Aliya K. Mustafina[1]

THE IMPACT OF IT ON THE WORK OF ARCHIVES THROUGH THE PRISM OF FUTURE COMPETENCIES

Abstract

Purpose: *The accelerated pace of development of digital technologies is changing our society and the methods of work. In the implementation of these aspects of digitalization an archivist also occupies their specific place. The purpose is to determine what competencies the archivist of the future should have, how to determine them, how to organize the work of archivists in the new technological conditions.*

Method/approach: *The method used in our article is a case study, with the help of which we demonstrated the role of archivist competencies in the field of IT, economics, law, and the need to change management methods, forms of organizing interaction between archive specialists.*

Results: *The article provides an overview of personal competencies of future specialists. A single universal model of forming various professional profiles of future archivists and a model of the future structure of the archival organization are proposed in this article. The method for creating professional profiles can serve as a tool for assessing a candidate when hiring, with ongoing assessment and planning of employee development. The measures that can be taken to avoid future risks in the labor market in the field of archives are considered.*

Conclusions/findings: *Drawing up competency profiles for a future archivist has an important role for archival science, since it allows avoiding risks of staff shortages through timely updating of professional standards, drawing up interdisciplinary training programs, advanced training and retraining of personnel.*

Keywords: *personal, digital competencies, professional profiles, competency-based approach, professional standard, model, structure of the archival organization.*

1 Aliya K. Mustafina, Director of the Archive of the President of the Republic of Kazakhstan (050010, Almaty city, st. Dostyk, 87 b), candidate of Historical Sciences, e-mail: office@archive.president.kz.

L'IMPATTO SUL LAVORO DEGLI ARCHIVI ATTRAVERSO IL PRISMA DELLE COMPETENZE FUTURE

Astratto

Scopo astratto: *Il ritmo accelerato dello sviluppo delle tecnologie digitali sta cambiando la nostra società e i metodi di lavoro. Nell'attuazione di questi aspetti della digitalizzazione anche l'archivista occupa il suo posto specifico. Lo scopo è determinare quali competenze dovrebbe avere l'archivista del futuro, come determinarle, come organizzare il lavoro degli archivisti nelle nuove condizioni tecnologiche.*

Metodo/approccio: *Il metodo utilizzato nel nostro articolo è un caso di studio, con il aiuto del quale abbiamo dimostrato il ruolo delle competenze archivistiche nel campo dell'informatica, dell'economia, del diritto e la necessità di cambiare metodi di gestione, forme di organizzazione dell'interazione tra specialisti dell'archivio.*

Risultati: *l'articolo fornisce una panoramica delle competenze personali dei futuri specialisti. In questo articolo vengono proposti un unico modello universale per la formazione di vari profili professionali dei futuri archivisti e un modello della futura struttura dell'organizzazione archivistica. Il metodo per la creazione dei profili professionali può fungere da strumento per valutare un candidato al momento dell'assunzione, con una valutazione continua e una pianificazione dello sviluppo dei dipendenti. Vengono prese in considerazione le misure che possono essere adottate per evitare rischi futuri nel mercato del lavoro nel campo degli archivi.*

Conclusioni/risultati: *L'elaborazione dei profili di competenza per un futuro archivista ha un ruolo importante per l'archivistica, poiché consente di evitare rischi di carenza di personale attraverso l'aggiornamento puntuale degli standard professionali, l'elaborazione di programmi formativi interdisciplinari, l'alta formazione e l'aggiornamento del personale.*

Parole chiave: *personale, competenze digitali, profili professionali, approccio per competenze, standard professionale, modello, struttura dell'organizzazione archivistica.*

VPLIV IT-JA NA DELO ARHIVOV SKOZI PRIZMO PRIHODNIH KOMPETENC

Izvleček

Namen*: Pospešen razvoj digitalnih tehnologij spreminja našo družbo in načine dela. Pri izvajanju teh vidikov digitalizacije ima svoje posebno mesto tudi arhivist. Namen je ugotoviti, kakšne kompetence naj ima arhivist prihodnosti, kako jih določiti, ter kako organizirati delo arhivistov v novih tehnoloških pogojih.*

Metoda/pristop*: Metoda, uporabljena v našem prispevku, je študija primera, s pomočjo katere smo prikazali vlogo arhivskih kompetenc na področju informatike, ekonomije, prava ter potrebo po spremembi metod upravljanja, in oblik organiziranja interakcije med arhivski strokovnjaki.*

Rezultati*: Prispevek podaja pregled osebnostnih kompetenc bodočih strokovnjakov. V prispevku sta predlagana enoten univerzalni model oblikovanja različnih poklicnih profilov bodočih arhivistov in model prihodnje strukture arhivske organizacije. Metoda za izdelavo poklicnih profilov lahko služi kot orodje za ocenjevanje kandidata pri zaposlovanju s sprotnim ocenjevanjem in načrtovanjem razvoja zaposlenih. Obravnavani so ukrepi, s katerimi se je mogoče izogniti bodočim tveganjem na trgu dela na arhivskem področju.*

Sklepi/ugotovitve*: Oblikovanje kompetenčnih profilov bodočega arhivista ima pomembno vlogo za arhivistiko, saj omogoča izogibanje tveganjem pomanjkanja kadrov s pravočasno posodobitvijo poklicnih standardov, pripravo interdisciplinarnih programov usposabljanja, izpopolnjevanje in prekvalifikacije kadrov.*

Ključne besede*: osebnost, digitalne kompetence, poklicni profili, kompetenčni pristop, poklicni standard, model, struktura arhivske organizacije.*

1. INTRODUCTION

In the modern world, the development of information policy at the international and regional levels is based on the fact that digital information acts as a resource and a product at the same time.

The accelerated pace of development of digital technologies with the use of artificial intelligence technologies and the construction of large data centers is changing the structure of society and the ways of interaction within it before our eyes.

In the implementation of these aspects of digitalization, archives also occupy their specific place, which generate and process the largest volumes of data that have historical, cultural and educational significance for the entire society.

The development and implementation of digital technologies make it possible for archives to become inclusive and use them in creative ways.

However, IT and its modifications encourage professionals in the field of archiving and document management to acquire new technical and technological knowledge, learn quickly, and navigate programs and technology.

But what competencies will be needed for a future specialist in the field of document management and archiving to organize work of IT transformation?

How integrated should the competencies of the IT and archival industries be?

Does everything depend on the director?

As a rule, not everything depends on the position.

The key role is played by the will, abilities, interest and motivation of the members of society themselves, incl. students and company specialists. But in order to prepare a personal in advance and utilize the potential of society, it is necessary to set a strategic guideline for them, so that among the many qualities, abilities, knowledge and skills, citizens they strive and have the conditions to develop in themselves something that will allow them to ensure their own relevance and well-being.

Currently, many countries, in order to find answers to these questions, plan in their Strategies entire scientific research to study current and forecast future competencies that a specialist in the field of document management and archival affairs should have, what new positions should be and the structure of archival organizations of the future (United States of America, Great Britain, Finland).

Attention is also paid to training leaders and coaches who have related knowledge and develop intersectoral approaches and technologies to work. Trends in horizontal management and cross-collaboration are emerging (National Archives and Records Management, 2022), (National Archives of Great Britain, 2022), (National Archives of Finland, 2020).

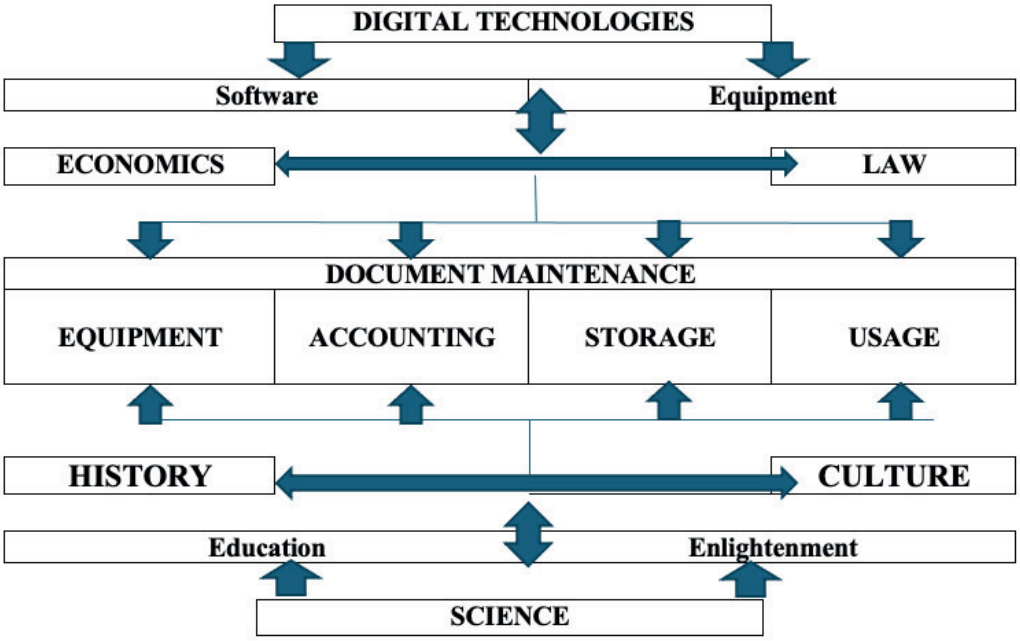
That is why we tried to create a:

- Model for the formation of professional profiles of a future specialist;
- Method of creating professional profiles;
- Model of the structure of an archival organization;
- The measures to develop a competency-based approach.

2. FORMATION OF PROFESSIONAL PROFILES OF A FUTURE SPECIALIST

The figure shows a scheme of the professional areas, which can be used as a model for the formation of various professional profiles of a future archivist.

Figure 1. The model of formation of professional profiles of a future specialist



The current core area of archival and records management is central to this model. Everything that is designated under this area serves as the competence foun-

dation of a specialist with the all-pervasive function of science. All the elements listed above demonstrate future mandatory competencies with pervasive knowledge and skills in the field of digital technologies in the relevant area of activity of the archivist.

In general, a specialist in the field of records and archival science is able to adapt to new conditions and ensure the successful integration of science and digital technologies into his practice in the future by studying, understanding and developing the methods and tools of his work.

For example, records management professionals can use their technical knowledge to leverage various digital documentation platforms. They may also have basic knowledge of software development and programming languages, which they can use to work with engineers to create custom control systems for the organization. Their technical skills can allow them to train employees on how to use documentation platforms and solve user's problems.

3. THE PERSONAL COMPETENCIES OF THE FUTURE ACCORDING TO THE RESULTS OF A MCKINSEY & COMPANY STUDY

In the context of accelerated IT renewal, the personal competencies of a specialist (soft) come to the fore, which will allow him to make decisions in both predictable and uncertain situations. Both systematic and irrational types of thinking are becoming in demand.

Analyzing the competencies that an individual will need to get a job and be satisfied with their activities, experts (scientists and practitioners) publish various TOP future competencies (Marr, 2022; Fusaro, 2022). Among them, the most interesting are the results of a study by McKinsey & Company (hereinafter referred to as McKinsey), which introduces the digital sphere into the category of personal competencies (Dondi et al., 2021).

The analysis was based on a survey of 18,000 people in 15 countries in three categories: "employment", "job satisfaction", "high income".

- the top three most sought-after qualities for the categories "Employment", "Job satisfaction", "High income" included the following qualities: "self-confidence" and "ability to overcome uncertainty";

- "Employment" depends on the qualities and skills of "adaptability", "coping with uncertainty", "message synthesis" and "achievement orientation";

- High income is most closely associated with skills in the digital and cognitive areas: understanding digital systems, using and developing software, planning and working methods, and communication. However, a respondent with a higher level of digital proficiency was 41% more likely to earn high income, than respondents with a lower digital proficiency.

Such data confirm that the possession of even basic IT competencies creates additional added value for an individual in the workplace.

Table 1: The personal competencies (qualities) (Dondi et al., 2021)

<table>
<tr><td colspan="2">Cognitive</td><td colspan="2">Interpersonal</td></tr>
<tr><td>Critical thinking</td><td>Planning and ways of working</td><td>Mobilizing systems</td><td>Developing relationships</td></tr>
<tr><td>- Structured problem solving
- Logical reasoning
- Understanding biases
- Seeking relevant information</td><td>- Work-plan development
- Time management and prioritization
- Agile thinking</td><td>- Role modeling
- Win–win negotiations
- Crafting an inspiring vision - Organizational awareness</td><td>- Empathy
- Inspiring trust
- Humility
- Sociability</td></tr>
<tr><td>Communication</td><td>Mental flexibility</td><td colspan="2">Teamwork effectiveness</td></tr>
<tr><td>- Storytelling and public speaking
- Asking the right questions - Synthesizing messages
- Active listening</td><td>- Creativity and imagination
-Translating knowledge to different contexts
- Adopting a different perspective
- Adaptability
- Ability to learn</td><td colspan="2">- Fostering inclusiveness
- Motivating different personalities
- Resolving conflict
- Collaboration
- Coaching
- Empowering</td></tr>
<tr><td colspan="2">Self-leadership</td><td colspan="2">Digital</td></tr>
<tr><td colspan="2">Self-awareness and self-management</td><td colspan="2">Digital fluency and citizenship</td></tr>
<tr><td colspan="2">- Understanding own emotions and triggers
- Self-control and regulation
- Understanding own strengths
- Integrity
- Self-motivation and wellness
- Self-confidence</td><td colspan="2">- Digital literacy
- Digital learning
- Digital collaboration
- Digital ethics</td></tr>
<tr><td colspan="2">Entrepreneurship</td><td colspan="2">Software use and development</td></tr>
<tr><td colspan="2">- Courage and risk-taking
- Driving change and innovation
- Energy, passion, and optimism
- Breaking orthodoxies</td><td colspan="2">- Programming literacy
- Data analysis and statistics
- Computational and algorithmic thinking</td></tr>
<tr><td colspan="2">Goals achievement</td><td colspan="2">Understanding digital systems</td></tr>
<tr><td colspan="2">- Ownership and decisiveness
- Achievement orientation
- Grit and persistence
- Coping with uncertainty
- Self-development</td><td colspan="2">- Data literacy
- Smart systems
- Cybersecurity literacy
- Tech translation and enablement</td></tr>
</table>

4. FORMATION OF THE PROFESSIONAL PROFILES

Based on the above, the following method for forming various professional profiles of a future archivist on a competency-based approach, is proposed.

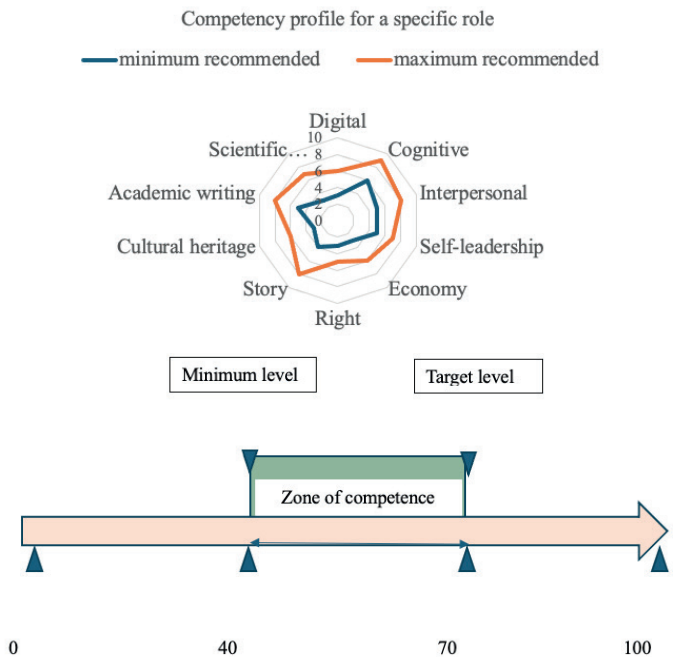
In the role profile for each competency, the level of its manifestation is determined: the minimum recommended level for the successful completion of tasks within the role (group of roles) and the minimum recommended level (or the target level).

As a result, each role that an archivist can take on is limited by a minimum and targeted levels, so called the "Zone of Competence".

In the figure 2 the competency profile for a specific role is modeled, which consist of such competences as: cognitive, interpersonal, self-leadership, economy, right, story, cultural heritage, academic writing, scientific, digital. And quantitative levels of competency are assigned on a scale from 0 to 10 in increments of two. The blue line indicates minimum recommended level and red line – maximum recommended level or it can be named "target level" of competencies possession.

On the integrated scale from 0 to 100 the optimal zone of competences can be performed. In this example it is between 40 and 70, which calculates as sum of all ten competencies possession.

Figure 2: The method for creating professional profiles.

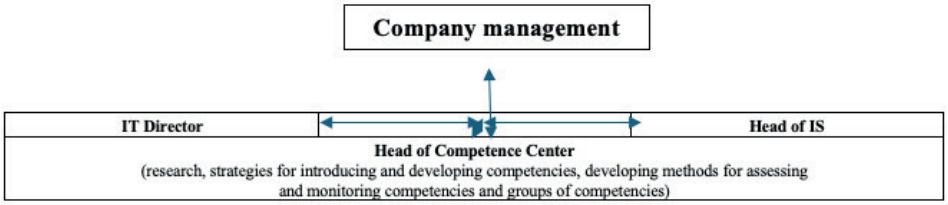


This method of forming a professional profile with quantitative indicators of the manifestation of competencies can serve as a tool for assessing a candidate when hiring, during the ongoing assessment and planning of employee development.

5. FORMATION OF A STRUCTURE OF AN ARCHIVAL ORGANIZATION

Following the proposed model for the formation of a professional profile, it seems possible to present a model of the structure of an archival organization.

Table 2: The model of the structure of an archival organization



Team names			
1. Data governance	**2. Data management**	**3. Document management and engineering**	**4. Data science and engineering**
Team members (specialists)			
Data governance practitioner	Data manager	Document manager, document digitizer, engineer- technician operation engineer and others	Data scientist, data engineer, engineer- technician operation engineer and others
Key Team Roles incl. collective roles: - participation in the development and adjustment of the functions of IS ODO, IS Electronic Archive, cybersecurity, access system; - participation in the work of the expert-verification methodological commission			
Development and expansion of competencies of acquisition source employees Consulting employees of acquisition sources A set of general assessments of the quality of work with archival data from acquisition sources.	Methodology for indexing and cataloging documents. Development, implementation and improvement of a standard, tool (software, individual software functions, interface) for maintaining metadata. Monitoring and assessing the quality of completion of metadata by sources. Monitoring and improving the quality of the electronic search system for users of archival data.	Reception and verification of completeness of submitted documents. Assessment of the physical condition of accepted documents Development of methodology, infrastructure project and digitization parameters. Digitization of paper documents. Provide a reliable and convenient electronic data storage infrastructure. Automation, monitoring and operation of infrastructure, measuring instruments and search sensors and safety sensors and monitoring their uninterrupted operation in the paper stock storage. Monitoring the physical condition of infrastructure and storage premises. Monitoring the cleanliness and security of the storage facility.	Creation and processing of electronic images of paper documents. Provide a reliable electronic data storage infrastructure. Automation, monitoring and operation of infrastructure, measuring instruments and safety sensors and monitoring their uninterrupted operation in the paper stock storage. Monitoring the physical condition of infrastructure and storage premises. Monitoring the cleanliness and security of the storage facility.
5. Center for Scientific Research and Publications			
Data analysis (Data governance researcher, data analytic, data scientist, data engineering)			
Editorial team (data designer, editor, proofreader)			
Educational team (lector, mentor, coach, assistant)			

6. A THREAT OF EDUCATIONAL PROGRAMS LAGGING BEHIND THE REQUIREMENTS OF THE LABOR MARKET

At the same time, the problem of updating educational programs and training modules at all levels of education becomes urgent. In this regard, for example, at the leading university in Kazakhstan, the Kazakh National Research University, specialties related to the field of digitalization have been opened at the bachelor's, master's, and doctoral levels.

However, the demand for graduates is determined by the criteria set by employers. From this point of view, professional standards occupy an important position.

Thus, in accordance with paragraph 1-1 of Article 118 of the Labor Code of the Republic of Kazakhstan (LC RK, 2015), educational programs for technical and vocational, higher, and postgraduate education, retraining and advanced training must take into account the requirements of professional standards. Currently, in Kazakhstan there is a standard in the field of ensuring the safety of the National Archival Fund (The order of the Minister of Culture and Sports of the Republic of Kazakhstan, 2016).

As practice develops, the need for comprehensive intersectoral research increases in order to improve and expand the professional standard and training programs.

7. THE MEASURES TO DEVELOP A COMPETENCY-BASED APPROACH

To develop new competencies, structures and distribute new roles between teams and specialists, research is needed that will contribute to:

1. developing a variety of professional profiles taking into account future business processes, structures and positions in the field of document management and archiving;

2. development and updating of professional standards, taking into account digital competencies;

3. recruiting specialists;

4. creation of a corporate environment based on intersectoral scientific and practical interaction between departments and between organizations (round tables, seminars, lectures, presentations, library days, brainstorming, mini-conferences, master classes, creative and professional meetings with scientists and public figures, prominent historians, authors of books, methods);

5. ensuring continuous professional training, exchange of experience through domestic and international cooperation, membership in international organizations (in particular in the field of: developing common principles of digitalization, standardization, database design, data processing, formation of data centers using modern storage and processing technologies data).

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SUMMARY

The accelerated pace of development of digital technologies with the use of artificial intelligence technologies and the construction of large data centers is changing the structure of society and the ways of interaction within it.

In the implementation of these aspects of digitalization, archives also occupy their specific place, which generate and process the largest volumes of data that have historical, cultural and educational significance for the entire society. In this case, these specialist (managers, politics, lawyers, experts in the archival field) will need in instruments, which can help to develop different professional profiles, structures, roles, ways of interaction in order to work in new digitalization terms.

There are two strategic approaches to provide digitalization of archival activity and record management:

1. Participate in the adaptation of modern developing IT to existing business processes of archiving and document management.

2. Conduct business process reengineering to develop fundamentally new approaches to systematize information, automate operations, integrate big data databases, digital resources, codes, platforms, interfaces, etc.

However, the choice is complicated by the growing pace of development and renewal of digital technologies. To be in the trend of technological progress, appropriate knowledge, research and personnel are required.

The model of formation of professional profiles of a future specialist in the field of document management and archiving suggested in this topic is unique and covers all directions of current and future activity.

As an example, there are three main conclusions are coming from the McKinsey's research:

- the top three most sought-after qualities for the categories "Employment", "Job satisfaction", "High income" included the following qualities: "self-confidence" and "ability to overcome uncertainty";

- "Employment" depends on the qualities and skills of "adaptability", "coping with uncertainty", "message synthesis" and "achievement orientation";

- High income is most closely associated with skills in the digital and cognitive areas: understanding digital systems, using, and developing software, planning and working methods, and communication. However, a respondent with a higher level of digital proficiency was 41% more likely to earn high income, than respondents with a lower digital proficiency.

Thus, using the results of the McKinsey study, one can choose guidelines for both a specialist and a manager in the field of personal development to shape oneself for a future profession, regardless of the field of activity.

In addition, the quantitative indicators of the manifestation of competencies, introduced as the method of forming a professional profile, can be used for assessing a candidate when hiring, during the ongoing assessment and planning of employee development.

The model of the structure of an archival organization proposed in this article allows create different structures of archive in modern way, using all trends of key factors: IT, personal competencies, economy, law, science, education. According to the trends of future competences and IT requirements all multidisciplinary specialists (archivist-IT-analytic-engineer) are involved in the organization model. Based on the results of this study, it becomes obvious how many new principles and rules will still need to be developed in order for such an organization model to work.

Using the methods, models and structures proposed in the article the research in a number of areas, which will allow to detail new competencies, structures and distribute new roles between teams and specialists can be continued. Such work will contribute to:

1. developing a variety of professional profiles taking into account future business processes, structures and positions in the field of document management and archiving;

2. development and updating of professional standards, taking into account digital competencies;

3. recruiting specialists;

4. creation of a corporate environment based on intersectoral scientific and practical interaction between departments and between organizations (round tables, seminars, lectures, presentations, library days, brainstorming, mini-conferences, master classes, creative and professional meetings with scientists and public figures, prominent historians, authors of books, methods);

5. ensuring continuous professional training, exchange of experience through domestic and international cooperation, membership in international organizations (in particular in the field of: developing common principles of digitalization, standardization, database design, data processing, formation of data centers using modern storage and processing technologies data).

Typology: 1.04 Professional Article