

Managing Digital Transformation in Public Administration

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Abstract - Important strategic area, for every country, is the functioning of its public administration. Public administration utilises appropriate results the increased efficiency and effectiveness in both public sector and private sector. Managers must organise public administration to function adequately by training quality people and by motivating employees so that they do their job well. The main goal of this paper is to point out the importance of digital transformation in the public sector. Also through the analysis of secondary data that have a primary character to position the Republic of Croatia in relation to the surrounding countries and the countries of the European Union. The results of the analysis show that additional efforts are needed to encourage the process of digital transformation, acquisition of new skills, knowledge sharing, business process management and other segments.

Keywords - public administration; public sector; new public management; digital transformation

I. INTRODUCTION

When it comes to public management, there is a word, primarily, about the public sector, that is, country, whose aim is to educate, protect and find right persons for numerous public jobs. Tasks in public sector can be perceived from the definition: "Public sector is the complex system with which realisation of public interest, fulfilment of public needs and provision of public services in almost every sphere of contemporary society, is ensured." [1] Hence, public sector (public administration, local and regional self-government, public services and bodies with delegated public authority) in most countries is going through continuous changes by which they are striving to respond to challenges in economic, technological, political and societal environment. Main, thereby imposed, requirements are: legal certainty and predictability of public sector's activities, impartiality and transparency in provision of services, responsibility for results, professionalism, efficiency in the utilisation of public revenues and effectiveness in achieving aims. Tendency and need of public sector is also primarily digital transformation which works in full capacity in developed countries and there is the beginning of this tendency in other countries as well as in Republic of Croatia. [2]

From their foundation until today, in almost all countries, there are jobs that are done by individuals

themselves and households as well as jobs that are organised by public administration. Jobs that satisfy certain collective needs are in it is the jurisdiction of the country and are called public jobs. Due to the sheer volume of those jobs their most important specification is planning. Thus, strategic planning in public administration represents systematic and continuous decision-making process about intended future results, how to achieve them as well as how to measure and assess their success. [3] Process of strategic planning helps to increase efficiency and effectiveness of every organisation. It is the coordinative instrument to outline the vision and to set main aims with the purpose of moving towards desired result. Key role in mentioned processes is the role of contemporary technologies and everything that digital transformation implies.

In this paper the authors have set two working hypotheses:

H1: Process of digital transformation is directly dependent on capabilities and motivation of managers

H2: Changes in the context of digital transformation imply additional adjustment, further education and extra skills

In accordance with listed hypotheses, within this paper, the authors have set the theoretical framework, have analysed current tendencies and have conducted the research based on available secondary data with primary character.

In that regard, "Contemporary administrative organisations should anticipate aims of administrative activity and ways of achieving them (TN: those aims). Continuous process of conscious anticipation, creation of aims and methods of work, as well as (TN: process of) previous determination of criteria for control and determination of results is called planning" [4] From this it can be concluded that planning requires organisational competences, that will display results and direct the organisation toward success.

II. PUBLIC MANAGEMENT AND DIGITAL TRANSFORMATION

In today's times, people have become one of the most important resources of organisations because without them organisation would not exist. In order to have quality and motivated employees, managers are those who must know to effectively motivate and manage them. "Management of human potentials is the process of employing, developing, assessing and rewarding of employees, along with taking care of working relationships, health and safety of employees as well as of questions of equity." [5] The process of managing human potentials itself is comprised of whole array of activities and methods whose task is to work out the most appropriate solution, that is, strategy for performing various activities.

According to Lamza-Maronić, Glavaš, Lipešić (2010) managing human potentials includes several most important processes, such as [6]:

- 1) analysis and formation of job
- 2) staffing and selection of employees
- 3) education and development of employees
- 4) performance management
- 5) wage structure, incentives and benefits
- 6) working relationships and relationships with employees

In general, management of human potentials is defined in terms of several factors, and those are: "optimal utilisation of potentials for services; doing jobs by delegation of tasks within which potentials will be optimally utilised; process in which managers direct other employees' jobs towards common aims; inclusion of coordination of human and material potentials in accordance with objectively set aims; coordination of all potentials via planning, organisation, management and control; and aggregation of activities that are undertaken by one or more persons who are unable to achieve goals set by administrative body." [7]

In the last few decades, the more detailed research into the concept of new public management assumes the profound importance. The reason for that is in necessity to further research fundamental knowledge related to it and ideas related to its future development. "New public management is the common name for a series of public sector reforms, that were carried out during least twentyish years in most OECD countries, developing countries and transitional countries." [8]

In accordance with Ružić, Golubić, Latin (2014) new public management has the aim to transform rigid, hierarchical, bureaucratic i.e. traditional model of public administration into more flexible and more market-oriented model of public administration. New public management strives to improve efficiency, of public sector and control that government has over public, what leads to greater cost-effectiveness via greater market orientation of public sector, without negative consequences for other aims or considerations. To visually present these facts, the authors of this paper have Figure 1., as shown in the continuation.

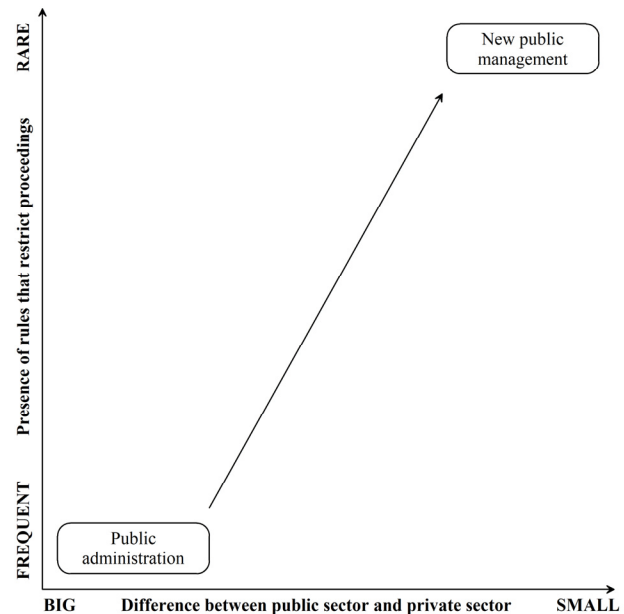


Figure 1. Meaning of new public management

Within Fig. 1., x axis shows size of difference between public sector and private sector (ranging from big to small), while y axis shows occurrence of presence of rules that restrict proceedings (ranging from frequent to rare). This is also graphical representation of the fact that, in practice, new public management is founded on completely opposite principles and values than those that have characterised traditional public administration.

According to Ružić (2014) process of new public management consists of:

- 1) improvements of efficiency and effectiveness in public sector
- 2) increases of responsibility of budget entities towards users, that is, buyers of services and programs
- 3) increases of benefits along with the decrease of public expenditures
- 4) strengthening of management at a national level along with the increases of responsibility towards users

Societal role and perspective of future development of new public management mostly depends on societal development of a country. However, is not known how and how quick will globalisation, connection of society and connection of individual functions in the company, develop and, also, it is not known how quickly will threats that emerge from exhaustion of non-renewable energy sources be realised. If those changes will be fast and unexpected moments more often, management of public jobs will be looking for new forms and methods. One of the main actual trends is the digital transformation that implies total alteration of business operations and utilisation of contemporary business informatics solutions as well as information and communication technologies (abbr. ICT) in performing work tasks and acquiring skills. [9]

III. IMPACT OF ICT ON TASKS AND SKILLS OF EMPLOYEES – EMPIRICAL RESEARCH

Based on hypotheses set earlier in this paper and aims of this paper, the authors have conducted the analysis of secondary data with primary character with the purpose of presenting reliable and detailed empirical data on current state of utilisation of contemporary information and communication technologies in everyday work and utilisation of related skills in performing work tasks.

Data utilised in this research and analysis were taken in the original form, from the report The Digital Cities Challenge, Designing Digital Transformation Strategies for EU Cities in the 21st Century. [10] This data refers to the period from 2018 to 2019 and were analysed in accordance with hypotheses set in this paper. Also, obtained results are also related to situation in public administration that is even less flexible and there is great resistance towards changes in business processes and towards introduction of new solutions in regular process of doing a job.

So, in this research and analysis the authors have included these 3 categories related to respondents from the report mentioned above.

- percentage of individuals (C1: PC_IND)
- percentage of individuals who utilise any type of computer, portable devices or computer equipment or devices at work (C2: PC_IND_MDW)
- percentage of employed and self-employed who have utilised the Internet in the previous year (C3: PC_IND_ILT12_SSF)

Based on set hypotheses and analysis of mentioned categories of respondents according to taken original data the authors have selected these 6 variables:

- main work tasks of individuals have changed as a result of introduction of computer (equipment) or new software (applications) (V1: I_MDW_JTC)
- individuals had to learn how to utilise new software (applications) or computer (equipment) at their job (V2: I_MDW_LRN)
- individuals need additional training in order to cope with jobs that require them to utilise computer (equipment) and software (applications) at work (V3: I_MDW_SKLLO)
- skills of individuals are a good match for tasks related to utilisation of computer (equipment) and software (applications) at work (V4: I_MDW_SKLME)
- individuals were capable to cope with more demanding tasks related to utilisation of computer (equipment) and software (applications) at work (V5: I_MDW_SKLHI)
- individuals were involved in selecting, replacing or testing of computer (equipment) or software (applications) that they use at work (V6: I_MDW_INV)

After the analysis the authors have obtained results that are presented in Table 1. So, Table I. is compiled of percentages that represent percentages that denote overall impact of ICT on tasks and skills in 3 observed categories

within EU 28 (all European Union countries except Sweden) in the year 2018.

TABLE I. PERCENTAGE OF OVERALL IMPACT OF ICT ON TASKS AND SKILLS IN EU 28 COUNTRIES (2018)

	V1	V2	V3	V4	V5	V6
C1	9%	16%	5%	26%	10%	8%
C2	21%	39%	11%	64%	24%	20%
C3	16%	29%	9%	47%	18%	15%

In category of individuals only 9% of individuals' tasks have changed as the result of using new software (applications) or new computer (equipment), 16% of individuals had to learn how to use new software (applications) or new hardware (equipment), while only 5% of individuals needed additional education. Yet, 26% of individuals i.e. their skills are good match for tasks related to utilisation of computer (equipment) and software (applications) at work. Unlike the data shown for first considered category, within second category (that is related to individuals who utilise any type of computer, portable devices or computer equipment or devices at work), 64% of individuals i.e. their skills match duties related to the utilisation of ICT, while 39% of them had to learn how to utilise new software (applications) or computer (equipment) for business purposes. Only 11% of individuals who do utilise ICT i.e. computers (equipment) at work needed the additional training in order learn how to use to and to understand it for business purposes.

Employed and self-employed individuals, who have utilised Internet in 2017 to 2018 i.e. their skills, have a 47% match with individual skills that are required to use ICT i.e. computers (equipment), software (applications), etc.

Table II. is compiled of percentages that represent percentages that denote average impact of ICT on tasks and skills in 3 observed categories within EU 28 (all European Union countries except Sweden) in the year 2018.

TABLE II. PERCENTAGE OF AVERAGE IMPACT OF ICT ON TASKS AND SKILLS IN EU 28 COUNTRIES (2018)

	V1	V2	V3	V4	V5	V6
C1	8.41%	14.93%	4.19%	26.00%	9.15%	8.00%
C2	20.59%	35.33%	10.63%	66.30%	22.41%	18.55%
C3	15.11%	26.48%	7.63%	46.93%	16.37%	14.00%

According to values in Table II., 66.30% of individuals (on average) in European Union who utilise ICT i.e. computers (equipment) i.e. their skills match requirements and tasks of their jobs with standard deviation of 7.74%, while 35.33% of individuals with standard deviation of 11.88% should learn how to new software (applications) for the purpose of doing their jobs. By comparing variable I_MDW_SKLME with PC_IND_MDW and PC_IND_ILT12_SSF i.e. observed category of individuals, it is necessary to

emphasise the fact that, on average, 46.93% of employed and self-employed individuals from EU who have used Internet from 2017 to 2018 i.e. their skills, match tasks at their jobs related to ICT i.e. computers (equipment). In other words, there is the evident difference of 19.73% regarding the fulfilment of tasks at their jobs between individuals who use ICT at their jobs and those who use Internet at their jobs. It is necessary to emphasise that 26.48% of employed and self-employed individuals from EU, who have used Internet, need education to use new software (applications) at their jobs.

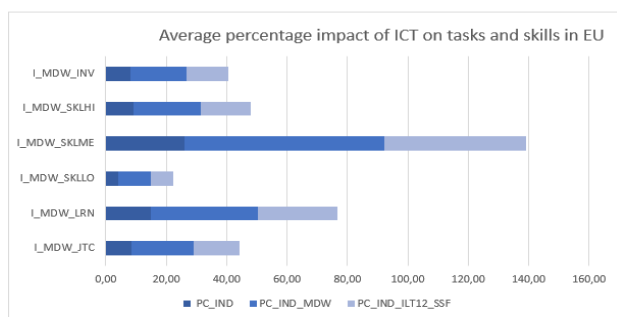


Figure 2. Average percentage impact of ICT on tasks and skills in EU (2018)

Comparison of the influence of ICT on tasks and skills between EU 28, EB 6 (6 Eastern Balkan countries as well as I & N (Iceland and Norway) is shown in Table III. below. In that regard, it is necessary to remark that there is the evident difference of ICT's influence at work in favour of 28 EU countries as well as Iceland and Norway.

TABLE III. COMPARISON OF EU 28, EB 6 AND I & N (2018)

V2	EU 28	EB 6	I & N
C1	20.59%	26.17%	32.50%
C2	35.33%	24.67%	58.00%
C3	10.63%	13.50%	6.50%
C4	66.30%	65.33%	53.00%
C5	22.41%	21.17%	39.50%
C6	18.55%		29.00%

It is also interesting to observe that 65.33% of individuals in EB 6 countries utilise computer (equipment) at work, what is almost equal percentage like the percentage of individuals in EU 28 countries i.e. 66.30%. So, the difference is little bit less than 1% i.e. 0.97%.

IV. CONCLUSION

Public management is primarily related to public sector i.e. certain country, whereas its primary goal is the realisation of various public jobs. In addition, Public jobs are done at local, regional or national level. Main tasks of public administration have cumulated during its development. Public administration represents one of the strategically important areas, while modernisation and digital transformation of public administration along with the provision of quick and reliable public services are necessary components of stimulating entrepreneurial

environment and presumption of establishing of better standard of all citizens especially in Republic of Croatia. Over the last few years all countries in European Union have improved their digital performances. Finland, Sweden, Netherlands and Denmark have the achieved the highest grades according to DESI 2019 indicators and are among world leaders in digitalisation and digital transformation. Those countries are followed by United Kingdom, Luxembourg, Ireland, Estonia and Belgium. Some other countries are, however, still far away and European Union as a whole needs additional measures to compete at the global level.

In accordance with previously mentioned, as well as with theoretical and empirical analysis in this paper the authors have reached certain conclusions:

- Digital transformation of public administration may imply additional education.
- Digital transformation implies transition of consciousness of individuals, but also of decision makers.
- It is necessary to realise the importance of digital transformation and the necessity to carry it out at the level of European Union, and especially at the level of the Republic of Croatia.

Considering the theoretical and empirical analysis and the obtained data it can be concluded that both hypotheses set in the paper are fully confirmed. This paper and analysis is the starting point for further more extensive research in the observed area.

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