

# HUMAN CAPITAL AS A FACTOR FOR SUCCESSFUL DIGITALISATION OF LOCAL ADMINISTRATIVE SERVICES

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**Abstract:** This article focuses on human capital as a key factor in the success of the digitalisation of processes of the local authorities' activity. The experience gained since the period of Bulgaria's membership in the EU and the significant resources invested in the modernisation of central and local authorities highlight the role of the human factor for the effective implementation and operation of e-government tools. This requires revealing the role of human capital in the successful digitalisation of work processes in local administration. Arguments are given in favour of the thesis that the higher its level, the more efficiently and professionally the necessary organisational changes can be made for the successful implementation of the necessary technologies and the development of e-government.

**Keywords:** human capital, digitalisation, local authority, administrative reform.

**JEL:** H70, J24, R50.

## Introduction

The local administration in Bulgaria faces a number of demographic, social and economic challenges. For three decades now, the local government has been continuing the processes of introducing and affirming the principles of modern public administration, accompanied by a set of issues of the surrounding environment – negative demographic trend, inefficient judiciary, poverty and social exclusion, deteriorating competitiveness of local industries, the challenges of European integration,

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etc. Although in the last 15 years significant funds have been allocated in this direction, including specialised operational programmes ("Administrative Capacity", "Regional Development"), achieving rapid and highly effective results through the use of EU Structural Funds has proved to be a complex and difficult task. There are a number of measures aimed at administrative reforms at both central and local levels. A number of projects have been launched and completed not only for the development of the local infrastructure, the public environment and the material base of the local administration, but also in accordance with the strategy for digitalisation of the administrative processes. The experience gained in the management of such projects brings to the fore human resources as one of the key factors in the progress of digitalisation of administrative processes.

The main goal of this article is to present the role of human capital in the successful digitalisation of work processes in local administration. The focus is on the thesis that the higher its level is, the more efficient and professional the necessary organisational changes are, and the deployment of ICT and development of e-government at the local level can be implemented. The digital skills of human resources in the modern technological world are associated not only with the efficiency of individual work processes, but with the modernisation of the entire socio-economic life. Ultimately, the transformation of human capital takes place in the context of the acquisition of digital literacy by the whole public, which generates knowledge, skills and competencies for full-fledged work in the digital environment.

### **General characteristics of the human capital of the organisation**

Human capital is one of the main factors not only in the manufacturing sector, but also in the whole economy at micro and macro level. Capital is *"value that brings surplus value as a result of the use of hired labour"* (<http://rechnik.info>). According to some authors, *"capital as a category of economic theory means a kind of economic resource that over time and in its market functionality provides growth in value, income and wealth"* (Kazakov, A., 2010). Thus, the given definition makes it possible to conclude that capital generates added value. In particular, it creates added value through lifelong learning, which focuses on the role of education in accumulating human capital. Human capital, in turn, can be defined as a set of valuable theoretical and practical knowledge, skills and competencies of the individual, and its accumulation affects the economy by increasing productivity, efficiency and

innovation to achieve the desired quality and results, according to business goals.

Personal qualities, characteristics and abilities in themselves are not a sufficient condition for the formation of human capital – here we mean those “... *qualities and statuses in action, when the person, group or community exploits them to solve their specific life problems, to take advantage of specific opportunities and incentives, to achieve success and access to new goods, for fuller individual expression and realisation, together with the realisation of high public ideas or social mission, if they follow such. It is important to emphasise that when the available qualities and statuses are not in circulation, when people do not take advantage of them, they gradually depreciate, habits and confidence are lost, the corresponding demotivation occurs, etc.*” (Mirchev, M., 2009). According to other authors “*human capital, by definition, expresses the knowledge gained, the experience, the skills acquired and the qualifications changed as a result, combined with the healthy status of the bearer of these new qualities, his/her motivation, talent and ability to handle information*” (Kazakov, A., 2010). In addition to labour put into the production of products, there is another no less important work that cannot be regulated by labour legislation – it comes down to mental and physical learning efforts, which differ from those made in order to receive monetary remuneration (Kazakov, A., 2010).

The accumulation of human capital is a process that is associated with investing, and when investing in human capital, the goal is to obtain added value, growth, investment in people, such as theoretical knowledge, practical skills, professional skills, etc. Human capital consists of innate abilities and talents, and the investment is made to acquire additional skills such as training, education, qualifications, experience, in which resources are currently invested to obtain a return in the future. This return can have both financial and non-financial dimensions and can be reflected in raising people's incomes, increasing the organisation's effectiveness and economic growth. The development of human capital should be the focus of attention of both the state and business. The interest in this sense is general, as it is directly related to investments in this type of capital to accelerate economic development and increase the competitiveness of the economy. The strategy for "lifelong learning" of people forms an attitude to continuously increase the level of human capital – both in terms of quality and effective use. For this reason, investments in this type of capital should be subject to long-term

planning, which should reflect the view of its long-term development (Kirova, A., Zareva, I. & Matev, M., 2012).

A significant aspect is to clarify the difference between the concepts of "human capital" and "human resources". The first is considered a basic economic category, while the second is considered a concept with a wider range, reflecting the social nature of personal qualities that affect people's behaviour in the labour process. *"Unlike human resources, human capital is not just a store of knowledge and skills, as a necessary condition for the transformation of resources into capital is their use in employment in order to achieve higher productivity and "return" in the form of remuneration"* (Kirova, A., Zareva, I. & Matev, M., 2012). Human resources are embodied in the totality of individuals employed in a particular organisation, who, with their labour efforts, achieve the goals of this organisation. In turn, human capital is formed and accumulated in each individual as a result of a specific investment process aimed at "education, training and lifelong learning". The latter concept is used by the National Strategy for Lifelong Learning (2014-2020), resulting from the relevant Memorandum of the European Commission (2000), namely: *"any lifelong learning activity undertaken to improve knowledge, skills and competences"* (National Strategy for Lifelong Learning 2014-2020).

After all, human capital encompasses both the innate and acquired abilities of the individual, which represent a certain value for the organisation. This gives reasons for planning and implementing investments in this capital so that it is accumulated above a critical level, without which the organisation could not function efficiently and rationally. Moreover, each individual is involved in generating, enriching and sharing of organisational knowledge (Atanasova, M., 2015), which determines the key nature of human capital for the proper functioning of specific processes in organisations from both business and public sector. Such are the processes of digitalisation of administrative processes, which can hardly be effective without a relatively high level of accumulation of such capital.

### **Human capital and the digitalisation of local authorities**

Human capital is an extremely important factor in the process of digitalisation in local government organisations. Not only in the business sector, but also in the central and local state authorities, the knowledge, skills and competencies of the staff determine the level of efficiency of the activity of these authorities. At the same time, certain characteristic features of the organisational environment in Bulgaria have a significant impact on the

development of human capital in the Bulgarian administration (Atanasova, M., 2019):

- both the initial and subsequent retention take place in conditions of intensifying competition with employers from a number of other countries with a significantly higher standard of living – this is especially true for the EU labour market, where there is free movement of labour;
- the continuous processes of e-government implementation cause significant transformations in the positions and requirements to the competences of the employees – this undoubtedly causes a constant increase in the need for specialised training and a complete expansion of the administrative authorities;
- it should be borne in mind that in the light of unfavourable demographic processes in Bulgaria, there are working groups involving “*persons of three generations*” – this poses specific tasks to the workforce management in order to neutralise potential generation conflicts caused by the very large differences in the levels of modern digital competences.

In order to develop the processes of digitalisation in local administration and improve human capital as a key factor for successful digitalisation, the Institute of Public Administration (IPA)<sup>3</sup> develops the project "Digital Transformation in Education – Digital Competence and Learning" <sup>4</sup> with the following main activities:

- digitalisation of the educational activity of IPA;
- training for public administration officials, including the development of digital competence and wider application of forms of learning;
- increasing the capacity of IPA for research activities, as well as the information and documentation centre (Information system for management and monitoring of EU funds in Bulgaria, 2020).

The expected results from the implementation of the project activities are in two directions. First of all, the digitalisation of the processes in IPA and its establishment as a leading training and research institution in the public administration is presented. A key focus is also on increasing the potential of human capital to generate added value through “*trainings for development of*

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<sup>3</sup> The Institute of Public Administration is the leading institution for professional training of public administration employees: <https://www.ipa.government.bg/bg/misiya-viziya-i-strategicheski-celi>.

<sup>4</sup> Operational Programme "Good Governance", beginning on August 1, 2019, ending on September 30, 2023.

*the digital competence of public administration officials and increase of their knowledge, skills and capacity in the field of digitalisation of the public administration” (Information system for management and monitoring of EU funds in Bulgaria, 2020).*

### **International research on the digital competence of personnel in public organisations**

The digital competence of employees is considered to be a key factor in the successful conduct of digital transformation processes in administrative authorities. On the other hand, the condition for such development of digitalisation is the knowledge, skills and competencies of citizens as users of digital administrative services. This shows the important role of human capital, an indicator of which is the European Commission's Digital Competences Framework (European Commission website, 2022). The European Digital Competence Framework, also known as DigComp, offers a tool to improve citizens' digital skills. According to this framework, being digitally competent means that people must have competences in all areas of DigComp. In 2017, the European Commission introduced the framework for digital competence "Digital competencies 2.0", which presents the main factors of digital competence in the following five areas:

- literacy related to information and data – data and information retrieval skills;
- communication and collaborations – skills for interaction, communication and cooperation through digital technologies;
- creating digital content – skills for creating and editing digital content;
- security – skills for protection of digital devices, personal data and content in a digital environment;
- problem solving – skills for identifying problem areas and solving problems in digital environment.

In 2018, the European Commission (EC) introduced the new digital competence framework "DigComp 2.1: The Digital Competence Framework for Citizens with eight proficiency levels and examples of use", which is a development of the digital competence framework "Digital competences 2.0", and presents 8 levels of professional qualifications and examples of use that have been applied in the field of training and employment. They are

presented according to the four levels of DigComp 1.0<sup>5</sup> – basic level, intermediate level, advanced and highly specialised level; each of these levels includes two levels of DigComp 2.1 in the areas: complexity of tasks, autonomy, cognitive area (Carretero. S., Vuorikari, R., and Punie, Y., 2017). Based on the results of a survey on the level of digital competence of those employed in public administration, conducted by an IPA team with the participation of 5770 employees from across the country (carried out in accordance with the Digital Skills Framework of the EC DigiComp 2.1), a new programme "Digital Competence" has been developed in the IPA catalog for 2020. This programme aims to prepare public administration employees for successful work in the conditions of digital transformation. This is another indicator of the significance of human capital in the process of digital transformation of the administration.

In addition to the national level, human capital as a factor of digitalisation is the subject of research and analysis in a number of methodologies at European and global level. One of the dimensions in the European Commission's methodology, which monitors the competitiveness of member states in the field of digital technologies, is human capital. It is part of the annual Digital Economy and Society Index (DESI) for each of the 28 EU countries. In the human capital dimension, the results of the countries are based on a study and analysis of the following indicators, forming the value of the measure "human capital":

- at least basic digital skills – measured as a percentage of persons;
- above basics digital skills – measured as a percentage of persons;
- at least basic software skills – measured as a percentage of persons;
- ICT specialists – it is measured as a percentage of employees aged 15 – 74;
- female ICT specialists – measured as a percentage of ICT specialists;
- enterprises providing ICT training – measured as a percentage of enterprises;
- ICT graduates – measured as a percentage of graduates.

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<sup>5</sup> DigComp: A framework for developing and understanding digital competence in Europe, presented in 2013.

On human capital, Bulgaria ranks last, 27th, with a score of 32.7, which is below the EU average of 47.1. According to the indicator "at least basic software skills" for 2021, Bulgaria is below the EU average (58%), and the percentage of persons on the same indicator for the period 2019 - 2021 is 31% for each year. The situation is almost the same with "at least basic digital skills" (29%) and "above basic digital skills" (11%), where the percentages remain for the whole period and are lower than the EU average (56% – basic skills in the field of digital technologies and 31% – digital skills above basic). In the field of ICT specialists Bulgaria is also below the EU average (4.3%) and the percentage of employed persons aged 15-74 is changing, as in 2019 it was 3.3%, in 2020 – 3.1% and in 2021 – 3.3%. The best indicator for Bulgaria in this dimension is "ICT graduates", where the value of Bulgaria in 2021 is 4.0%, which is above the EU average (3.9%). **In the dimension "Human Capital" for 2021, Bulgaria ranks 27th among EU member states**, with a value of 32.7%, which is below the EU average (47.1%).

According to the report "Index for the penetration of digital technologies in the economy and society (DESI) for Bulgaria" for 2021, *"Bulgaria sometimes encounters difficulties in retaining ICT professionals despite the growing sector. Businesses in all sectors are facing challenges in filling ICT vacancies, for instance in the field of cloud architecture or data management, a trend that is also being observed at EU level"*. The data provided by the Bulgarian Association of Software Companies also show that this industry in our country (forming 3.8% of GDP), as well as the ICT sector, have revenue growth of about 10% in 2020, given a decrease of about 4.2% of GDP in the first pandemic year (according to NSI data) (Bulgaria in the Digital Economy and Society Index. European Commission, 2022). According to this methodology of the European Commission (including four groups of measures for 2021), **Bulgaria ranks 26th in the EU on the penetration of digital technologies in the economy and society in 2021.**

Human capital, as a factor in the digitalisation of processes, is the subject of a worldwide study by the United Nations (UN), which is conducting a research on the development of e-government in all 193 UN member states (<https://publicadministration.un.org/en/Research/UN-e-Government-Surveys>). The survey is conducted according to a specific methodology, which includes three components of e-government, enabling citizens and businesses to benefit from online services and information. The E-Government Development Index (EGDI) at national level is a composite measure based on the weighted average value of three indices. "One third is



derived from the Telecommunication Infrastructure Index (TII) based on data provided by the International Telecommunication Union (ITU), one third – by the Human Capital Index (HCI) based on data provided by the United Nations Educational, Scientific and Cultural Organization (UNESCO) and one third of the Online Services Index (OSI) based on data collected by an independent survey questionnaire assessing the national online presence of all 193 UN Member States” (E-government survey 2020: Digital Government in the Decade of Action for Sustainable Development, 2020).

Since 2001, the survey has been conducted every two years using the same methodology, with a change made in 2014 with regard to the human capital index, in the calculation of which two new components "expected years of schooling" and "average years of training" have been added. With this change in the current methodology, the latest data for 2020, the following components are included in the human capital index:

- adult literacy rate – measured as a percentage of people over the age of 15, who can understand, write and read a short text;
- gross enrollment ratio – measured as the ratio of total number of students enrolled in primary, secondary and higher education, regardless of their age, to the total population for this level;
- expected years of schooling – measures the number of years of schooling that a child of a certain age can expect to receive in the future;
- average years of schooling – measured by the average number of years of total schooling of the adult population of the country.

The composite value of the human capital index is the weighted average of one-third adult literacy weight and two-ninths of the gross enrollment ratio, expected years of schooling and average years of schooling. This is the methodology for forming the human capital index as a major component of the e-government development index of each country.

Similar studies are in the field of view of Bulgarian researchers such as B. Borisov, who sets the ambitious goal to build a system of criteria for the formation of a summary indicator for measuring administrative capacity – Index of administrative capacity of public administration for good governance, which allows annual systemic progress to be monitored (Borisov, B. , 2018).

### Conclusion

Numerous studies on the role and significance of human capital testify to its importance for the successful implementation of the processes of digital transformation in public organisations. This shows that digitalisation is not just about the mechanical acquisition and installation of information technology and software solutions – there are other important factors, such as reliable information, maintained registers and access channels, developed models of interaction between stakeholders, etc.

For local government organisations, the statement that human capital is a key factor both on the part of these organisations themselves and on the part of service users and local social environment is fully valid. The creation and commissioning of effective electronic services in an optimal digital environment implies their regular use by motivated and competent people with digital skills. The role of the human factor in the processes of digital transformation and the development of a digital environment, in which e-government in local governments can function effectively, is indisputable.

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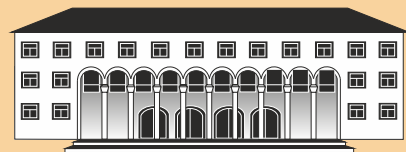
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