research, 286 documents were identified as relevant (Figure 1). Although 5 of these articles focused on the literature review of different topics (3 include a keyword review and only 2 more articles indicate a literature review as a primary research method), we included them in the analyses.

Figure 1: The flow of the bibliometric research process for collaborative digital transformation research.



In the next step, aiming at data analysis and visualisation, we used Biblioshiny, which is the Bibliometrix R package that allows coding-less bibliometric analysis without coding and enables visualisation (Aria & Cuccurullo, 2017). This tool can use data such as journal names, article titles, author and journal keywords, authors' data, their home countries, research organisations, etc., and allows analysis based on citation, co-authorship, co-occurrence, co-citation, bibliographic coupling links, etc. When practicing with Biblioshiny, it is important to understand the terminology provided by this software (Moral-Munoz et al., 2020; Ravšelj et al., 2022). The maps built, visualised, and analysed using this analytical and visualisation tool consist of different elements. Among them, we focused on the results that prove the relationship of items, such as: co-author links for researchers, and co-occurrence links for terms and ideas.

4 Results

4.1 Publication Trends

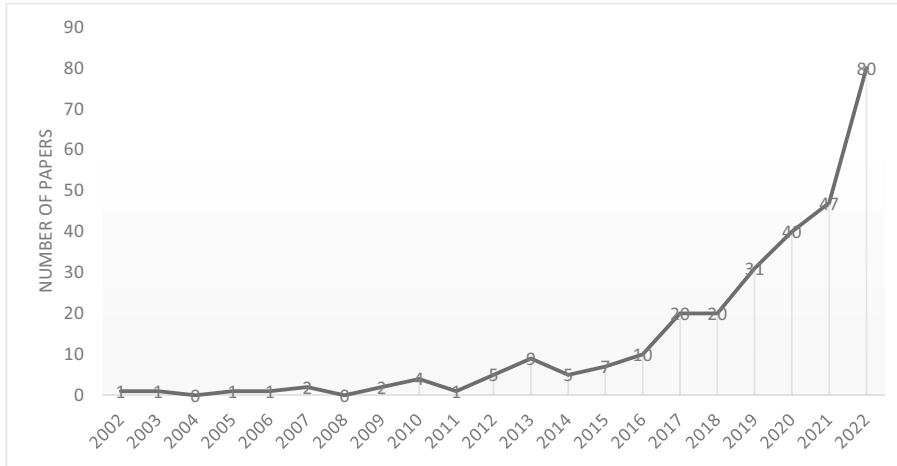
To begin with, a descriptive overview of the bibliometric analysis was conducted. We explored the characteristics of the scientific literature on collaborative governance and digital transformation, linking it to collaborative digital transformation (CDT) research. Table 2 presents an overview of the characteristics of the most cited scientific literature on collaborative governance (CG), digital transformation (DT), and collaborative digital transformation (CDT) research between 2002 and 2022, taken from the SCOPUS and WoS databases. Research on CDT has developed quite significantly. There are 286 documents written by 835 authors and 66 individual authors, and published in 214 sources, with an average citation per document of 17.05.

The search results on the topic of collaborative governance and digital transformation provide a comprehensive initial picture. As mentioned above, for the CG and DT result set the number of search query results was too large to analyse (Table 1), so we had to limit it to 2000 articles, selecting the highest citation order, since these documents make a major contribution to the queried research field. The number of citation rates per document is 33.76 for CG and 612.3 for DT. The huge difference is caused by a large standard deviation, since the most cited paper in the CG group has 2,924 citations, while in the DT group this number is 30,891. If we juxtapose the development of these two concepts with the topic of CDT, the analysis shows that CDT has established itself as a new area of scientific inquiry and has since been a fast-growing area (Figure 2).

Table 2: Overview of the comparative characteristics of the top 2000 most cited scientific literature on Collaborative Digital Transformation (CDT), Collaborative Governance (CG), and Digital Transformation (DT) research (2002-2022) in the SCOPUS and WoS databases.

Bibliometric Items	Collaborative Digital Transformation Research (CDT)	Collaborative Governance (CG)	Digital Transformation (DT)
Database	SCOPUS and WoS	SCOPUS and WoS (2000 top cited were from each source)	SCOPUS and WoS (2000 top cited were from each source)
Timespan	2002-2022	2002-2022	2002-2022
Sources	214	1219	905
Documents (without duplicates)	286	3,102	2,809
Document Average Age	3.96	8.68	13.1
Average citations per doc	17.05	33.76	612.3
References	16,161	146,420	142,035
Single-authored documents	66	769	177
Authors	835	8,166	26,613
Author's Keywords (DE)	1,129	7,038	6,512
Co-authors per document	3.33	3.26	14.6

Figure 2: Annual number of papers – results of the collaborative digital transformation query



4.2 Distribution of journals and highly cited articles

Tables 2, 3 and 4 list the data of the 10 most relevant documents by the number of citations in the CG, DT, and CDT area of research. The most cited article for DT (Table 5) is the article written by Wang et al. (2004) entitled 'Image quality assessment: from error visibility to structural similarity,' published by IEEE Transactions on Image Processing, with a total of 30,891 citations, or an average of 1,544 per year. In the article, a different approach to quality assessment that relies on the deterioration of structural information is examined. The authors introduce a structural similarity index and provide several examples to demonstrate its potential. They also compare the index to subjective ratings and other objective methods using an image database. The article is among the top ten articles that highlighted the diverse areas that have been impacted by DT in recent times.

The variety of journals is much lower among the top ten cited articles in the CG domain, covering themes of public administration, environment, and ecology. The most cited article in the CG domain (Table 4) is an article by Ansell and Gash (2008), entitled 'Collaborative Governance in Theory and Practice', published by the Journal of Public Administration Research and Theory. It has been cited 2,864 times, with an annual average of 190.93. It discussed how collaboration brings public and private stakeholders together in collective forums with public agencies to engage in consensus-oriented decision making. They found that a virtuous cycle of collaboration tends to develop when collaborative forums focus on small victories that deepen trust, commitment, and shared understanding. This article is the main reference for scholars in various scientific fields to understand collaborative governance.

Table 3: Top 10 most relevant documents by number of citations in Collaborative Digital Transformation (CDT) (2002–2022).

Authors	Document Title	Sources	DOI	Total Citations	TC per Year
(Meijer et al., 2015)	Governing the Smart City: A Review of the literature on smart urban governance	International Review of Administrative Sciences, Volume 82, Issue 2.	10.1177/0020852314564308	728	91.00
(Fung, 2015)	Putting the Public Back into Governance: The Challenges of Citizen Participation and Its Future	Public Administration Review, 75: 513-522	https://doi.org/10.1111/puar.12361	386	42.89
(Harrison et al., 2012)	Open government and e-government: Democratic challenges from a public value perspective	Information Polity, vol. 17, no. 2, pp. 83-97, 2012	10.3233/IP-2012-0269	227	18.92
(Özdemir & Hekim, 2018)	Birth of Industry 5.0: Making sense of Big Data with Artificial Intelligence, "The Internet of Things" and Next-Generation Technology Policy	Omics: a Journal of Integrative Biology 22(1)	10.1089/omi.2017.0194	185	30.83
(Meijer, 2015)	E-Governance innovation: Barriers and strategies	Government Information Quarterly Volume 32, Issue 2, April 2015, Pages 198-206	10.1016/j.giq.2015.01.001	123	13.67
(Alreshidi et al., 2017)	Factors for effective BIM governance	Journal of Building Engineering Volume 10, March 2017, Pages 89-101	10.1016/j.jobbe.2017.02.006	103	14.71
(Ismail & Materwala, 2019)	A Review of Blockchain Architecture and Consensus Protocols: Use Cases, Challenges, and Solutions	Symmetry 2019, 11(10), 1198	10.3390/sym11101198	95	19.00
(Fung et al., 2013)	Six Models for the Internet + Politics	International Studies Review, Volume 15, Issue 1, March 2013, Pages 30–47	10.1111/misr.12028	81	8.10
(Nam & Pardo, 2014)	The changing face of a city government: A case study of Philly311	Government Information Quarterly, Volume 31, Supplement 1, June 2014, Pages S1-S9	10.1016/j.giq.2014.01.002	77	7.70
(Klievink et al., 2016)	The collaborative realization of public values and business goals: Governance and infrastructure of public-private information platforms	Government Information Quarterly Volume 33, Issue 1, January 2016, Pages 67-79	10.1016/j.giq.2015.12.002	71	8.88

The most cited publications on the CDT topic is the article ‘Governing the smart city: a review of the literature on smart urban governance’, by Meijer et al. (2015) with a total of 707 citations and an average annual citation of 101 This article provides a framework on how various smart city governance processes should craft new forms of human collaboration through the use of digital technologies to obtain better results and more open governance processes.

Table 4: A comprehensive overview of the 10 most relevant documents by number of citations in collaborative governance research (2002-2022).

Authors	Document Title	Sources	DOI	Total Citations	TC per Year
(Ansell & Gash, 2008)	Collaborative Governance in Theory and Practice	Journal of Public Administration Research and Theory, Volume 18, Issue 4, October 2008, Pages 543–571	10.1093/jopart/mum032	2864	190.93
(Emerson et al., 2012)	An Integrative Framework for Collaborative Governance	Journal of Public Administration Research and Theory, Volume 22, Issue 1, January 2012, pages 1–29	10.1093/jopart/mur011	1278	116.18
(Olsson et al., 2004)	Adaptive Co-management for Building Resilience in Social–Ecological Systems	Environmental Management volume 34, pages 75–90 (2004)	10.1007/s00267-003-0101-7	1234	64.95
(Berkes & Ross, 2013)	Community Resilience: Toward an Integrated Approach	Society & Natural Resources An International Journal Volume 26, 2013 - Issue 1	10.1080/08941920.2012.736605	827	82.70
(Pahl-Wostl et al., 2007)	Social Learning and Water Resources Management	Ecology and Society 12(2): 5.	10.5751/ES-02037-120205	728	45.50

*Collaborative Governance in the Digital Transformation Age:
A Systematic Literature Review with Bibliometric Mapping*

Authors	Document Title	Sources	DOI	Total Citations	TC per Year
(Zollo et al., 2002)	Interorganizational Routines and Performance in Strategic Alliances	Organization Science, Jg. 13 (6), S. 701-713	10.1287/orsc.13.6.701.503	725	34.52
(Meijer et al., 2015)	Governing the Smart City: A Review of the literature on smart urban governance	International Review of Administrative Sciences, Volume 82, Issue 2.	10.1177/0020852314564308	707	101.00
(Armitage et al., 2008)	Adaptive co-management and the paradox of learning	Global Environmental Change Volume 18, Issue 1, February 2008, Pages 86-98	10.1016/j.gloenvcha.2007.07.002	693	46.20
(Sundaramurthy & Lewis, 2003)	Control and Collaboration: Paradoxes of Governance	Academy of Management Review Vol. 28, No. 3	10.5465/AMR.2003.10196737	679	33.95
(Newig & Fritsch, 2009)	Environmental Governance: Participatory, Multilevel, and effective?	Environmental Policy and Governance Volume 19, Issue 3	10.1002/eet.509	626	44.71

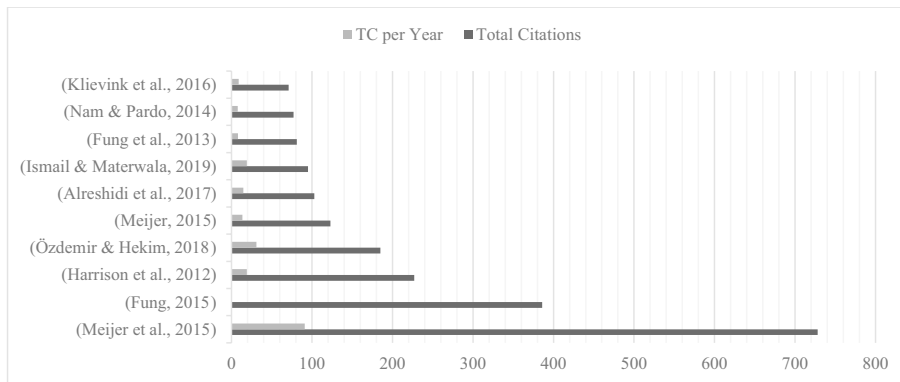
Table 5: A comprehensive overview of the 10 most relevant documents by number of citations in Digital Transformation Research (2002–2022).

Authors	Document Title	Sources	DOI	Total Citations	TC per Year
(Zhou Wang et al., 2004)	Image quality assessment: from error visibility to structural similarity	IEEE Transactions on Image Processing, Volume: 13 Issue: 4	10.1109/TIP.2003.819861	30891	1,544,55
(Robinson et al., 2010)	edgeR: a Bioconductor package for differential expression analysis of digital gene expression data	Bioinformatics, Volume 26, Issue 1, January 2010, Pages 139–140	10.1093/bioinformatics/btp616	20172	1,440,86
(Donoho, 2006)	Compressed sensing	IEEE Transactions on Information Theory, Volume: 52 Issue: 4	10.1109/IT.2006.871582	17685	982,50
(Akyildiz et al., 2002a)	A survey on sensor networks	IEEE Communications Magazine, Volume: 40 Issue: 8	10.1109/MCOM.2002.1024422	11128	505,82
(Mortazavi et al., 2008)	Mapping and quantifying mammalian transcriptomes by RNA-Seq	Nature Methods volume 5, pages621–628	10.1038/nmeth.1226	9451	590,69
(Akyildiz et al., 2002b)	Wireless sensor networks: a survey	Computer Networks Volume 38, Issue 4, 15 March 2002, Pages 393-422	10.1016/S1389-1286(01)00302-4	9250	420,45
(Gubbi et al., 2013)	Internet of Things (IoT): A vision, architectural elements, and future directions.	Future Generation Computer Systems Volume 29, Issue 7, September 2013, Pages 1645–1660	10.1016/j.future.2013.01.010	7805	709,55
(Bruzual & Charlot, 2003)	Stellar population synthesis at the resolution of 2003	Monthly Notices of the Royal Astronomical Society, Volume 344, Issue 4, October 2003, Pages 1000–1028	10.1046/j.1365-8711.2003.06897.x	7433	353,95
(Kottek et al., 2006)	World Map of the Köppen-Geiger climate classification updated	Meteorologische Zeitschrift Vol. 15 No. 3 (2006), p. 259 - 263	10.1127/0941-2948/2006/0130	6795	377,50
(Komatsu et al., 2011)	Seven-Year Wilkinson Microwave Anisotropy Probe (WMAP) Observations: Cosmological Interpretation	The Astrophysical Journal Supplement Series, Volume 192, Number 2	10.1088/0067-0049/192/2/18	6386	491,23

Rio Yusri Maulana, Mitja Dečman

The tables above provide a comprehensive overview of the top ten research publications on the three topics. Interestingly, most of the CDT research focuses on developing the concept of modern governance using digital technology, institutional capacity, open innovation research, and citizen participation in public governance (Harrison et al., 2012; Meijer et al., 2015). In a comparison of the citation numbers with the number of documents published on these three topics, we see that the intersection or link between the concepts of collaborative governance and digital transformation is very clearly illustrated in the top CDT article. Meijer's (2015) article (Figure 3) successfully merged the aspect of collaboration with the use of digital government in the smart city concept and, according to the number of citations, caused wide interest within the reader community.

Figure 3: Most cited documents on collaborative governance in collaborative digital transformation.



4.3 Countries with the highest scientific production based on the corresponding authors.

Based on metadata obtained from the SCOPUS and WoS databases, Figure 4 shows the 10 universities with the most articles published in CDT research between 2002 and 2022, based on the corresponding authors. KU Leuven, Belgium, has the most documents, producing 8 papers, followed by Delft University of Technology, The Netherlands, with 7 papers. The following are The University of Manchester, UK with 6 papers, Santa Catarina State University, Brazil with 5 papers, and The University of Nebraska, U.S. with 5 papers, and Utrecht University, Netherlands with 5 papers. The European countries dominate the chart.

Figure 4: Top 10 countries with the highest scientific production for collaborative digital transformation

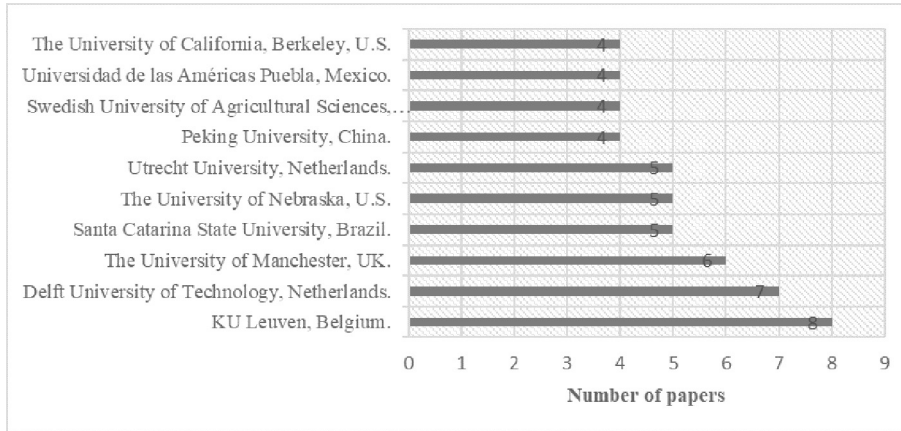
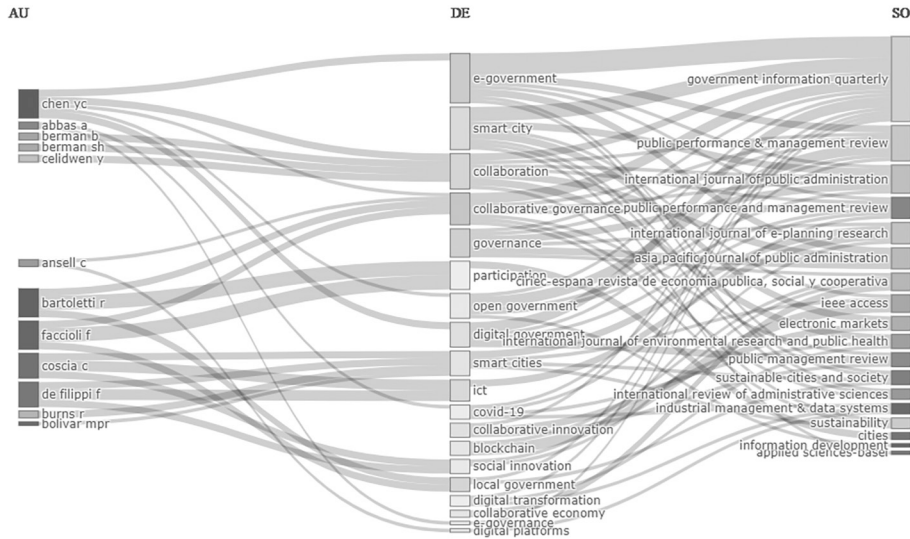


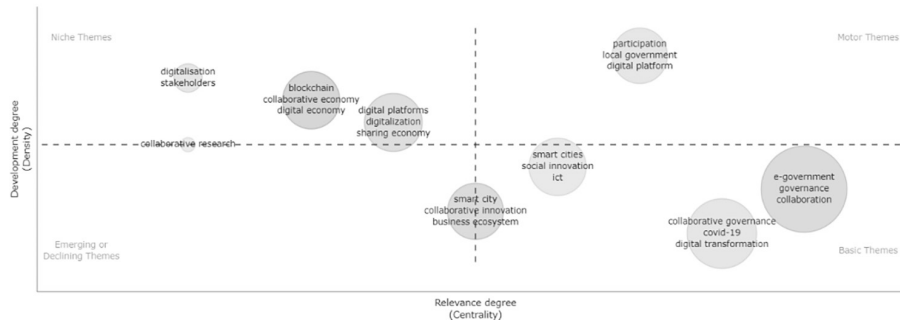
Figure 5 represents a three-field plot that explains the relationship between the authors (left column), keywords (middle column), and sources/journal (right column). The elements are also shown in rectangles of different colours and sizes. According to Janik and Ryszko (2018), the size depends on the value of the total relationship that appears between the rectangular elements. Therefore, if a component has many relations, the rectangle will be taller. Furthermore, the figure also shows in which sources CDT research authors most frequently publish, which authors, and which keywords are most frequently used. Based on Figure 5, it can be seen that the relationship between the author, the keywords, and the sources has a unique correlation. Various sources (i.e. government information quarterly, public performance and management review, international journal of public administration) are linked to various keywords of CDT topics (i.e. e-government, smart city, collaboration, collaborative governance) that are further linked to authors who used them as author keywords. For example, Chen is the author who covers wider CDT issues with the spread of the keywords used and published in journals that have a major influence on CDT issues.

Figure 5: Three-Field Plot: Relationship between main authors (left), keywords (middle) and sources (right) for collaborative digital transformation research.



To analyse the main topics emphasised in CDT research, a strategic diagram (Figure 6) is used. The diagram groups highly relevant author keywords into clusters that represent the main themes, with the size of each cluster indicating the proportionality to the number of associated documents. Using Callon’s centrality and density method, the core themes are divided into four quadrants that represent different types of themes. The clusters highlight the themes of the research, while the size of each cluster indicates their significance based on the number of keywords. The upper-right quadrant contains themes with high centrality and density, indicating well-developed internal and external ties, and these themes are considered motor themes. The upper-left quadrant contains themes with low centrality but high density, indicating strong internal but weak external ties, and these themes are considered highly developed and isolated. The third quadrant contains themes with low centrality and low density, indicating weak internal and external ties, and these themes are considered emerging or declining. Finally, the lower-right quadrant contains themes with high centrality but low density, indicating weak internal but strong external ties, and these themes are considered basic and transversal themes (Horvatinović & Matošec, 2022; Ravšelj et al., 2022; Wang et al., 2020).

Figure 6. Thematic map of collaborative digital transformation.



The results show that the focus of CDT research between 2002 and 2022 has varied. There are three drivers of niche themes related to CDT research: blockchain (including collaborative economy and digital economy), digital platforms (including digitalisation and sharing economy), and digitalisation (linked to the stakeholders perspective); these keywords appear more influential within the digital transformation research. Keywords participation (related to local government and digital platforms) appear as motor themes, which means that these keywords are well covered and important for the structure of the CDT research field.

Meanwhile, in the emerging and declining themes, the keywords smart city, collaborative innovation, and business ecosystem are in a position that intersects with the basic themes. For keywords that appear in basic themes, there is one major grouping on collaborative governance topics covering keywords smart cities (including social innovation and ICT), e-government (including governance and collaboration) and collaborative governance (including covid 19, and digital transformation). These keywords are in line with the development of the number of citations that emphasise relevant studies in CDT.

5 Discussion and Conclusions

The bibliometric analysis presented above reveals that CDT has begun to receive attention from scholars amid the development of the concepts of DT and CG which have gained a place in the field of public administration research in the last two decades. The results of the DT topic showed it as a broad and influential concept in the current times of the digital revolution. Titles, keywords, and journals of the analysed DT documents indicate a wide variety of research areas and therefore encourage many fields of science to develop their interest following technological advances, including public administration, which is “transforming from bureaucratic analogue public services to citizen-oriented digital services, incorporating dimensions of collaboration through CG” (Ansell & Gash, 2018). DT is identified as a universal and revolutionary concept that emphasizes contemporary technologies as drivers of innovative, sustainable, and competitive public administration, including new public governance, as indicated by the vast amount of DT query results

and high-citation indicators. On the other hand, the CG documents analysed bring together public actors and private stakeholders in a joint effort to solve complex social problems in a volatile world and to create governance solutions and outcomes that have high public value (Ciesielska & Janowski, 2019; Vial, 2019). In line with the development of digital transformation and collaborative governance trends in the literature, the intersection with technological disruption and government practices is unavoidable. The presented bibliometric study advances knowledge of the concept of collaborative digital transformation (CDT) by emphasizing the research areas of collaborative governance and digital transformation, stressing that these two concepts are frequently discussed in the literature (see Table 6) but have never been thoroughly explored from the viewpoint of the potential fusion between them.

Since the CDT concept only grew recently, the scientific literature on CDT has been very limited, although the topic of CG and DT developed rapidly in the same period. However, the interception of the two shows great potential in the fast-developing digital society, where global wicked problems demand further development of this study in the future. Furthermore, CDT is the subject of constant change and rapid evolution, also influenced by developments in other studies in public administration like the paradigm of the new public governance. Its emphasis is on a modern approach to public governance driven by multi-stakeholder participation to jointly produce an “all-win” collective policy, exploiting the potential of emerging technologies to ensure public administration is successfully transformed. Therefore we suggest 5 core dimensions of CDT presented in Table 7.

Table 6: The links between CG and DT in the 4 most cited CDT literature.

No	Authors	Relation between CG and DT
1	(Meijer et al., 2015)	The authors focused on the concepts of smart city governance, crafting new forms of human collaboration through the use of ICTs to obtain better outcomes and more open governance processes. Good administration and good policies may result in strong interactions at the urban level, whereas a focus on smart collaboration may result in more attention to issues of collaboration than actually making things work. The most transformative level of conceptualisation stresses that smart governance is about smart urban collaboration between the various actors in the city. We qualify this conceptualisation at the highest level of transformation, since it is not only about the transformation of the internal organisation but also of the external organisation.
2	(Fung, 2015)	The author focused on participatory governance, where increasing citizen participation is sometimes seen as a way to increase the effectiveness of regulation and improve the provision of public goods and services. Author expects that the demand from citizens for greater engagement with the institutions that affect them and a shift towards digital technologies that can make information more accessible, would increase the development of the avenues for collaboration.
3	(Harrison et al., 2012)	The authors discuss transparency, participation, and collaboration as democratic practices in administrative agencies through open government (OG) within the context of e-government and its broader implications for the future of public administration. The authors conclude that open government reconciles the divergent paths of e-democracy and e-government. While transparency, participation, and collaboration may initially take more time and resources, they bear the promise of ultimately improving policy performance by creating shared understandings of current performance and generating pressure to improve, increasing the pool of applicable ideas, tapping into new sources of expertise, and building civic capacity. All these may ultimately turn out to be the key to concrete improvements in policy outcomes and the quality of public services.
4	(Meijer, 2015)	The author presents a theoretical framework of the different barriers to e-governance innovation and presents strategies. 'Fixing' and 'framing' are presented as the main strategies for realizing e-governance innovation research and later developed a theoretical model of e-governance innovation. The research discussed the system to engage citizens in the coproduction of safety in The Netherlands, Citizens Net, using a database with geographical and personal information about citizens and a system for sending voice and text mail messages based on geographical characteristics. The system can be characterised as an interesting form of e-governance since new technologies are being used both within the organisation and in contacts with citizens to strengthen collaboration between government and citizens and produce public value, in this case the production of safety.

Table 7: Main dimensions of CDT.

Dimension	Description	Guidelines
Collaborative mindset	Ali included stakeholders, especially stakeholders from the public sector should shift their mindset and organisational culture towards collaboration for better public policies and services.	Sharing ideas, knowledge, and expertise freely is an integral part of the collaboration process. The process must include employees, customers, suppliers, and partners.
Cross-functional teams by default	Collaboration teams should include various organisations and stakeholders from different backgrounds and departments.	Working together to identify digital opportunities, incorporate new technologies, and implement transformative initiatives.
Digital tools and platforms	Various advanced digital tools and platforms that facilitate communication, information sharing, and collaborative work should be incorporated, with a focus on security and data protection.	Tools like project management software, collaboration tools, cloud-based platforms, big data, AI and social networks should be used to maximise the benefits of collaborative digital transformation.
Agile methods	Due to the constant changes in the world, fast development and advances in technology and wicked problems, agile methods should be used to enable constant and dynamic collaborative digital transformation.	Use agile methodologies with the support of digital tools for iterative collaborative development using quick feedback loops and continuous improvements to adapt to changing requirements during the transformation process.
Continuous learning and adaptation	Collaborative digital transformation is an ongoing process, and the public sector needs to continuously learn, adapt, and refine its policies and services.	Continually gather information, evaluate outcomes, and make informed decisions for future transformations.

In this paper, this picture of CDT research development is based on articles published in the Scopus and WoS databases between 2002 and 2022. It offers an understanding of the CDT research area in the concepts of DT and CG, which is still seeking its own identity in the academic literature. Referring to our findings, the article by (Meijer et al., 2015) is an example of a meeting point between DT and CG, with the smart city concept, an emphasis on collaboration, and the application of digital technologies in various aspects, including decision-making processes, coordination, electronic administration, and policy outcomes. In the changing and developing literature, the CDT concept continues to seek the best formula and the most ideal form. In view of its initial conception, and to support the definition we propose the 5 dimensions of CDT, namely: collaborative mindset, cross-functional teams by default, dig-

ital tools and platforms, agile methods, continuous learning and adaptation (Table 7). , We conclude that CDT could therefore be interpreted as *a joint effort between authorities at different levels of government, private organisations and civil society to drive change and innovation in public policies and services based on collective decision-making through the use of digital technologies*. CDT involves leveraging digital tools and technologies to streamline processes, improve efficiency, and enhance overall business performance, while fostering collaboration and knowledge sharing across all stakeholders that can benefit to the process.

Our research provides bibliometric support for CDT research to emerge as a new approach in the public administration field. This study helps to understand the development of collaborative digital transformation research in the last two decades, as CDT research is a relatively new field characterised by rapid growth and evolution. Since CDT focusses not only on the implementation of digital technologies but mainly on fostering a culture of collaboration and empowerment of teams to work together toward shared objectives, combining the power of digital tools with effective collaboration, it will enable organisations to drive meaningful change and achieve successful digital transformations.

Nevertheless, we encourage future studies to further examine this emerging approach on CDT. For instance, it would be valuable to investigate and compare the factors that contribute to the success of CDT in particular contexts. This could involve studying more literature in countries with similar administrative traditions. By conducting these studies, we can enhance our understanding on the CDT. This knowledge will be instrumental in guiding scholars, governments, and organisations as they navigate the complexities of the digital era.

6 Limitations

There are some limitations to the current research that should be acknowledged. Firstly, the bibliometric analysis is limited to CG, DT, and CDT related documents indexed in the Scopus and WoS databases. Although these are highly regarded peer-reviewed literature databases, they may not encompass all of the research available. Furthermore, since the topic itself pertains to national governments as well as non-governmental stakeholders influenced by national political systems, many ideas and changes are communicated and explored in domestic or native languages. Therefore, these resources might contain information that may provide either different or additional insight in this research topic. Another limitation is that only titles, abstracts, and keywords in English were included in this study, which could introduce publication bias. However, it could also be argued that English is widely used for publishing research globally, suggesting that all significant scientific contributions should be detectable in databases such as the one used. Despite the aforementioned shortcomings, the results could be beneficial not only for the scientific community, but also for evidence-based policymaking to com-

prehensively address CDT-related issues. Moreover, the findings could be an essential resource for identifying related research gaps in the field of CDT in the future.

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Local Leadership During the Territorial Amalgamation Process – The Case of Latvia

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ABSTRACT

Purpose: The article aims to present evidence of the role of the mayors in the territorial amalgamation process, focusing on their relationship with voters and other stakeholders and on the transformation processes experienced by local governments. Given their status as the highest-ranking officials enjoying voters' and deputies' support, mayors play an essential role in either implementing or, on the contrary, impeding local government reforms. As they have the power, knowledge, and expertise to influence the implementation of local government reforms, it becomes essential to evaluate their role.

Design: The article examines the role of mayors in local government reforms, particularly in the context of the recent territorial amalgamation reforms in Latvia. Through a literature review and analysis of results from the recent amalgamation, the article explores the complex relationships that mayors have with other stakeholders and the transformation processes within their respective local governments.

Findings: The study highlights the importance of mayors in providing effective leadership during reform initiatives and the potential implications for their reputation and electoral outcomes. The results show that mayors primarily use media, public consultations, public letters, and even the possibility of resignation to influence the territorial amalgamation process.

Academic contribution to the field: While there has been research on territorial amalgamation, the role of the mayor is often overlooked, especially in a top-down initiated process where, despite its features, the mayor still possesses the tools to shape the course of the territorial amalgamation process. The article presents the reform experience in Latvia as a small state.

Value: This research provides valuable insights into the role of mayors in the territorial amalgamation process in Latvia and its implications for

Stučka, M. (2023). Local Leadership During the Territorial Amalgamation Process – The Case of Latvia. *Central European Public Administration Review*, 21(1), pp. 61–84

61

local government reform. The findings contribute to the existing literature by comprehensively analysing the mayor's influence on the reform agenda and implementation strategies.

Keywords: local government, territorial amalgamation, local leadership, Latvia

JEL: H83, R58

1 Introduction

Local public authorities have traditionally been a platform where reforms have been experimented with and with varying impacts on the overall institutional framework. There has been the third wave of amalgamation reforms as several countries have recently initiated territorial amalgamation reforms (Swianiewicz et al., 2017). Mayors have played an essential role in implementing or, on the contrary, non-implementing these reforms as the highest-ranking officials in local governments. They have the ability to influence the implementation of local government reform through their power, knowledge and expertise. They have the capacity to shape the reform agenda, create a space for dialogue among stakeholders and make decisions with a long-term orientation. Furthermore, mayors are in a privileged position to negotiate and collaborate with other stakeholders, such as the national government, local and regional politicians, entrepreneurs and civil society.

Additionally, their strategies and approaches are likely to affect the efficiency and effectiveness of the reform process significantly (Kübler et al., 2020). At the same time, their reputation may be rapidly diminished as they are closer to the electorate, and voters can affect election results in Latvia. This article presents evidence of the link between the role of the Latvian mayor during territorial reform process and their relationship with the local governments they lead, other stakeholders involved and the transformation processes to which these local governments are subject. The research question is as follows: what kind of role does the mayor have in the territorial amalgamation process in Latvia?

The discussions on the need for administrative-territorial reform started immediately after the independence of Latvia. In 2009, the first territorial amalgamation aimed to create economically viable local governments that would provide qualitative services to their citizens. Recently, in 2021, there was the second territorial amalgamation. Its main aim was to improve national and local government's economic growth and competitiveness. In addition, the aims also included rationalisation of budgetary resources, the improvement of the capacity and autonomy of local government, an attractive environment for investment and job creation and the reduction of emigration (VARAM, 2021).

This article firstly represents a literature review of theories that explains and describes the mayor's role in the local government reform process and the stakeholders involved, along with the context of Latvian local government

reforms and the system. Secondly, there is an analysis of Latvia's latest local government reform process, including mayors' and stakeholders' roles. Thirdly, based on studies, the positions that mayors take concerning territorial reform processes are identified in Latvia.

2 Literature review

A review of mayors' positions on local government reform is closely linked to the academic debate on the division of roles and functions between mayors (as local political leaders) and local government managers and civil servants and the relationship between them (Alba and Navarro, 2006). However, in this article, the relationship in the administration of the local government is not analyzed, but the role the mayor takes while the administrative territorial reforms take place.

It is essential to look at the interaction between mayors and involved stakeholders, their role in local governance during reform processes, and how they interact not only with each other but also at the national level. As Swianiewicz et al. (2022) states, many aspects of territorial reforms may trigger conflicts and disagreement, and strong disagreement/resistance may be even harsher in countries with failed reform attempts. Thus there is many stakeholders involved, for example, at the reform-deciding level of government (ministries, the government and the parliament), at the local level, and at different levels of public institutions and other relevant stakeholders (Swianiewicz et al., 2022). The lines of conflicts may be not just, for instance, between different political parties at the same level of government, but also within the same political party at the national/regional level and local level. In addition, conflicts between stakeholders with positional interests other than political-ideological interests are evoked. However, there have been territorial amalgamation reform in 2009. The administrative-territorial reform shifted from two-tier to one-tier local government: 26 district councils were abolished, towns, their rural areas and local governments were merged into districts, and nine large cities were granted the status of republican towns. In addition, it was decided to rename all rural areas of cities as local governments to restore their historical names or to add them to existing ones. The county's merged administrative territories (towns and parishes) acquired the status of a county territorial unit and kept their names.

The Ministry of Environmental Protection and Regional Development (further in the text – MEPRD), which monitors local governments, did a review of the reform mentioned above, and they concluded that the local government system in many areas was not meeting the criteria for the establishment of local governments established by law. This issue was further compounded by the lack of strong development centers, which has hindered the ability to implement a balanced regional development policy. Moreover, the local government system was heterogeneous in terms of population, making it challenging to decentralize functions. This created a situation where transferring certain functions to local governments was complex. Furthermore,

many small local governments were made, and they could not independently carry out their autonomous functions due to a lack of sufficient tax revenue base and financial resources. As a result, it was difficult for these local governments to carry out rational and efficient administration (MEPRD, 2013). And after this report, there were many discussions going on. As Swianiewicz et al. (2022) describes, there was political-ideological conflict, center-periphery, central-local government and large versus small entities conflicts. There is also a part for the mayor and his party in the Council in all these conflict types.

Several comparative studies on local administrative reforms have highlighted many key areas where changes tend to converge – internal organizations, relations with external stakeholders, and distribution of competencies (Bouckaert and Kuhlmann, 2016). Among the most important of these are internal changes in the local government and the governance of local governments. Although initially (in the 1990s), many governance changes were inspired by the New Public Management (hereinafter – NPM) model, their actual impact on local government in continental Europe was limited. In any case, they did not lead to radical transformations (Kuhlmann and Wollmann, 2014). New ways of working and new management practices have been introduced, resulting in a reorganization of structures, processes, human resources, and budget management (Bouckaert and Kuhlmann, 2016). The NPM model reflects the private sector's ideas – how to improve the efficiency and quality of organizations in delivering public services. Thus, if we also look at efforts to improve local governance, the NPM model elements appear in the rationale for reform. Thus, whether these changes will make the local government more responsive to community needs is important. And NPM also stresses the importance of politicians. For example, in local government cases, the mayor as the manager is the one who invests in the prevention of problems, are result oriented and empowers the citizens to participate in the decision-making process and helps to happen or initiate innovations (Hansen, 2011). The Ministry of Environmental Protection and Regional Development report on the need to complete the administrative-territorial reform states that it is necessary to implement it in order to provide better quality and more cost-effective services to the population, to be able to further decentralize public administration by transferring certain public administration functions to local governments and to increase the responsibility of local governments for managing their territory (VARAM, 2019). Thus, also in the case of Latvia, it can be observed that the justification of the need for amalgamation reforms in 2009 and 2021 contained elements from the NPM.

Moreover, another area where changes during local government reform may converge is the distribution of competencies and functions between government levels and institutions. In addition, the essential factor is local power and consensus-building dynamics, which includes stakeholders, party competition and vote or office-seeking aspect, the influence of the media and the use/instrumentalisation of democratic participation tools. Each can function as a game changer concerning reform outcomes. Also, it is essential to look at the administrative system and culture, the initial status of the local gov-

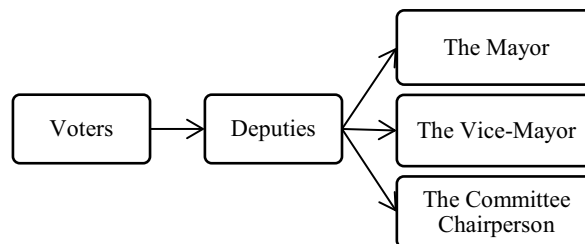
ernment before the reform and reforms in the past, reform implementation strategy, political incentives and political steering of the reform process, the existing resources and performance level in the future (Ebinger et al., 2019).

Swianiewicz (2014) describes local governments of Latvia as relatively decentralized as they have a broad scope of functions. Their possibility to affect the tax rate is low (the local government can only change the real estate tax rate, but there is no local government tax). Still, financial decentralization (power to control taxes) is shared with the central government. According to the IDEA typology, local government deputies are elected based on a proportional representation list system. Citizens vote for a political party or an association of two or more political parties. Voters have the possibility to cross out or put a “+” for candidates, expressing their opinion on each candidate and thus changing their order in the list. Each local government is a separate constituency, regardless of its size. A threshold of five per cent is set for both local and national elections, which means that lists receiving less than five per cent of the total vote in local government elections are excluded from the allocation of seats. The Sainte Laguë method is used to allocate local council seats between lists (Saeima, 1994).

There is collective leadership, as the local council deputies (Figure 1) vote for the candidate for the mayor’s position.

Based on the mayor’s influence, Mouritzen and Svava (2002) have identified four municipal models: 1) The Council-manager form; 2) The Collective form; 3) The Committee-leader form; 4) The Strong-mayor form. According to them, there is the committee-leader type in Latvian municipalities (Figure 1). The mayor does not hold the most powerful position due to not being directly elected. However, there is a need to stress out that this typology examines the distribution of roles and functions among the mayor, deputies, commissions, and the local government’s administration within the framework of horizontal relations. Like the executive director and vice-chairperson, the deputies also elect the mayor. Therefore, it is evident that the mayors may not be influential if one is evaluating horizontal relations as they are not directly elected and their executive functions are largely shared with other actors in the municipality, such as the executive director, deputies, and committee chairperson.

Figure 1. The procedure for the election of local government political positions



Source: own.

However, the local council and voters' choice is mostly the same, as the deputy elected as mayor usually receives the most votes and "+". For example, in the elections of 2021, deputies who received the most "+" and votes in local council elections were mainly elected as mayors. 80 % of all the elected mayors were the ones who received the most "+" in the 2021 local government elections (author's calculations).

Peripheral political mobilization against central political institutions is emerging as a new trend in several European nations, albeit in various political forms. The persistence of regionalism demonstrates the inadequacy of national integration and a regional absence of trust in national governmental processes. As a result, tension between the national level and local authorities could appear, complicating processes where the relationship between these two powers is crucial. For example, during a discussion about financial equalization or distribution of funds (Stein et al., 2022) and also during the top-down reform process.

One of the reasons for territorial amalgamation, which is not related to economics, is that bigger local governments decide and administrate more (important) decisions. It is argued that as a result, the interest in political participation increases too (Ebinger et al., 2019). However, the impact on voter turnout is complex and influenced by various factors. The size of a municipality has a medium- to long-term effects, as larger municipalities may have more extensive powers. On the other hand, the effects of amalgamation, such as citizens' reactions to the merger and their perceptions of representation loss or gaining critical mass, are more immediate. Consequently, voter turnout is influenced by many factors, especially in the elections following the merger (Bolgherini and Paparo, 2023). While some argue that amalgamation leads to increased interest in political participation, other authors have reached different conclusions. Stein et al. (2022) suggest that structural reforms, including mergers, can lead to a decline in trust and affect political and social involvement. Additionally, Simon Lapointe et al. (2018) found that the merge of local governments resulted in a substantial decrease in voter turnout and political efficacy. These effects were particularly pronounced in smaller municipalities, indicating that the impacts of mergers on turnout and efficacy are significant and policy-relevant. Similar findings in Denmark by Y. Bhatti and K. M. Hansen (2019) suggest the potential generalizability of these results to other countries using open-list proportional representation in local elections. Therefore, while territorial amalgamation is a widespread trend, it is important to consider the combined effects of factors such as municipality size, amalgamation, citizens' reactions, and perceptions of representation loss or gain, as they influence voter turnout, especially in the initial post-merger election.

Kjaer et al. (2010) point out that amalgamations have led to an increase in the perceived influence of leading councilors vis-à-vis back-bench councilors and a decrease in the perceived influence of the council vis-à-vis its top administrative officers. This research also displays the role of the mayor in territorial amalgamation. Other research indicates that the electorate punished local parties at the polls for implementing amalgamations decided by the central

government. However, the effect on the mayoral parties' electoral results is more indirect than direct (Kjaer and Klemmensen, 2015). This is the reason why mayors are mostly against territorial amalgamation. Some articles suggest that the political parties holding the mayoralty in times of amalgamations tend to designate very tenured mayors as candidates, thus missing the positive first-term incumbency effect, which a new mayor could have acquired (Tavares, 2018). In this article, I will test whether these assumptions can also be observed in the case of Latvia.

3 Methods

This article is based on quantitative method (data analysis) to evaluate the mayor's role in the territorial amalgamation process. As a matter of research design and method applied, this work focuses on the mayor's role and relationship between involved stakeholders in the territorial amalgamation process in Latvia. Case studies commonly afford multiple observations of a single case, so providing firmer evidence of the factual accuracy of a given proposition would be possible in the analogous cross-unit study (Gerring, 2004).

The conceptual frame (Figure 2) includes not only mayor and its position in the process but also other stakeholders involved in the territorial amalgamation process, as they are behind the actions. These other stakeholders will be discussed in the results section. There is a need to look at all local governments affected by the amalgamation process and also at those that the territorial amalgamation process did not affect, as they will give an overall picture of the trends. In total, fifteen local governments (if we add the capital city) were unaffected by territorial amalgamation reform in 2021, so there were no changes in the composition or boundaries of the local government (Valsts, 2021). In order to compare and to see whether there is divergence of trends between amalgamated and non-amalgamated municipalities, the quasi-experimental design will be used. A quasi-experimental design is chosen as it is not possible to randomly select the units of analysis for the experimental and control groups (Blom-Hansen et al., 2016). According to A. Gendźwiłł et al. (2021), quasi-experimental method is a more precise to analyze causal relationship, when evaluating different local governments, in comparison to cross-sectional studies. A quasi-experiment has control group, and pre- and post- treatment group (Blom-Hansen et al., 2016). In this case, the pre-treatment group consists of the 104 local governments, which were merged after territorial amalgamation and formed treatment group, which consists of 28 local governments (Table 1). The control group consists of 14 local governments before and after the territorial amalgamation. To understand the change of local governments after territorial amalgamation, the local government population is added. The local government population changed a lot in the amalgamated local governments (the treatment group).

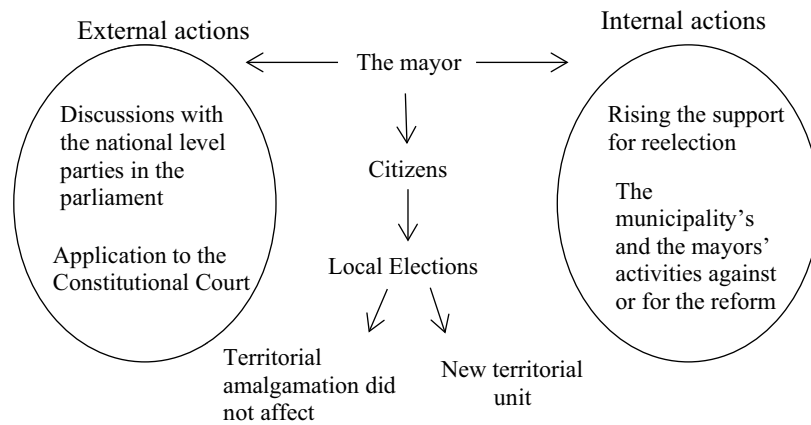
Table 1. Size of local governments in control group and treatment group before and after territorial amalgamation

	Control group		Treatment group	
	Prereform	Postreform	Prereform (pretreatment)	Postreform
Population size				
Under 30000	9	9	103	15
30000-60000	3	3	1	13
More than 60000	2	2	0	0
Total	14	14	104	28

Source: calculated by author.

First, to understand the mayor's role in the local government reform process, there is a need to analyse Latvia's latest administrative-territorial reform process, thus understanding how long it took to finish the territorial amalgamation process and what kind of stakeholders were involved. Secondly, it is also necessary to understand the end result of the reform process and, at the same time, the starting point of the new territorial units, i.e. whether the reform had an impact on voter turnout, how party turnout changed and what the election results were. This also includes looking at how these results have influenced the mayor. To evaluate the territorial amalgamation results, the above described quasi-experimental method will be used. In addition, whether there have been changes between the merged local governments and those that were not. Thirdly, to evaluate the mayor's role and the relations between central and local authorities, it is necessary to look at the external and internal actions. External actions will be understood as activities that the mayor and the council did outside the local government to affect the territorial amalgamation process. Internal actions will be understood as activities that the mayor and the council did inside of the local government, for example, what was the message to the citizens of the local government, did they organize meetings, consultations or surveys about the planned reform. Mayors opinion were collected from official state institution web pages, local governments' official web pages and local newspaper web pages during the period between April 2019 and October 2021.

Figure 2. The conceptual analysis frame

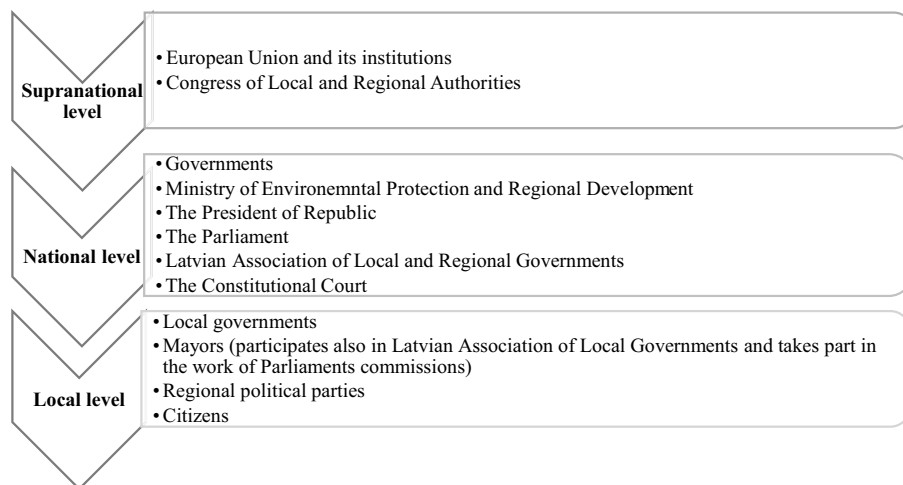


Source: made by the author.

4 Results

There have been involved many stakeholders from different kinds of decision-making levels (Figure 3) in the 2021 territorial amalgamation process.

Figure 3. Stakeholders in territorial reform in Latvia



Source: own.

It is necessary to focus attention and identify the stakeholders so that their roles can be better understood in the amalgamation process and the relationship between them—especially the mayor's place in the net of stakeholders. In 2015, the MEPRD proposed to reduce the number of local governments significantly. One proposed option was to reduce the number of local governments from 119 to 49 while retaining nine State cities. However, at that

exact moment, there was no political will to introduce this reform. However, it changed when in the declaration of the Cabinet of Ministers on the planned activities, written in early 2019, a commitment was declared to implement the territorial amalgamation reform by 2021. The plan from the beginning was to make all district centers that existed before 2009 the centers of the new districts, with seven State cities (except Riga and Jūrmala) merging with their surrounding neighbourhoods. For example, the number of local governments in the territory of the former Riga District was to be reduced from 16 to 6. The Cabinet of Ministers approved the draft law, which envisages the establishment of 39 administrative territories – 5 State cities (Daugavpils, Jūrmala, Liepāja, Rēzekne and Riga) and 34 districts. However, the number changed during long discussions in the Parliament.

Before discussions in the Parliament, there were 28 public consultations in 2019 and 2020. The public consultation aim was to involve the public in the process of local government reform and explain the implementation of the reform and changes related to the new administrative-territorial division. The Minister and/or representatives of the Ministry took part in this consultation and listened to local MPs, citizens and businesses. However, at the end of 2019, there was a fact-finding visit by the Congress of Local and Regional Authorities of the Council of Europe rapporteurs to Latvia to clarify the Latvian Association of Local and Regional Governments' allegations that there have been violations of the European Charter of Local Self-Government. Moreover, the rapporteurs expressed concern about the administrative territorial process, lack of proper public consultation, and reduced financial autonomy of local governments (Cadoret and Cools, 2020).

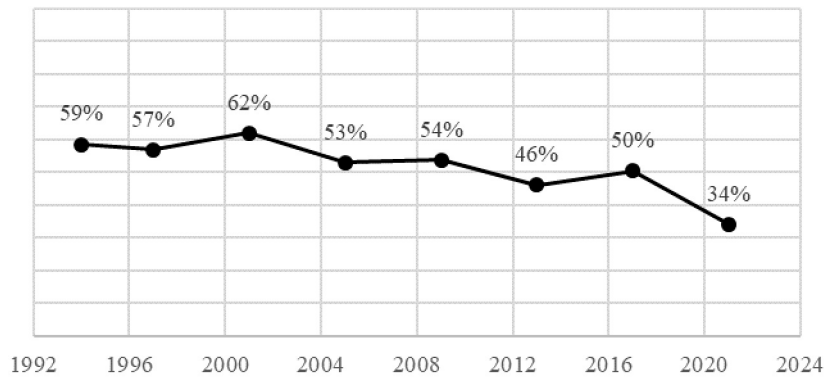
A specially established parliamentary commission – the Commission on Administrative and Territorial Reform, examined the draft law. It was found at the end of 2019. And its work lasted until the middle of 2022. It was set up to examine the draft Law on Administrative Territories and Populated Areas and other draft laws and issues related to territorial reform and its implementation (Saeima, 2019). However, all the time, there was Public Administration and Local Government Committee. The draft law was discussed at 22 committee meetings. Representatives of the local governments involved in the reform were invited. However, as the minutes of the Committee show, there were also meetings at which the invited representatives of the local governments did not speak or comment on the planned changes. In addition, in almost every committee meeting, there were representatives from the Latvian Association of Local and Regional Governments and other NGOs representing cities or employers. It can therefore be concluded that representatives of local governments had the opportunity to participate in the public consultation and the parliamentary committee's work. In addition, the opportunity was taken to involve international experts to evaluate these participatory measures.

On 23 June 2020, new Law on Administrative Territories and Settlements were announced. From now on, the cities of the Republic of Latvia are divided into State cities and cities. The State cities are Daugavpils, Jelgava, Jekabpils,

Jurmala, Liepaja, Ogre, Rezekne, Riga, Valmiera and Ventspils (three of which are not separated will be local governments but are part of the counties as units of territorial division) (Saeima, 2020). 1 July 2021, there was the transition to 43 local governments, which includes 7 State cities and 35 local governments, many of which were created on the territories of former districts.

Recent electoral statistics suggest that the assumption that participation would be lower in newly created local governments due to unfamiliar political environments and candidates, insufficient emotional attachment to the new territorial formation, and inadequate information about the current affairs of the local government is supported. The voter turnout was 34,01 % (Figure 4).

Figure 4. Voter turnout for local elections in Latvia, 1994-2021



Source: Central Election Commission.

The data suggest that introducing newly created local governments led to a slight decrease in voter turnout. The average participation rate in the 14 local governments (without the capital city) whose boundaries were unchanged was 34.93 %, while in 2017, the average participation rate in these municipalities was 45.38 % (Table 2). While the difference in the same year is minimal, the difference between the election year of 2017, indicate that introducing new local governments can have a negative impact on voter turnout if we compare how it was before the merger. This could be due to a lack of awareness of the changes, difficulties understanding the system, or lack of motivation to participate in the newly created local government elections.

Table 2. Voter turnout (%) of local governments in control group and treatment group before and after territorial amalgamation

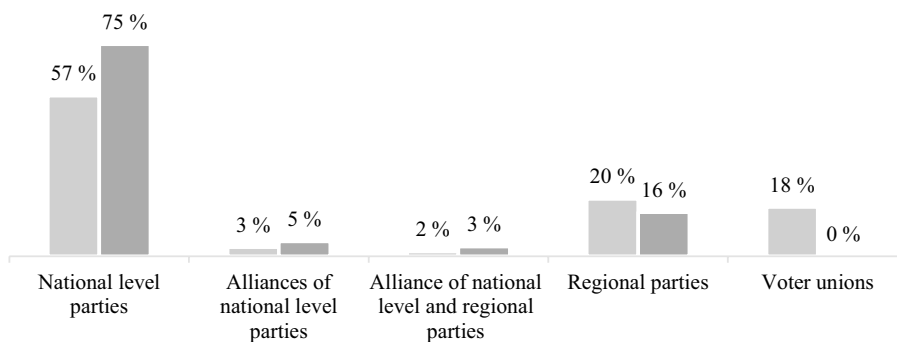
	Control group		Treatment group	
	Prereform	Postreform	Prereform (pretreatment)	Postreform
Voter turnout				
Average voter turnout	45.38 %	34.93 %	48.66 %	34.98 %

Source: calculated by author.

In the context of low turnout, it is also important to focus on trust before and after the reform. In 2020, 33.9% of the population trusted or partially trusted local governments, and 25.2 % trusted or partially trusted the parliament (SKDS, 2020). In 2021, after the reform was adopted, 22.2 % trusted or partially trusted the parliament and 54.4 % trusted local governments (Krautmanis, 2022). Perhaps one of the reasons the trust to local governments grew was that some of the mayors and councils were submitting the applications to the Constitutional Court. In addition, the important role of local governments in containing the spread of the Covid-19 pandemic and in providing support measures to citizens and entrepreneurs could also have boosted trust (MK, 2021; LR VK, 2022).

To understand the overall situation, it is essential to examine whether the participation from national-level and regional parties increased. In the 2021 elections, national-level parties mainly participated in the local government elections. Still, the regional parties also participate, and even one could conclude that bigger local governments can develop regional parties and boost their participation in them. There were 318 lists submitted to local elections in 2021, but 65 parties were participating, of which 25 were regional ones (Figure 5). And in 2017, there were 588 lists submitted to local elections, but 178 parties and voter unions were participating. There were no local governments, where only regional parties participated. Still, 20 % of local governments participated only the national-level parties and/or alliances of national-level parties, where the election happened on 5 June 2021. As of the elections in 2021, there were no voter unions as there was the decision to exclude them from the law.

Figure 5. Percentage of the number of total lists in the 2021 Latvian local elections (national, alliances of national-level parties, alliances of national and regional parties and regional parties)



Source: Central Election Commission and Central Statistical Bureau of Latvia

The Control group has few pre-territorial reform electoral alliances, as it is predominantly composed of national cities, where national parties, their alliances or their alliances with regional parties submit more lists (Table 3). The data in the Table 3 suggests that territorial amalgamation had a positive impact on the popularity of national level parties. However, there can be a

discussion about the trust in the national level parties, who are mostly also represented in the parliament, and the low turnout in the 2021 local government elections.

Table 3. Percentage of lists in local governments in control group and treatment group before and after territorial amalgamation by type

Lists	Control group		Treatment group	
	Prereform	Postreform	Prereform (pretreatment)	Postreform
National level parties	53 %	71 %	58 %	76 %
Alliances of national level parties	4 %	6 %	3 %	5 %
Alliance of national and regional parties	4 %	4 %	1 %	3 %
Regional parties	36 %	18 %	17 %	15 %
Voter Unions	3 %	(None in 2021)	20 %	(None in 2021)
Total number of lists	98	93	490	237

Source: calculated by author.

During the process of administrative territorial reform in May 2020, a citizen survey conducted by the research centre SKDS revealed that 36 % of the population supports the reform, while 33 % are against it, with 31 % of respondents remaining undecided. The region of Kurzeme exhibited the most negative attitude towards the reform, with 50 % of respondents opposing it, followed by Pierīga with 39 % expressing a negative opinion. The region of Zemgale had a slightly lower percentage of dissatisfied citizens at 39 %, but also showed 42 % support for the reform. On the other hand, the regions of Vidzeme and Latgale had the highest support for the reform, with 47 % and 45 % of the population, respectively, in favour of it (LETA, 2020). In a previous survey in 2019, prior to the parliamentary discussions, 35 % of respondents supported the reform, while 30 % were against it. Notably, the largest share of reform supporters was found among the 64-75 age group, with 41 % in favour and only 28 % opposed. Higher levels of support were also observed among those with higher education (38 %) and middle (41 %) or high (42 %) incomes (LETA, 2019a). However, a growing phenomenon is the increasing portion of the population that does not have a clear opinion, which is also evident in surveys related to elections and voter preferences, as well as a lack of interest in participating in local government elections (Zute-Vītola and Važnaja, 2022). Local surveys conducted by various municipalities, such as Ikšķile, Jaunpils, Rucava, Rūjiena, Naukšēni, Jaunnjelgava, Lielvārde, and Rauna, demonstrated different levels of support for the merger plans (Mače, 2019; LETA, 2019b; Valmieras Ziņas, 2019; Matisone, 2019; TVNET/LETA, 2019; LETA, 2019c; Vid-

zemes televīzija, 2019). It should be noted that concerns about the validity of these surveys arose when journalists discovered that personal identification documents were not required. Thus, individuals could potentially vote under false names (Kārklīņš, 2019).

To fully evaluate the effect of partisanship and the representation of the mayor in local governments, it is still essential to consider the party affiliation of the mayors. Among 27 merged local governments, the mayor's party received the most votes in 21 cases. Furthermore, in 21 out of 27 merged local governments (78 %), the elected mayor was the deputy who received the most "+" from the voters (Table 4). Similarly, in 82 out of 104 merged local governments in 2017 (79 %), the elected mayor was the deputy who received the most "+" from the voters. In addition, if we do not look into whether these municipalities were merged or not, the trend that the deputy who receives the most + from voters is elected in the mayor position is quite high – 78 % in 2017 and 81 % in 2021. Data in the table suggests that merging local governments did not significantly affect the outcomes of the choice of mayor in the case of Latvia. In both merged and non-merged local governments, the elected mayor was mostly the deputy who received the most votes. This implies that the merging of local governments was not influential in determining who would get the mayor's position. When considering both the most popular mayors (based on the "+") and their position as having the most seats in the Council, in the treatment group, it dropped from 74% to 70%. This suggests that the reform may have influenced the relationship between the most popular mayors and their political influence, as measured by the number of seats they held in the Council. A. Tavares (2018) said that parties usually chose very tenured mayors as candidates. This, in some part, is also the case in Latvia, where in 24 of 42 (57 %) local governments, there was the same mayor as before the territorial amalgamation. Mayors changed in 16 local governments, which constitutes 38 %.

Table 4. Percentage of mayors with most "+" in local governments in control group and treatment group before and after territorial amalgamation

	Control group		Treatment group	
	Prereform	Postreform	Prereform (pretreatment)	Postreform
Mayors with most "+"				
Mayors with most "+"	79 %	87 %	79 %	78 %
Mayors with most "+" and most seats in the Council	79 %	80 %	74 %	70 %
Total number of local governments	14	15	104	27

Source: calculated by author.

4.1 Where were the mayors during the territorial amalgamation and after it?

H. Wollmann (2008) believes that the reform debate in Europe is taking place because of widespread criticism of transparency and accountability in local government, followed by low participation in local elections, as local governments are less and less able to respond to the social, economic and environmental complexities and challenges. Consequently, these challenges also call for different solutions from the mayor as a local leader and possibly a different decision-making process to increase participation and improve transparency and responsible use of financial resources. I have looked into the decision-making process and what opportunities there were for the mayor to communicate with parliament and the ministry. However, as territorial amalgamation reforms are not related only to the administration of local government but also can affect service delivery and local communities, it is important to look at what mayors said to the voters about reform and whether they explained it or criticised it. Therefore, this subsection examines the mayors who actively expressed their thoughts about territorial amalgamation. All the opinions of mayors, who have spoken publicly, have been shared and published on the local government's or regional newspaper's websites. For example, mayors of Jaunpils, Engure, and Kandava actively expressed their thoughts about territorial amalgamation. All of these local governments were merged and added to Tukuma novads.

The Mayor of Jaunpils said that reform is needed, but there are many ifs. He was worried about school closure, service delivery and money access. He also expresses the idea that there should be a referendum about territorial amalgamation. Also, the Mayor of Engure doesn't see many advantages of reform.

"In the end, I see practically no benefits. On the contrary, power will move away from the people. The one wish is for people to live better. But without listening to each other, it is unlikely to happen." (Reinsone and Trēde, 2019)

The Mayor of Kandava also was against reform and expressed the same thoughts against reform. He highlights the importance of local patriotism. Says that economically it will be wrong but at the same time says that the only advantage would be the possibility to make a loan:

"In this case, it is seen only in the ability to borrow or to engage in large EU projects that are sometimes unaffordable for smaller local governments with smaller budgets." (Reinsone and Trēde, 2019)

These opinions were collected on a regional news portal before the vote in the Parliament. Given that these were local governments, which were added to a larger one, the position of the council presidents is clear. However, one of the mayors still takes the opposite view on attracting funding and points to significant benefits for the local government's development.

The mayors of four local governments – Jelgava, Daugavpils, Ventspils and Rēzekne, were united in favour of sending a public letter to the President

of Latvia, Prime Minister, Latvian Association of Local and Regional Governments, the Latvian Academy of Sciences and the Parliament. These local governments had an appeal to stop the territorial reform in its current form as developed by the MEPRD. Representing four administrative-territorial units covering rural areas without towns, they state that they want a democratic and unhurried reform implementation. They stressed the need to respect the principle of voluntarism and assess what has and has not been achieved in the local governments so far. There was a need for a clear vision of the criteria for attracting funding in the “post-reform” period (Rēzeknes novads, 2019). This finding indicates that the mayors of four local governments in Latvia are united in opposition to the current form of the MEPRD’s territorial reform.

Before the administrative-territorial reform, mayors made collective and individual attempts to halt the reform. A separate section about activities against administrative-territorial reform has been made on Iecavas’ local governments’ online page. For example, a public consultation was published with the question, “Do you support the preservation of Iecava local government as an independent administrative territory of the Republic of Latvia?” The Mayor of Iecava opened the consultation meeting with the following text:

“We don’t want to live worse, but we will if we are added to Bauska local government. ... So far, all the MEPRD has to offer are figures and statistics. But this is not what interests the inhabitants of our local government. What is needed are arguments that can genuinely show that living conditions in the local government will improve after the reform.” (Iecava, 2019a).

Through this questionnaire and introduction, he clearly shows his attitude towards administrative-territorial reform. Iecava was one of those territorial units that were added to Bauskas novads (Iecava, 2019b).

There is a need to note that Vecpiebalgas novads were added to Cēsu novads. Also, Vecpiebalgas’s mayor expressed mostly negative connotations towards the work of the MEPRD minister. However, he mentions that he supports the reform and doesn’t deny its necessity.

There has also been demission from the mayors’ position as a protest against this reform. For example, Beverīnas mayor announced about demission because:

“The reform is probably necessary to some extent, but the way it is being carried out is unacceptable.” (Leta, 2019d)

Again, he is one of the mayors who say that reform is needed to some extent, but he does not accept how it is carried out. Beverīna were also added to Valmieras novads.

After the territorial amalgamation, there was a meeting with the new minister of MEPRD about the situation in local governments. The Mayor of Bauska pointed out that:

“After the reform, Bauska region is one of the largest local governments in Latvia and is a big challenge for deputies and employees. Moreover, it turned out that there are huge differences between the merged local governments. This includes population density - not only between towns and local governments, but also, for example, between Kurmene, where there are five people per square kilometer, and Īslice, where there are 33 people per square kilometer.” (Varnevičs, 2021)

The thoughts of territorial amalgamation ranged from support to opposition between the mayors who expressed their opinions on the territorial amalgamation. The majority of mayors who have voiced their opinions have expressed opposition to the reform, citing concerns such as school closures, difficulties in accessing services and economic reasons, and even a lack of local patriotism. There is also a general sentiment among the mayors that the reform is necessary to some extent but that the current form of the reform needs to be revised. In the 2022 autumn, there were Parliament elections before which some parties in election campaigns said that they would look into the territorial reform process and how effective it is so as to know whether there is a need to change it.

4.2 The aftermath of territorial amalgamations

After the law was adopted (on 10 June 2020) in the Parliament, several local governments challenged the administrative-territorial reform in the Constitutional Court. Specifically, the Law on Administrative Territories and Populated Areas has been challenged in Constitutional court by 21 local government councils, which compared to territorial reform in 2009, is way more. In 2009, there were 4 cases (Satversmes tiesa, 2009). Currently, 19 cases have been initiated in the Constitutional Court, two decisions on refusal to initiate a claim have been adopted, and several cases have been merged (Satversmes tiesa 2021). This is important to look at because the mayor is the one who represents the local government and can initiate to submit an application to the Constitutional Court. Of course, local government deputies have to vote on whether they accept this application submission in the council meeting and decide that the mayor will be authorised to represent the local government in the application preparation. In addition, while evaluating the mayor's role in the territorial amalgamation process, another important aspect is that they can decide when to convene the council meeting and set the agenda.

On 12 March 2021, the Constitutional Court recognised that the local governments' annexation of Skulte novads to Saulkrasti novads and its separation from Limbazi novads was unconstitutional. Following this judgement, also a separate Varaklani novads was established. As a result, the elections in Varaklani and Rezekne were postponed until 11 September 2021. During this decision-making process, mayors have had the opportunity to speak up. For example, the residents of Limbazi protested against incorporating Skulte and Vidriži parishes into Saulkrasti. Despite several thousand residents' signatures, the Saeima did not fully hear the residents' objections and decided to separate Skulte from Limbazi. The local government contested this decision

in the Constitutional Court, which ruled that the annexation of the local government to Saulkrasti was arbitrary and not in accordance with the law (TV3 Ziņas, 2021).

The mayors can play a significant role in the territorial amalgamation process. Through their authority to initiate applications to the Constitutional Court, convene council meetings, and set the agenda, mayors can help ensure that residents' voices are heard and that local governments can challenge decisions if there are legal grounds.

5 Discussion and conclusion

This article presented an analysis of the role of the mayor in the territorial amalgamation process in Latvia. This paper aimed to evaluate how and whether the mayor participates in the reform process if it affects their local governments.

It is evident that a significant number of mayors, whose local governments is merged with others, strongly oppose the plan of territorial amalgamation. Additionally, following the amalgamation, negative connotations have emerged as mayors grapple with evaluating the financial situation of their newly merged local governments. G. Ó. Erlingsson et al. (2021) emphasize that the argument for coercive amalgamations based on economies of scale is difficult to justify in research. However, as indicated in the literature review, the effects of the amalgamation process can be observed relatively quickly, while the full impact of the changes in the municipality may take longer to manifest. Thus, to comprehensively evaluate the aftermath of this reform in Latvia, it is prudent to allow for additional time.

It is vital to see to what extent there was the involvement and analysis of documents, functions and possibilities to participate in the decision-making process during the territorial amalgamation process. To evaluate the role of the mayor in territorial amalgamation, interviews cannot be conducted, and the position of the opinions is evident, especially for those that are added to other ones. Moreover, participation in local elections between newly created local governments and not merged ones in Latvia is the same.

Finally, mayors representing local governments, which were planned to be merged, can express their concerns during public consultation, which MEPRD organized, and during the parliamentary committee meetings. However, there were times when these public consultations were just formal ones or mayors did not take full advantage of the opportunities. It is more difficult to influence the territorial amalgamation process if it is top-down. However, if the local community clearly expresses different attitudes, there are tools for mayors to affect it. For example, one of the platforms that the mayor has to affect territorial reform are NGO's which represent municipalities. Additionally, the Constitutional Court did affect the look of the map of planned local governments in the case of Latvia.

Local Leadership During the Territorial Amalgamation Process – The Case of Latvia

To fully understand the role of the mayor in the territorial amalgamation process, it is essential to look at the context. The mayor is one of the many stakeholders involved in the territorial amalgamation process, and that not always stay in office when the new territorial reform is introduced after elections.

There was no firm evidence that the interest in political participation increases if there are bigger local governments, as they need to decide and administer more decisions.

The tools that mayors used to influence the process were media, public consultations, public letters and even demission. In addition, an important democratic participation tool was used after the law regarding local government amalgamation was adopted – application to the Constitutional Court. However, the application to the Constitutional Court can be considered the last possibility for mayors to change the law. Despite that there is collective leadership, there is still evidence that mostly those deputies who receive the most votes and “+” are indirectly elected as mayors.

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Regulating Public Sector Wages in Times of Inflation and Constitutional Restraints

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ABSTRACT

Purpose: The article discusses the impact of public sector wages and inflation on various aspects of a country's socioeconomic development.

Methodology: Using Slovenia as a case study, the article focuses on how inflation impacts collective bargaining and wage regulation in the public sector, as well as the role of constitutional fiscal restraints in collective bargaining in the public sector. The research employs qualitative methods and focuses on patterns in existing documents and empirical case studies, and a comparative method involving Hungary.

Findings and Academic contribution to the field: The article examines the impact of inflation on collective bargaining and wage regulation in the public sector. It concludes that inflation, even with (some) constitutional fiscal restraints in place, can affect collective bargaining and wage regulation in the public sector, depending on the bargaining power of unions and employers and specific provisions outlined in collective bargaining agreements and wage regulations.

Keywords: public sector, wage system, inflation, constitutional restraints

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85

1 Introduction

The wage or salary system in the public sector affects the socioeconomic development of a country, the labour market, the budget and fiscal policies, public spending, the social security of public employees, and ultimately inflation. There is no denying the importance of such a complex system in any country. In relation to the public sector wage system, the state acts in two roles - as an authority and as an employer. The state, as an authority, regulates the field of wages in the public sector through legislation. On the other hand, as an employer, the state concludes collective agreements with public sector unions within the framework of social dialogue. Those are facts, regardless of whether a country is big or small.

Government (or wider public sector) employment is an important aspect of fiscal policy and a sizable element of the labour market. Given the proportion of this type of expenditure, it seems plausible that fiscal policy is at least partially transmitted through the labour market. And yet policymakers seem to acknowledge government wages (mainly) as a stabilization tool (Gomes, 2015). But one thing is its connection to fiscal policies and another to inflation.

Wheatley (2022) claims (based on data from the UK) that the correlation between public sector wage increases and inflation is negligible and not statistically significant. This means that public sector wages are unrelated to inflation. And yet, public sector employees are striking and demanding wage raises in response to inflation. And some Governments respond negatively, even though there is no evidence that their wage increases are producing inflation. In effect, the wage-price spiral does not exist for public sector wages. A key reason for this is that the public sector labour force makes up a small percent (17) of the total workforce, meaning that it has much less of an impact on the economy than the private sector. The upshot of all this is that public sector employees are being penalized by reductions in their wages for reasons that do not bear up to scrutiny.

Some analysis agrees to some extent, claiming that the global surge in inflation in the last year or so has largely been driven by three key factors (1) supply in global goods markets was unable to keep up with surging demand during the pandemic, (2) many advanced economies made a stronger-than-expected recovery from the Covid-19 pandemic and (3) commodity prices rose sharply. Therefore, on one hand, headline inflation has surged in most advanced economies, driven by various factors, while wage growth has also picked up considerably, but more slowly and by less than inflation (Suthaharan and Bleakley, 2022).

If public wages and public employees are not the reason for the inflation, they suffer from it, since in a period of rising living costs (inflation), the purchasing power of consumers decreases. Considering that the worker receives a fixed wage, this means that he can afford less and less with the income from work. Therefore, it is only a question of time before the proposal to harmonize wages with the increase in living costs to maintain the value of wages and purchasing power will be put on the bargaining table.

The relationship between inflation and approaches to regulating public sector wages lacks theoretical findings, as well as empirical support since the latter is provided mainly by high-inflation countries, during high inflation periods. And this was lately (and luckily), not the case for most developed countries. Consequently, there was not much need for regulating the effects of inflation on public wages, and vice versa. Therefore, there will not be much focus on the periods when the inflation was above the European Central Bank's (ECB) inflation target rate of 2 percent.¹ The period on which the research will focus is the high inflation periods following 2007 with a special focus on the last inflation surge between 2021 to 2023. There are two main reasons supporting this decision. First, On January 1, 2007, the euro became legal tender in Slovenia and in 2008, a new public sector wage system was introduced, that is still in force. Meanwhile, it should be noted in advance, that in Hungary still the forint is the national currency,² and the rules regarding the public servants were modified in the last decade multiple times. This complexity is also compared to Slovenia in the following parts of the paper.

This article will aim to answer two research questions:

RQ 1: How does inflation impact collective bargaining and wage regulation in the public sector?

RQ 2: What is the role of constitutional fiscal restraints on collective bargaining in the public sector?

Constitutional fiscal restraint refers to the legal and institutional framework that limits government spending and borrowing. It includes provisions such as balanced budget requirements, debt ceilings, and spending caps, which are intended to ensure that governments operate within their means and do not accumulate excessive debt. The research will be carried out using empirical data from Slovenia. The results might not be entirely applicable to other countries, because of specifics countries have in their public sector wage system and different constitutional restraints regarding fiscal policies. Nonetheless, some common ground can be found, since most of the countries with similar political and economic systems are all facing similar problems regarding inflation and its effect on collective bargaining and wage regulation in the public sector.

To answer the research questions, we will analyse and present the findings that are useful in offering some answers. Legal documents, national reports, as well as other data and documents from the Slovenia Statistical Office and from the Hungarian Central Statistical Office are analysed in combination

1 ECB's 2 percent inflation target is assessed on the basis of inflation developments in the euro area economy and is low enough for the economy to fully reap the benefits of price stability while also underlining the ECB's commitment to providing a safety margin against the risk of deflation and among other things providing a sufficient margin to allow for downward wage rigidities, which risk raising unemployment excessively [<https://www.ecb.europa.eu/mopo/strategy/pricestab/html/index.en.html>].

2 The Fundamental Law of Hungary even expressis verbis declares, that the official currency of Hungary shall be the forint. [Article K] see: <https://www.parlament.hu/documents/125505/138409/Fundamental+law/>

with qualitative research methods as well as desk research were used in the paper. By using qualitative methods and focusing on patterns in existing documents, reviewing relevant literature, and empirical case studies of collective bargaining in the public sector in times of inflation as well as comparing Slovenia with Hungary regarding the discussed dilemmas of the paper are also presented. Thus, the research also worked with the tools of comparative law, comparative administrative law and analyses the chosen research topic with the main steps of the comparative law research program.³ LŐRINCZ, Lajos defined two dimensions of comparisons in public administration: territorial comparison and temporal comparison.⁴ The present article applies both methods together and can be identified as a micro-comparative work⁵ focusing on the regulation of public sector wages in times of inflation and constitutional restraints in Slovenia and in Hungary. Attempts will be made to find existing constitutional court decisions regarding constitutional fiscal restraints on collective bargaining in the public sector. The article represents an incentive for further study of the field and solving the problem of the complex relationship of collective bargaining and wage regulation in the public sector regarding inflation and constitutional fiscal restraints, which in some form or another exist in many countries that can benefit from shared experience and findings. The result of the paper also proves that the article was a non-conceptual comparative work, consciously wished to analyse the substance of the issue and to promote its understanding. Finally in connection with the research methodology, it should be also noted that – where it is interpretable – recommendations of the authors are given.

2 Current situation in Slovenia and in Hungary

Slovenia is a small country in the center of Europe, an EU member state since 2004, and has 2 million inhabitants. In Slovenia (data from the end of 2022) there were 925 thousand active persons in the labour market, out of which 190 thousand were employed in the public sector, which makes for about one-fifth (20 percent) of the total workforce. All people employed in the public sector are subject to the Public Sector Salary System Act^{6,7}.

Before the implementation of the Public Sector Salary System Act (ZSPJS), our wages were regulated by the Salary Ratio Act in Public Institutions, State Bodies, and Local Community Bodies (ZRPJZ)⁸. ZSPJS was adopted in 2002, but

3 Fekete B.: *A jogösszehasonlítás magyar történetének és alkalmazásának alapkérdései* in: Jakab A. – Menyhárd A. (ed.) (2015): *A jog tudománya*, HVG-Orac Lap- és Könyvkiadó, Budapest, 419–451.

4 Lőrincz L.: *Összehasonlítás a közigazgatásban* in: Lőrincz L. (ed.) (2006): *Közigazgatás az Európai Unió tagállamaiban. Összehasonlító közigazgatás*, Uniós Kiadó, Budapest, 139–170.

5 Gerencsér B. Sz. (ed.) (2015): *Összehasonlító és európai uniós közigazgatási jog. Közigazgatási jog IV.* Pázmány Press, Budapest, 23.

6 Official Gazette No. 108/09, 13/10, 59/10, 85/10, 107/10, 35/11 – ORZSPJS49a, 27/12 – odl. US, 40/12 – ZUJF, 46/13, 25/14 – ZFU, 50/14, 95/14 – ZUPPJS15, 82/15, 23/17 – ZDOdv, 67/17, 84/18, 204/21 in 139/22.

7 Republic of Slovenia Statistical Office, <https://www.stat.si/StatWeb/en/News/Index/10705>.

8 Official Gazette No. 18/94, 36/96, 20/97 – ZDPra, 39/99 – ZMPUPR, 86/99 – odl. US, 98/99 – ZZdrS in 56/02 – ZSPJS).

it came into force in 2008, providing a single payment scale, composed of 65 wage grades, for all public sector employees. It specifies that wages shall be composed of a basic wage, additional payments, and a part related to the workers' performance. To date, the law has been amended (in one way or another) over thirty times. At the end of 2007, 155 thousand people were employed in the public sector. Despite the period of the financial crisis, the number of employees grew to 160 thousand by the end of 2011. The current number of employees in the public sector has reached almost 190 thousand at the end of 2022. They are employed by more than 3 thousand budget users (state bodies (government, ministries, administrative units) and self-governing local communities (municipalities), public agencies, public funds, public institutes, etc.), and the total volume of wages almost reached 5 billion EUR in 2022.⁹

Hungary is the east neighbour of Slovenia and similarly to Slovenia, it became EU member state in 2004. Hungary's population is around five times bigger than Slovenia's population,¹⁰ the average number of employed people aged 15–74 was 4 million 707 thousand people in March 2022. Regarding the salary regulation of public servants – contrary to Slovenia - Hungary¹¹ do not have one act on the salaries which determines all wages of public servants, but it is regulated in the different status acts. From which, the most important are: Act CXCIX of 2011 on civil servants (Kttv.), which is primarily applied to public employees in local government administration bodies. Act CXXV of 2018 on government administration (Kit.) is regulating the status of public servants working in central and territorial state administration. Administrative bodies with special status like as autonomous government agency, independent regulatory organs¹² have their own legal regulation (Act CVII of 2019 on Bodies with Special Legal Status and the Status of Employees, this is referred to as Küt. in Hungary). One of the latest acts of Hungarian civil service legislation is the Act CXXX. of 2020 on the Legal Status of Personnel of the National Tax and Customs Administration (NAV szjtv). The primary goal of this Act was to implement the integration of the personnel after the organizational integration processes.¹³ Another category is the public service employees in budgetary institutions (for example education, health and social care institutions), to whom the Act XXXIII of 1992 on the Legal Status of Public Servants (Kjt.) is applied. We shall also note that there is a special act regarding the professionals and contract agents in defence and law enforcement.

These before-mentioned acts are funded in a various range of personal policy solutions: while one regulation seems to prefer centralized regulatory meth-

9 Public sector wages portal <http://www.pportal.gov.si>.

10 More precisely: 9 689 010 Data is from the Hungarian Central Statistical Office see: <https://www.ksh.hu>

11 See regarding Hungarian public administration: Patyi, A.: *A közigazgatás a magyar állam rendszerében* in: Orbán, B. - Szalai, Z. (ed.) (2019): *Ezer éve Európa közepén: A magyar állam karaktere*, Mathias Corvinus Collegium, Tihanyi Alapítvány, 283–310.

12 Like as: National Election Office, Hungarian Energy and Public Utility Regulatory Authority, the National Media and Info communications Authority, Hungarian Competition Authority

13 Kiss, Gy. - Hazafi, Z.: *Az életpálya fogalmáról* in Kiss, Gy. (ed.) (2009): *Közszolgálati életpályák jogi szabályozása*, Dialóg Campus Kiadó, Budapest., 19–62.

ods (for example: Kttv.), the other one a decentralized solutions (for example: Kit.), the other one a mix version (for example NAV szjtv.).

The current law on public servant status in Hungary is completely over-differentiated, which also has a serious impact on the remuneration system: several different salary tables based on different logics apply to those employed by the state, which results in significantly different salaries. Without getting into the detail, we would like to describe two Acts (Kttv. and Kit.) salary system to show the differences in the regulation: in the Kttv., the salary consists of three components: a) the basic salary, which is the biggest part of the salary b) the salary supplement and c) various allowances. It is important to note that the basic salary creates a link between the wage and the advancement. The Kttv. contains the characteristics of career systems: advancement can take place in grades, titles and manager positions. Salary increases are related to advancement in grades which is also linked to the spent years in work. Oppositely to this regulation, the wage regulated in the Kit. are not decided on the education and length of service in the public sector, but by the characteristics of the position, the professional conditions for filling the position. Thus, classification is made for a post like as administrator, the professional manager, professional senior manager, the person with the status of a commissioner, the consultant and the political senior manager. The Kit contains two salary scales: the first applies to government officials employed in ministries, while the second applies to government officials in government agencies, central offices, the capital and county government offices. Regarding the method of determining the exact amount of the salary, the parties have the option of a kind of wage bargaining in the minimum and maximum limits of the post salary determined in the Act. This also means that the calculation of the salary does not depend on the amount of the salary base and the multipliers related to the salary grades (contrary to the Kttv., in the Kit. we cannot find salary grades and multiplies, salary supplements).¹⁴ Lastly, we should underline that both Acts refers that the salary should reach the guaranteed minimum wage.

Regarding the salary system we would like to emphasize two critical points:¹⁵ 1) it is over-differentiated. However, this is not a constitutional problem.¹⁶ 2) The other anomaly concerns the level of civil service salaries. Since 2008, the civil service salary base is unchanged, which is a fixed amount of HUF 38,650 (around a 100 EUR), decided yearly by the Budget Act.¹⁷ This salary base shall be multiplied by the number determined in the Kttv.. With salaries that have been frozen for more than ten years, the predictable progress and competi-

¹⁴ Ludányi, D. (2022): Regulation of Advancement and Salary Systems in the Hungarian Public Administration, *Belügyi Szemle*, 70(SI1), 35–52.

¹⁵ See also: Petrovics, Z.: *Quo Vadis Civil Service Law?: Tendencies in the Hungarian Civil Service Law* in: Auer, Á. - Bankó, Z. - Békési, G. - Berke, Gy. - Hazafi, Z. - Ludányi, D. (ed.) (2023): *Ünnepi tanulmányok Kiss György 70. születésnapjára: Clara pacta, boni amici*, Budapest, Magyarország, Wolters Kluwer Hungary, 560-567., Linder, V.: *Qui est qui? Aperçu de la cavalcade de la réglementation dans la fonction publique hongroise* In: Árva, Zs. - Barta, A. (ed.) (2021): *Évtizedek a magyar közigazgatás szolgálatában: Ünnepi tanulmányok Balázs István Professzor 65. születésnapjára*, Debreceni Egyetem, Állam- és Jogtudományi Kar, Debrecen. 279–288.

¹⁶ See: 3222/2017. (IX. 25.) Hungarian Constitutional Courts's decision

¹⁷ See: Article 65. § of th Act XXV of 2022 on the Hungarian budget of 2023.

tive remuneration considered to be the comparative advantage of public employment obviously cannot be realized.¹⁸ Thus there is a tension within the public sector and between the public and private sector too.

A small country costs money. It must have practically all the institutions that the “big ones” have. Universal access to quality public services and the implementation of public services in the fields of education, healthcare, social services, etc. cost. However, understanding this simply as a cost is a mistake. It is necessary to invest in large systems. And the foundation of large systems is not only investments in premises and material equipment, but also investments in people, in employees. Without them, the system cannot function. These large systems are necessary for the normal functioning of the country and the economy.

In Slovenia, the public sector wage setting is primarily carried out within the public sector collective bargaining process where state or government representatives and public sector unions negotiate on the specifics of the public sector wage changes. Social dialogue and in connection to it - the bargaining system - have always been seen as a tool of centralization through a unified wage system in the public sector, aimed at concluding general agreements.

3 A centralized public wage system in Slovenia

Since Slovenia's independence in 1991 - similarly to Hungary - steps were taken to maintain and complement the centralized bargaining system over wages and other terms and conditions of employment in the public sector. In 2006 the Collective Agreements Act (Zakon o kolektivnih pogodbah - ZKolP) was adopted.¹⁹ The general provisions of the ZKolP also apply to collective bargaining in the public sector. The exception is the normative, substantive part of public sector collective agreements that refers to wages, which is regulated by the Public Sector Salary System Act. In the public sector, the system of centralized collective bargaining has endured, with a ‘central platform’ or framework for collective bargaining, the beforementioned Public Sector Salary System Act, which ensures a high degree of coordination. The collective agreement for the public sector was concluded in 1991 and then amended several times. In 2008, the already mentioned ZSPJS came to power. Soon after, the global economic and financial crisis started and austerity measures began to be enforced, and pressures on public sector employees began to intensify. In 2010, the government decided to terminate collective agreements in the public sector. The Minister of Public Administration demanded that the public sector unions agree to the proposed austerity measures regarding wages for 2011 and 2012. If not, the collective agreements were to be terminated because failure to do so would endanger the passing of the budget. No agreement was reached, so the government rescinded the terminations and adopted the Intervention Measures Act that extended non-payment of the

18 Kártyás, G.: *Díjazás a közszolgálati foglalkoztatási jogviszonyokban* in: Kiss, Gy. (ed.) (2019): *Közszolgálati életpályák jogi szabályozása*, Dialóg Campus Kiadó, Budapest. 231–232.

19 Official Gazette No. 43/06 in 45/08 – ZArbit.

performance-related bonus for public employees, froze payments for promotion, set the holiday allowance at a lower level, and limited the funds for increased workloads for two years. The pressure on public sector employees culminated in the spring of 2012 when the government announced a 15 per cent pay cut in the public sector. A general strike of public sector employees ensued, followed by the adoption of the Fiscal Balance Act²⁰ (Stanojević and Poje in (ed.) Müller, Vandaele and Waddington, pp. 545–551).

Slovenia has a centralized bargaining regime regarding public wages. Collective bargaining takes place at the national or state level. Central negotiations are attended by all representative public sector unions, where they usually discuss common foundations and matters which apply to everyone in the public sector. One of the problems was that the existing public wage system, established in 2008, can hardly be called uniform. In the analysis presented by the Ministry of Public Administration before the start of negotiations on the wage reform, it notes, among other things, that by concluding partial agreements with individual professional groups, represented by different public sector unions, and introducing wage provisions into sectoral legislation, the uniform system was circumvented, while individual groups gained substantially more than others. More and more wage classes are below the minimum wage, and the ratio between the lowest and the highest wage has dropped from 1 to 10.5 when the system was established to 1 to 4.7.²¹

4 Inflation and public sector wages

Some authors claim that the current low unemployment level could trigger a wage-price spiral, particularly if public sector wage is increased. So it could be argued that the government's refusal to raise public sector wages is a strategy to control inflation (Whiteley, 2022). Zaranko (2022) on the other hand argues that public sector wages policy should not be set regarding distributional objectives or used as an inflation- or demand-management tool. Instead, wage awards should be set up to ensure that the government/state can attract, retain and motivate the appropriate number and mix of public employees required to deliver the government's desired range and quality of public services. Zaranko, therefore, suggests that while the government is right to be concerned about the plight of low-income households struggling to cope with the rising cost of living, and right to be concerned about higher inflation expectations becoming embedded, these are issues best dealt with using tools other than public sector pay policy. Instead, pay decisions should be made regarding ensuring that the right people with the right skills are in the right places to deliver on public service objectives.

20 Fiscal Balance Act, Official Gazette No. 40/12, 96/12 – ZPIZ-2, 104/12 – ZIPRS1314, 105/12, 25/13 – odl. US, 46/13 – ZIPRS1314-A, 56/13 – ZStip-1, 63/13 – ZOsn-I, 63/13 – ZJAKRS-A, 99/13 – ZUPJS-C, 99/13 – ZSVarPre-C, 101/13 – ZIPRS1415, 101/13 – ZDavNep, 107/13 – odl. US, 85/14, 95/14, 24/15 – odl. US, 90/15, 102/15, 63/16 – ZDoh-2R, 77/17 – ZMVN-1, 33/19 – ZMVN-1A, 72/19, 174/20 – ZIPRS2122 in 139/22 – ZSPJS-AA.

21 More data is available on <https://www.gov.si/zbirke/projekti-in-programi/prenova-placnega-sistema-v-javnem-sektorju/> [accessed 30. 3. 2023].

In such a regime encompassing the public sector unions are forced to moderate their wage claims within confederal agreements because expansionary wage policy across-the-board generates inflation spill overs, thereby jeopardizing their members' purchasing power and export-sector jobs (Di Carlo, 2022, p. 4).

Empirical evidence from Slovenia shows that the average wage for 2022 was 2,023.92 EUR gross or EUR 1,318.64 EUR net. It was nominally higher than the wage for 2021 (in the gross amount by 2,8 percent or in the net amount by 3,8 percent), but in real terms lower (in the gross amount by 5,5 percent or in the net amount by 4,6 percent). The reason was inflation and rising costs of living. This statement is also true for Hungary, where the average wage for 2022 was 499 980 Ft. (around 1250 EUR) gross or 332 487 Ft. (around 830 EUR) net, and for 2021. 425 915 Ft. (around 1065 EUR) gross or 283 234 Ft. (around 708 EUR) net.²²

Compared to the wage for 2021 in Slovenia, the average gross wage for 2022 was higher by 6,2 percent in the private sector and lower by 2.5 percent in the public sector (in the state bodies or government sector it decreased by 4,9 percent). Among other things, the mentioned wage movement was influenced by the measures related to the Covid-19 epidemic, which were in effect in the first half of 2021.²³ At the same time, Slovenia had the lowest unemployment rate on record. The rate of registered unemployment, which is calculated by the Employment Service of Slovenia, was 5.6 percent in January 2023, which is 0.2 percentage points higher rate than last December and 1.3 percentage points lower than in January 2022.²⁴ Meanwhile in Hungary the rate of unemployment is lower than in Slovenia, 4,1 in 2021 and 3,6 in 2022.²⁵

In Slovenia, the ZSPJS, with its 65 wage grades, for all public sector employees and elected officials, states that the values of the wage grades are (or better should be) adjusted once a year. There is no automatic wage indexation to the costs of living in the public sector neither in Slovenia, nor in Hungary.

In Slovenia public wages are not automatically indexed to inflation, nor does inflation play a formal role in wage setting. Only a minor part of public wages (e. g. meal allowances, business trips, tenure allowances) are indexed to past inflation; the minimum wage is also adjusted (at least) in line with inflation (Checherita-Westphal, 2022, p. 6).

The level of adjustment must be the same for public employees and elected officials. The level of coordination for public employees is determined by the collective agreement for the public sector, and for elected officials, after a carried out prior coordination with the elected officials, according to this law. In addition, ZSPJS Article 5 has a reference norm that bargaining starts no later than May 1 and, as a rule, ends 30 days before the deadline set for the submission of the state budget to the National Assembly of the Republic of

²² See more data: https://www.ksh.hu/stadat_files/mun/hu/mun0001.html

²³ Republic of Slovenia Statistical Office, <https://www.stat.si/StatWeb/News/Index/10891>.

²⁴ Employment Service of Slovenia, <https://www.ess.gov.si>.

²⁵ See: <https://www.ksh.hu/?lang=hu>

Slovenia. Since the beginning of the ZSPJS application, the value of the wage grades has been changed several times, but not with the aim of annual reconciliations according to the procedure set out in this article, but within the framework of anti-crisis austerity measures to mitigate the economic and financial crisis after 2008. As part of these measures, there was a decrease in the value of wage grades, their compression (reduction of the range between the values of wage grades on the wage scale), and then renewed decompression. The value of the wage grades has thus been valid from 2016 onwards (Apoah Vučković, 2022, p. 124).

The Collective agreement for the public sector from 2008²⁶ stated that this year, the basis for the adjustment of basic salaries will be determined by the amount of the expected growth rate of consumer prices (inflation) for 2008 in Slovenia.²⁷ If the actual growth in the prices of consumer goods in Slovenia from December 2007 to December 2008 will exceed the projected inflation growth from the first paragraph of this article, the basic wages in January 2009 will be increased by the resulting difference. A similar agreement was set for 2009, with an exception that in case of an actual increase in the prices of consumer goods in Slovenia from December 2008 to December 2009 exceeding the expected increase in inflation from the first paragraph of this article, the basic wages in January 2010 will be increased by half of the resulting difference.²⁸

Those were the times of financial crisis. In 2011 the Additional 2012 Intervention Measures Act²⁹ decreed that notwithstanding Article 5 of the ZSPJS and based on the adopted regulations or collective agreements, and regardless of the difference between the actual and predicted growth in the prices of consumer goods (inflation) in the period from December 2010 to December 2011, the value of the wage grades from the wage scale does not increase in correspondence until June 30, 2012. And this period was later prolonged until 2014 by the Act Amending the Public Sector Salary System Act³⁰ stated that regardless of the provision of Article 5 of ZSPJS, the values of the wage grades from the wage scale from the beginning of January 2014 to the end of December 2014, shall not be adjusted to the growth in the prices of consumer goods (inflation). In 2012 the Public Finance Balancing Act was adopted.³¹ The austerity measures were aimed at saving a good 818 million EUR in 2012, and almost 949 million EUR in 2013. The result was the largest public

26 Collective agreement for the public sector, Official Gazette of the Republic of Slovenia, No. 57/08.

27 In 2008 inflation in Slovenia reached 7 percent. Year-on-year inflation decreased rapidly in the first half of 2009, hovering around zero from August to October, but began to rise again in the last months of the year and amounted to 1.8% in December (Institute of Macroeconomic Analysis and Development, <https://www.umar.gov.si/en/public-info>).

28 Collective agreement for the public sector, Official Gazette of the Republic of Slovenia, No. 57/08.

29 Additional 2012 Intervention Measures Act, (Official Gazette of the Republic of Slovenia, No. 110/11, 40/12 – ZUJF, 43/12 and 3/22 – ZDeb), Article 5.

30 Act on Amendments and Supplements to the Act on the Salary System in the Public Sector (Official Gazette of the Republic of Slovenia, No. 46/13), Article 44. C.

31 Public Finance Balancing Act (Official Gazette of the Republic of Slovenia, No. 40/12, 96/12 – ZPIZ-2, 104/12 – ZIPRS1314, 105/12, 25/13 – od. US, 46/13 – ZIPRS1314-A, 56/13 – ZŠtip-1, 63/13 – ZOsn-I, 63/13 – ZJAKRS-A, 99/13 – ZUPJS-C, 99/13 – ZSVarPre-C, 101/13 – ZIPRS1415, 101/13 – ZDavNepri, 107/13 – decision US, 85/14, 95/14, 24/15 – decision US, 90/15, 102/15,

sector strike in the history of independent Slovenia. Yet after this, there was not much talk about inflation and its impact on public sector wages. That is until 2022. Annual inflation in Slovenia was 1.1 percent in 2020, 4.9 percent in 2021, and 10.3 percent in 2022.

5 Regulation of public sector wages in times of inflation

When researching the link between fiscal deficit and inflation some authors suggest that the link is relatively strong, but it becomes weaker in the absence of the public sector wage expenditure (Ekanayake, 2012, p. 3). Therefore, the overall inference is that public sector wage expenditure is (or can be) a key factor in explaining the deficit-inflation relationship. On the other hand, some authors regarding this issue argue that the public sector wage cycle effect underlies the weak correlation between fiscal deficits and inflation rate (Buffie, 1999).

Rising public wages have an impact on many areas. For instance, some countries' empirical research was used to determine that the rising public sector wage bill and inflation have a significant impact on the value and exchange rate of the national currency in the country's economy. The research also suggests independent non-political fiscal bodies must be established to undertake responsibilities such as: ensuring wage sustainability through negotiation of public sector wage adjustment subject to budgetary constraints. (Ofori-Abebrese et al., 2017, p. 377 and 378).

Findings suggest that governments should be cautious so that wage-setting and employment policies do not lead to negative repercussions on fiscal and economic performance. First, there appears to be a need to strengthen fiscal discipline and reduce the risk of pro-cyclicality in government wage expenditure. To this end, strict domestic fiscal rules and medium-term budgetary frameworks could be effective tools to constrain the volatility and pro-cyclicality of this spending item. In addition, reforms to labour market institutions may be needed to avoid institutional biases towards pro-cyclicality, e. g. originating from indexation, which ties government wages to inflation (Holm-Hadulla et al, 2010, p. 5). International Labour Organization report also shows that inflation and consequently high-interest rates can increase the attractiveness of public debt among investors because government bonds bring greater returns at a risk that is considered low, the interest payments on public debt faced by governments increase and this may ultimately divert resources away from public employment creation (ILO, 2022, p. 115).

The government and public sector unions in Slovenia, in October 2022, signed an Agreement on measures in the field of wages and other labour costs in the public sector for the years 2022 and 2023. The agreement also contained changes to the Social Insurance Institution, which adopt measures that will mitigate the consequences and impact of high prices and inflation on the avail-

63/16 – ZDoh-2R, 77/17 – ZMVN-1, 33/19 – ZMVN-1A, 72/19 , 174/20 – ZIPRS2122 and 139/22 – ZSPJS-AA).

able incomes of employees in the public sector. The changes provided for a 4.5 percent increase in the value of the salary classes of the salary scale, which will have financial consequences in the amount of 43.4 million EUR in 2022 and 260.3 million EUR in 2023 and the following years.³² The agreement predicted that the value of the wage grades would increase by 4.5 percent as of October 2022. Employees in the public sector will feel this increase for the first time when their October salaries are paid in November. Most people employed in the public sector will then have their wages raised again, starting April this year (2023), by one wage grade, which means an increase of about four percent.

The ZSPJS is not subject to harmonization with the legal order of the EU. From the data obtained by the Government in the framework of the European Network for Public Administration - EUPAN in July 2022 regarding the questions of how EU member states are facing rising inflation and generally higher living costs through wages in the public sector and whether countries have taken any special measures in this area (e.g. annual adjustment of wages), it follows that, given the otherwise different regulation of the public sector wage system, countries react(ed) differently to these two factors, and in several countries, discussions are still ongoing about measures that would mitigate the effects of increased inflation and rising costs.³³

Although the government represents the state in collective bargaining procedures and enjoys some discretion, we must not forget democratic safeguards – such as the checks and balances system – that are in power and limit the government's discretion. The government can bargain with the public sector unions and sign a Collective Agreement for the Public Sector, but when regulating legislature (e.g. Collective Agreement for the Public Sector – ZSPJS) the final decision is up to the legislator, in Slovenia to the National Assembly. The same goes for the state budget or Acts on the implementation of the budgets of the Republic of Slovenia, where the government can prepare a budget proposal, but it is up to the legislator to adopt it. So even the government discretion has its limits. Keeping in mind our first research question on how inflation impacts collective bargaining and wage regulation in the public sector, we can conclude that inflation has certain impacts on collective bargaining, while the extent of the impact is left to the discretion of the government. If inflation is high, public-sector unions may demand higher wage increases to offset the increased cost of living for their members, which is exactly what happened in Slovenia, where the government's answer to inflation was a rise in public-sector wages. This can also be attributed to the power of the public sector unions. Inflation on the other hand also had an indirect impact on public sector wage regulation, since the changes in the public sector wage regulation were a result of collective bargaining.

In Hungary, the status acts also state several forums and organisations that can act in the interest in their public servants. As an example, the Kit. states that the

32 Act on Amendments to the Act on the Salary System in the Public Sector (Official Gazette of the Republic of Slovenia, No. 139/22), Article 10.

33 Proposal of the Act on Amendments to the Act on the Salary System in the Public Sector, October 12, EVA No.: 2022-3130-0049.

protection of social and economic interests as well as the maintenance of peace in the labour this Act regulates the connection between the trade union and the government's administrative body and the representative organisations.³⁴ Even the initiative could come from the trade union, from the request of the public servants the decision is in the hand of the government, and in the Parliament to decide in the wages of the civil servants. In this paper we would like to underline only one fact of the latest changes, in May 2023, the government –after increasing several public servants' wages like doctors, nurses, police officers – there is a possibility to increase the public servants' salary, those who work in the territorial or central state administration. After the initiative of the trade union, and the several weeks of negations regarding the increase of the salary is a possibility not an obligation in the hands of the employers. This increase is ensured by fact that the positions is decreased by 10%. Thus, this practically means that the free post are "frozen" and the salary of these post will finance the current increase.³⁵ This could be seen as a very logical need as the inflation is 24% (April, 2023) in Hungary, the highest in the European Union.³⁶

6 Constitutional fiscal restraint and collective bargaining in the public sector

The connection between these two concepts lies in the fact that collective bargaining can have a significant impact on public finances. Collective bargaining agreements can result in higher public sector wages, benefits, and pension obligations for public sector employees, which can increase government expenditures and affect the budgetary process. Therefore, constitutional fiscal restraint is necessary to ensure that governments can balance their budgets and responsibly manage their finances, even in the face of collective bargaining demands.

After the first period of inflation around 2008, and at the end of the financial crisis (2008-2014) the Constitutional Act amending Article 148 of the Constitution of the Republic of Slovenia was adopted.³⁷ With it, a so-called constitutional golden rule of fiscal policy was implemented at the constitutional level.³⁸ Following soon after the Fiscal Rule Act was adopted with the intent

³⁴ See: Article 170-172 of Kit.

³⁵ Government Decree 180/2023. (V. 15.).

³⁶ See: <https://www.ksh.hu/?lang=hu>.

³⁷ Constitutional Act amending Article 148 of the Constitution of the Republic of Slovenia, Official Gazette RS No. 47/13, Constitution of the Republic of Slovenia, Article 148 (budget) "All receipts and expenditures for the financing of public spending must be included in the state budgets.

The revenues and expenditures of the state budgets must be balanced in the medium term without borrowing, or revenues must exceed expenditures. This principle can only be temporarily deviated from in exceptional circumstances for the country. The law, which is adopted by the National Assembly with a two-thirds majority of the votes of all deputies, determines the method and time frame of implementing the principle from the previous paragraph, the criteria for determining exceptional circumstances and the way to act when they occur. If the budget is not adopted by the first day when it is necessary to start implementing it, the beneficiaries who are financed from the budget are temporarily financed according to the previous budget."

³⁸ For better understanding of the golden rule in public finance see Zeyneloglu, I. (2018). Fiscal policy effectiveness and the golden rule of public finance. Central Bank Review, Volume 18,

to determine the method and time frame for implementing the principle of medium-term balance of revenues and expenditures of state budgets (the beforementioned constitutional golden rule of fiscal policy) without borrowing, the criteria for determining exceptional circumstances in which medium-term balance may be deviated from, and the manner of dealing with their performance or termination.

The Fiscal Rule Act is, on the one hand, a warning and, on the other hand, a guide on how to act when and if we are faced with a new economic and financial crisis, with a significant reduction in budget revenues and, at the same time, with large burdens on the side of budget expenditures (Arhar and Avbelj (eds.), 2019, p. 381).

The Act also regulates the operation of the Fiscal Council as an independent state body.³⁹ This law partially transposes the Council Directive 2011/85/EU on requirements for budgetary frameworks of the Member States into the Slovenian legal system.⁴⁰ The Fiscal Council in one of its last assessments noted that in addition to one-off factors, budgetary movements will also be characterized to a large extent by large-scale factors discretionary measures taken in the last year, and the high expected level of investment. Discretionary measures should worsen the state of public finances by around 2 percent of GDP per year in the coming years and are operating on the side revenues and expenses. The latter, due to the (at the time) proposed amendments to the tax legislation, which in part neutralize the effect of the original changes, strongly dominates. Most of them relate to wages in the public sector and social benefits, even with high inflation based on existing legislation and, in addition to measures in the field of growing costs of living, ensure the preservation of their real value. The predicted growth of the current expenditures of the government sector in the next two years thus amounts to around 6 percent per year, which is about twice the long-term average. The risks that their growth will be even higher are considerable, especially in the area of public wages.⁴¹

If we regard the new Hungarian constitution, named as the Fundamental Law of Hungary, we find similar. Constitutional fiscal restraint too as Article 37 states that the Government shall be obliged to implement the central budget in a lawful and expedient manner, with efficient management of public funds and by ensuring transparency.

With the exceptions specified in the Fundamental Law, no such borrowing may be contracted, and no such financial commitment may be undertaken in the course of the implementation of the central budget that would allow the government debt to exceed half of the total gross domestic product. Moreover, similar to Slovenia, in Hungary the status and the most important tasks of the Financial Council is stated in the Fundamental Law of Hungary as follows:

Issue 3.

39 Fiscal Rule Act (Official Gazette of the Republic of Slovenia, no. 55/15, 177/20 - compr. and 129/22), Article 1.

40 Official Journal of the European Union L 306/41, 23. 11. 2011.

41 Assessment of budget documents for years 2023 to 2024 (October 2022), https://www.fs-rs.si/wp-content/uploads/2022/10/Ocena_oktober2022.pdf.

as an organ supporting the legislative activity of the National Assembly, the Fiscal Council shall examine the feasibility of the central budget.⁴²

The Constitutional Court of Slovenia on the other hand did not deal with inflation and public sector wages on many occasions. This can in part be attributed to the fact that high inflation periods did not happen very often. Yet some decisions made by the Constitutional Court of Slovenia related to inflation do exist. In case U-I-159/08⁴³ it noted (regarding judges' salaries) that in addition to the total amount of judges' salaries, their relative stability also plays a key role in ensuring judicial independence, and that the reduction of judges' salaries, (prohibited by Article 125 of the Constitution), can also cause a considerable drop in their real value. The determination of the specific level of coordination is left to the arrangement with the collective agreement for the public sector, the actual coordination is tied to the conclusion of such an agreement between the parties to the collective agreement for the public sector - the conclusion of which may also be uncertain and in the conclusion of which judges cannot even participate. When relating to judges, the Constitutional Court found the fourth paragraph of Article 5 of the Act on the Salary System in the Public Sector (ZSPJS) to be inconsistent with the Constitution. Yet such a decision was only made since they were discussing judges and no other public employees.

Regarding our second research question, we can only reply that constitutional fiscal restraints have little legal weight on the collective bargaining procedure (and even outcome) in the public sector in Slovenia. The reason lies in the constitutional soft approach, where there are no strict rules preventing government discretion. On the other hand, the relationship between constitutional fiscal restraints and collective bargaining can be complex, since there is ongoing (political and economic) debate over the appropriate balance between budgetary discipline and the right to fair compensation for public sector employees. And such a debate is usually decided on election day.

7 Conclusion

National public sector wage systems are not subject to harmonization with the *acquis communautaire* or legal order of the EU. They present an area where (even) EU member states enjoy discretion in regulating different aspects of the system. Harmonizing and indexing public sector wages with inflation is one of those areas.⁴⁴ Unless a state determines certain criteria (e. g. automatic indexation of public sector wages with inflation) in its regulatory

42 Article 44 of the Fundamental Law of Hungary. See: Halász Zs.: *Public Finances* in: Varga Zs. A. – Patyi A.- Schanda B. (ed.) (2015): *The Basic (Fundamental) Law of Hungary : A Commentary of the New Hungarian Constitution* 321-344.

43 Decision on the partial finding of unconstitutionality of the Act on the Salary System in the Public Sector and the Act on Judicial Service (Official Gazette of the Republic of Slovenia, No. 120/08).

44 Price indexation of public wages is relatively limited (to about one fifth) in the euro area since full and partial price indexation is reported in five countries (Belgium, Luxembourg, Cyprus, Malta and Italy). In most euro area countries, public wages are not automatically indexed to inflation, nor does inflation play a formal role in wage setting (Checherita-Westphal, 2022, p. 6).

framework it is relatively free to respond to rising inflations in its own accord. It of course must be kept in mind that every person is entitled to pay for the work they have done, that people enjoy inherent dignity etc. Many countries or governments often refuse to raise public sector wages, saying doing so will fuel inflation. Researchers' views on public sector wages' impact on inflation differ (Wheatley (2022) or Gomes (2015)). One must also keep in mind that every period of enhanced inflation has its specifics and reasoning behind it.

Inflation can have a significant impact on collective bargaining and wage regulation in the public sector. If inflation is high, public-sector unions may (and have done so in Slovenia and many other countries similar tendencies were in Hungary too – in the last year or so) demand higher wage increases to offset the increased cost of living for their members. Inflation can also impact the timing of collective bargaining agreements. Regarding public sector wage regulation in times of inflation governments are allowed to be flexible and enjoy some discretion in the approach they choose to tackle the situation. Even with (some) constitutional safeguards in place – such is the case of Slovenia. Some collective bargaining agreements and wage regulations include indexation clauses that tie public wage increases to inflation – this is also not the case for Slovenia.

Overall, inflation – without serious and strict constitutional fiscal restraints - can (significantly) impact collective bargaining and wage regulation in the public sector. The real impact depends on the existence of different factors, including the level of inflation, the bargaining power of unions and employers, and the specific provisions of collective bargaining agreements and wage regulations (e. g. indexation). In Slovenia, the constitutional restraints regarding public sector wages can be considered toothless or paper tigers. And since wage indexation does not exist in Slovenia, the factor truly influencing wage regulation is the (existing) bargaining power of public sector unions and employers. Rising public sector wages are therefore not (the only) contributor to rising inflation and vice versa.

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Regulating Public Sector Wages in Times of Inflation and Constitutional Restraints

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Povzetki

(Summaries in Slovenian Language)

1. Digitalizacija javne uprave in učinkovitost vlade v državah EU

Androniceanu Armenia, Georgescu Irina

Namen: Študija predstavlja nadaljevanje raziskav na temo digitalne preobrazbe, ki sta jih avtorici izvedli v državah EU. Njen namen je ugotoviti in analizirati napredek, ki so ga evropske javne uprave dosegle na področju digitalizacije in učinkovitega upravljanja v obdobju 2019–2021.

Zasnova/Metodologija/Pristop: Članek na podlagi izbranih spremenljivk iz podatkovnih zbirk Eurostat in Svetovne banke omogoča vpogled v spremembe, zabeležene v EU v obravnavanem obdobju. Kot primarni raziskovalni metodi sta uporabljeni analiza glavnih komponent (Principal Component Analysis, PCA) in metoda združevanja v gruče (K-means), s pomočjo katerih članek analizira spremembe in povezave med desetimi numeričnimi spremenljivkami, izbranimi iz omenjenih podatkovnih baz.

Ugotovitve in vpliv v praksi: Rezultati, pridobljeni z metodo PCA, kažejo, da digitalizacija vsekakor vpliva na učinkovitost vlade. Celovita analiza učinkovitosti vlade razkriva, da prvi dve glavni komponenti predstavljata 77,05 % začetne variance. Z metodo združevanja v gruče avtorici ugotavljata, da sta digitalizacija in učinkovitost vlade od vseh držav EU najbolj narasli v nordijskih državah, ki izkazujejo visoko stopnjo digitalizacije in vladne učinkovitosti.

Izvirnost: Po takem načinu razvrščanja gruča 2 in gruča 3 zajemata dobro razvite države s pozitivnim razmerjem med digitalizacijo in učinkovitostjo vlade, medtem ko gruča 4 vključuje države v vzponu, kjer je razmerje med digitalizacijo in učinkovitostjo vlade nizko ali zelo nizko, kar gre pripisati predvsem omejeni stopnji digitalizacije znotraj vladnih institucij.

Ključne besede: javna uprava, digitalizacija, digitalna preobrazba, učinkovitost vlade, analiza glavnih komponent

2. Sodelovalno upravljanje v dobi digitalne preobrazbe: sistematični pregled literature z bibliometričnim kartiranjem

Rio Yusri Maulana, Mitja Dečman

Namen: Članek ponuja celovit in posodobljen pregled akademskega raziskovanja na področju sodelovalnega upravljanja in digitalne preobrazbe s poudarkom

na novi temi – sodelovalni digitalni preobrazbi. Digitalna preobrazba, ki jo dodatno spodbujajo dogodki, kot so pandemija covid-19, globalni podnebni izzivi in druge krize, je stalnica dandanašnjih razprav. Ker družbe primarno potrebo človeštva, tj. komuniciranje in sodelovanje pri reševanju izzivov, vse bolj prenašajo v digitalno in spletno okolje, je sodelovalno upravljanje na področju digitalne preobrazbe visoko na dnevnem redu vlad, zasebnega sektorja in državljanov.

Zasnova/Methodologija/Pristop: Za obravnavo omenjene tematike je bila izvedena bibliometrična analiza, v kateri so bila uporabljena različna analitična in vizualizacijska orodja za vrednotenje in vizualizacijo obstoječih znanstvenih bibliografskih gradiv. Analiza zajema 286 člankov, objavljenih v podatkovnih zbirkah Scopus in Web of Science v zadnjih dveh desetletjih na temo sodelovalnega upravljanja in digitalne preobrazbe, pri čemer so bili uporabljeni uveljavljeni in inovativni bibliometrični pristopi. Soavtorstvo, soobstoj ključnih besed, razvoj raziskovalnih tem in mreže vplivnih raziskovalcev na področju sodelovalnega upravljanja in digitalne preobrazbe so ponazorjeni z grafičnimi analizami.

Ugotovitve: Rezultati kažejo, da je povezava med sodelovalnim upravljanjem in digitalno preobrazbo še vedno omejena in jo je treba dodatno preučiti, saj gre za koncepta, ki se v zadnjih dveh desetletjih vse pogosteje pojavljata tudi v javni upravi. Poleg tega ugotovitve razkrivajo, da se je raziskovanje teh tem sčasoma sicer razširilo, vendar ni posebej osredotočeno na sodelovalno digitalno preobrazbo.

Vpliv v praksi: Članek povzema ključne vidike raziskav na področju sodelovalnega upravljanja in digitalne preobrazbe ter postavlja temelje za oblikovanje prihodnosti tega razvijajočega se področja javne uprave. S tem pomaga raziskovalcem razumeti razvoj raziskav sodelovalne digitalne preobrazbe v zadnjih dveh desetletjih, saj gre za razmeroma novo raziskovalno področje, za katero sta značilna hitra rast in razvoj.

Izvirnost/Vrednost: Raziskava prispeva k razumevanju sodelovalne digitalne preobrazbe kot ločenega raziskovalnega področja znotraj širših konceptov digitalne preobrazbe in sodelovalnega upravljanja, ki se v znanstveni literaturi šele uveljavlja, ter ponuja opredelitev sodelovalne digitalne preobrazbe.

Ključne besede: digitalna preobrazba, e-upravljanje, sodelovalno upravljanje, sodelovanje, sodelovalna digitalna preobrazba, bibliometrično kartiranje, pregled literature

3. Vloga županov v procesu združevanja teritorialnih enot – primer Latvije

Malvīne Stučka

Namen: Namen članka je predstaviti vlogo županov v procesu združevanja teritorialnih enot. Izpostavljen je njihov odnos z volivci in drugimi zainteresiranimi stranmi ter proces preoblikovanja lokalne samouprave. Kot najvišji lokalni uradniki, ki uživajo podporo volivcev in poslancev, imajo župani bistveno vlogo pri izvajanju ali, nasprotno, oviranju reform lokalne samouprave. Ocena njihove

ve vloge je nujna, saj imajo župani tako moč kot znanje in izkušnje, s katerimi lahko vplivajo na izvajanje reform lokalne samouprave.

Zasnova: Članek obravnava vlogo županov pri reformah lokalne samouprave, zlasti v okviru nedavnega združevanja teritorialnih enot v Latviji. S pregledom literature in analizo rezultatov nedavnega združevanja članek raziskuje zapletene odnose, ki jih imajo župani z drugimi deležniki, ter procese preoblikovanja v njihovih lokalnih samoupravah.

Ugotovitve: Študija poudarja pomen županov pri zagotavljanju učinkovitega vodenja v povezavi z reformnimi pobudami ter morebitne posledice za njihov ugled in volilne rezultate. Rezultati kažejo, da župani na proces združevanja teritorialnih enot vplivajo predvsem prek medijev, javnih posvetovanj, javnih pisem in celo prek možnosti odstopa s svoje funkcije.

Akademski prispevek k znanstvenem področju: Čeprav je na voljo kar nekaj raziskav o združevanju teritorialnih enot, je vloga župana pri tem pogosto spregledana. To zlasti velja za proces, ki poteka od zgoraj navzdol, kjer ima župan še vedno pomemben vpliv na potek združevanja teritorialnih enot. V članku so na primeru Latvije predstavljene izkušnje z reformami v manjši državi.

Vrednost: Raziskava prinaša dragocen vpogled v vlogo županov v procesu združevanja teritorialnih enot v Latviji in njene posledice za reformo lokalne samouprave. Ugotovitve pomembno prispevajo k obstoječi literaturi, saj celovito analizirajo vpliv župana na program reform in strategijo njihovega izvajanja.

Ključne besede: lokalna samouprava, združevanje teritorialnih enot, župani, Latvija

4. Ureditev plač v javnem sektorju v času inflacije in ustavnih omejitev

Nejc Brezovar, Kitti Pollák

Namen: Članek obravnava vpliv plač v javnem sektorju in inflacije na različne vidike družbeno-gospodarskega razvoja držav.

Metodologija: Na primeru Slovenije članek proučuje vpliv inflacije na kolektivna pogajanja in ureditev plač v javnem sektorju ter vlogo ustavnih fiskalnih omejitev v kolektivnih pogajanjih v javnem sektorju. Študija se osredotoča na vzorce v obstoječih dokumentih in empiričnih študijah primerov. Uporabljene so kvalitativne raziskovalne metode in primerjalna metoda z Madžarsko.

Ugotovitve in akademski prispevek k znanstvenem področju: Članek analizira vpliv inflacije na kolektivna pogajanja in ureditev plač v javnem sektorju. Ugotovitve kažejo, da lahko inflacija kljub nekaterim ustavnim omejitvam vpliva na kolektivna pogajanja in ureditev plač v javnem sektorju, obseg tega vpliva pa je odvisen od pogajalske moči sindikatov in delodajalcev ter določb kolektivnih pogodb in plačnih predpisov.

Ključne besede: javni sektor, sistem plač, inflacija, ustavne omejitve

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