

System of Professional Skills in Training Managers

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Abstract – The central aim was to investigate the transformation of employment in the digital economy at the country (on the example of the Russian Federation) and global levels and elaborate a universal list of competencies that a modern manager should possess in the context of such a transformation. As part of the study, quantitative, descriptive, and graphical analysis methods were used to examine quantitative indicators reflecting the transformation of the labor market in Russia and the world for the period from 2009 to 2019. The investigation results indicate that the Russian Federation's labor market is experiencing a remarkable shift these days.

Keywords – competencies, Economy 4.0, education, labor market, manager

1. Introduction

The Digital Age has made many organizations throughout the world more technologically sophisticated than ever. Though, the main cornerstone of their success is represented by human resource abilities and skills. Consequently, in order to develop and protect its interests, any organization must act proactively in the field of harmonization of technologies and human resource skills [1]. Working earnestly on applying the required managerial competencies of employees and setting the right goals can minimize hiring costs, decrease the number of dissatisfied customers and partners, avoid missed opportunities, as well as take the rightful place in the market and achieve success [2].

The intensification of information flows as well as the emergence of new and improvement of existing technical solutions, particularly in the field of information and communications technologies (ICT), urge companies to improve their employees' qualifications continuously. Given that the existing human resources may not be able to fill competence gaps in enterprises, companies often provide on-the-job training to their employees or hire new ones already possessing the necessary skills and competencies. This unavoidably leads to high additional costs in terms of professional development and salaries for new highly qualified workers, especially for managers [3]. As a result, professional training of managers with skills and competencies corresponding to the level of technological development and modern requirements of a market economy can not only make the operation life of enterprises easier but may also increase the

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competitiveness of graduates in the labor market [4]. It is no secret that the competencies of graduates often do not correspond to the demands of the labor market and employers. Chief executives tend to expect that soon after hiring, graduates will be equipped with the necessary skills and will be able to work with minimal supervision. This represents not only a problem of employer satisfaction but is also a sign of potential weakness of graduates who play a meaningful role in the country's economic development, raising this issue directly at the state level [5].

2. Literature Review

Within the framework of an integrated model of professional activity, the orientation of managers' training to market demands requires the formation of organizational and managerial competence. The implementation of a competence-based approach in higher education is aimed at preparing highly qualified specialists with professional competencies and personal qualities, allowing them to use gained professional knowledge, skills, and abilities together with organizational, managerial, and communication skills. Organizational and managerial competencies of graduates imply personal, emotional, communicative, intellectual, and organizational competencies ensuring the capability of a future manager to solve organizational and managerial tasks while meeting the requirements of a competitive market environment, business processes of an enterprise, modern systems of social axiological orientations, and sociocultural norms [6].

However, as one may reasonably assume, the theory is often at variance with the practice. Graduates, especially in the field of management, often do not have the competencies and skills required for a successful activity on the labor market. Thus, when examining the difference between the skills that managers expect and the skills that business school graduates hired in the banking sector possess, Abbasi et al. [5] revealed that the overall employment skills of graduates were lower than those anticipated by their managers. The most impressive gaps were in listening, problem-solving, communication, leadership, self-management, numeracy, critical thinking, and interpersonal and analytical skills.

It is not for the first time that the higher education system faces a growing demand for students' professional development to achieve the best set of competencies. In this regard, not only student's proficiency acquires relevance but also the vision of universities and employers of what competencies and skills should be possessed by graduates and managers on a first-priority basis [7]. As a

consequence, the world scientific community has raised numerous discussions on the requirements for the competencies of a modern manager.

By surveying local government officials, Bashir [8] found that technical, conceptual, leadership, and communication skills among managers cause a considerable positive effect on the overall productivity and government performance. In the meantime, in the process of assessing the impact of managerial competencies on various aspects of leadership practice, Paulienė [9] unveiled that:

- setting direction and example for others are influenced most by such managerial competencies as problem-solving, self-management, and empathy;
- attention, respect, empowerment, vision promotion, and challenge acceptance are influenced most by self-management, empathy, and emotional self-control;
- promoting teamwork and team members involvement is influenced most by self-management and empathy; and
- belief in leadership philosophy is influenced most by self-management, empathy, and talent development [9].

Grzybowska and Łupicka [10] highlighted creativity, entrepreneurial thinking, problem-solving, conflict resolution, decision-making, analytical skills, research skills, and efficiency orientation as the most important managerial competencies of a leader in the context of Industry 4.0. In a later study, they expanded this list with a block of social competencies (intercultural skills, language skills, communication skills, leadership skills, ability to compromise and cooperate, the ability to work in a team, ability to transfer knowledge, ability to accept changes) and a block of technical competencies (information technology (IT) knowledge and abilities, knowledge management, computer programming/coding skills, data and information processing and analytics, specialized knowledge of production activities and processes, understanding organization's aims and processes, interdisciplinary/general knowledge of technologies, statistical knowledge) [7].

The study of managerial skills conducted in China by Bhanugopan et al. [11] concentrated not on theoretically necessary skills but on actual competencies that managers do or do not possess. By surveying 243 managers, researchers found that the central skills and abilities of Chinese executives include those related to numeracy reading and writing, interpersonal communication, foreign language knowledge, conflict resolution, influential leadership, consensus building, toleration of repetitive work, versatility and ability to replace

colleagues, honesty and integrity, reliability, and motivation to work. On the contrary, the most deficient skills encompassed verbal communication, motivating others, developing junior staff, retaining talent, managing changes, analyzing work progress, interviewing, facilitating meetings, creative thinking, and risk-taking [11].

Having analyzed a considerable amount of previous research in the field of management competencies, Bharwani and Talib [12] proposed a structure of 43 core competencies and skills required for a hotel manager that can be conveniently divided into four main categories:

- cognitive or conceptual competencies: strategic thinking, decision-making, creativity and innovation, systems thinking, information gathering, planning, critical thinking and analytical abilities, risk-taking, change management;
- functional or technical competencies: service orientation, business and industry expertise, income management, interviewing and selection abilities, commitment to quality, resource allocation, crisis management, employee performance appraisal, ability to manage stakeholders, knowledge of IT (computers), financial analysis and cost control, knowledge of statutory requirements;
- social or interpersonal competencies: effective communication, cultural intelligence, networking, conflict management and resolution, teamwork orientation, diversity management, increasing motivation, active listening, developing others;
- meta-competencies: emotional resilience and composure, optimism, achievement orientation, self-awareness, self-confidence, self-management, initiative, diplomacy, time management, ethics and integrity, adaptability and flexibility, tenacity and perseverance, openness and desire to learn [12].

As part of a World Bank's study, McKinnon et al. [13] surveyed 219 logistics supervisors and managers worldwide concerning the importance and availability of managerial competencies among logistics companies' leaders. As a result, the equal importance of effective task supervision and management, knowledge and learning, communication, technical skills, personal skills, administrative knowledge, and leadership skills was established. However, the thorough examination exposed a serious skills gap across all competency categories in all survey groups [13].

Using data collected from a survey of 175 executives working in infrastructure companies in India, Shah and Prakash [14] identified six generic

competencies and skills that have a major impact on competent teamwork and the effectiveness of the company as a whole. Scholars indicated that these six competencies and skills are included in strategic, analytical, personal, managerial, professional, and leadership dimensions. Ryzhenkova [15] distinguished nine main abilities a modern manager must possess. They embrace the ability to negotiate, conduct a meeting, be a leader, persuade, conduct business communication, manage time, run a team, and make decisions.

Sangka et al. [16] conducted research with the same focus but in the field of logistics. In particular, they examined the competency priorities of Indonesian third-party logistics (3PL) managers, both working for transnational corporations and in local firms. The results showed that the most critical category of competencies was knowledge and skills related to professional activities (management of transportation, distribution, warehouse, and inventory). Most of the moderately critical competencies were in the management competency category and encompassed project management, continuous improvement, results management, analytics, and leadership. In the meantime, the least critical competencies covered aspects related to people management, teamwork and communication, information handling, negotiation, hardware and software knowledge, change management, and cultural and ethical awareness [16].

By means of surveying 841 future hospitality managers in five regions in Malaysia, Kenayathulla et al. [17] investigated the gap between the perceived importance of professional skills and their actual availability after training. In the course of the study, communication, teamwork, problem-solving, initiative and enterprise, planning and organizing, self-management, technological, entrepreneurship, leadership, generic, ethical and professional moral, and technical and vocational skills were recognized as the most important. At the same time, the study underlined that the available training programs usually fail to provide future managers with opportunities good enough to master teamwork, leadership, technical, and ethical skills [17].

Ravarini et al. [18] accentuate the following managerial competencies essential for the successful implementation, development, and execution of digital transformation processes and projects:

- political savvy (capability to influence, negotiate, and persuade);
- communicative ability (capability to communicate with appropriate business jargon and in a clear and persuasive way);
- relationship building ability (capability to strengthen reputation and authority among peers);

- strategic business knowledge (capability to comprehend people, business strategy and the competitive forces in an organization);
- strategic IT knowledge (capability to understand the emergent technologies and their potential and relevance for the organization, and catch the “kairotic” moment when investing in them) [18].

Despite the abundance of studies on managerial skills, the overwhelming majority of them are of a purely regional or sectoral nature or are limited to specific groups of competencies. Therefore, the formation of a universal set of skills and competencies for managers at all levels remains relevant. Herewith, a special note should be made that the list of skills alone is not enough for this aim achievement. Efficient human resource management needs careful assessment and representation of available competencies as well as effective mapping of required competencies for specific jobs and positions. In this regard, the first port of call is the identification of an individual’s competence gaps. For this, it is necessary to assess a person’s basic knowledge related to the target job properly. Even in the case of on-the-job training, it is important to understand accurately what employee training is needed to close the company’s competency gaps [3].

When defining competencies and skills for a particular position or function, one should also pay heed to the transformation of functions in the economy under the influence of rapid digitalization, as well as the development of the internet, ICT, and the Internet of Things, which are transforming and redefining the world as we know it [19]. Already these days, the widespread use of artificial intelligence (AI) is changing the work infrastructure. AI-powered learning and speech recognition systems have influenced many professions in various sectors of the world economy [20]. Besides, as a consequence of digital transformation, many executives cannot reap the benefits of the emerging digital economy because of the lack of appropriate skills and competencies [21].

According to the new 2020 Future of Jobs Report, by 2025, 85 million jobs may be displaced by a shift in the division of labor between humans and machines, while 97 million new more adapted roles to the new division of labor between humans, machines, and algorithms may emerge [22]. While it can be assumed that most of the new jobs will be created in emerging digital economies, it remains unclear to what extent and how these jobs will make up for the automated work. It is beyond any arguments that most new positions, including senior ones, will need new skills, and many of today’s executives will require retraining to be able to work with digital technologies. In view of this, managers who are just entering or will soon come to the labor

market from educational institutions should already possess these skills and competencies [23]. Despite the urgent nature of this problem, today, one may easily notice a shortage of quantitative and qualitative research devoted to the labor market transformation both at the country-wide and the global level, containing a universal list of skills and competencies that would reflect such a transformation under the shift to the Economy 4.0.

Thus, the ultimate goal of this work is to study the transformation of employment in the digital economy at the country and global levels and elaborate a universal list of competencies that a modern manager should possess in the context of such a transformation.

For this, the following tasks were set and solved:

1. scrutinize the transformation of employment from the perspective of the labor market segments and its global trends using the example of the Russian Federation (as a market with bright transformation processes);
2. determine a universal list of competencies and skills of managers that would meet the requirements of the transforming labor market and digitalized economy.

3. Materials and Methods

The study was carried out in three stages. At the first stage, quantitative indicators reflecting the transformation of the labor market in the Russian Federation and the world were outlined and analyzed through quantitative, descriptive, and graphical analysis methods. These indicators were as follows:

- number of the working population aged 15-72 by occupation in the main job, for 2008-2019 [24];
- share of the working population aged 15-72 in the total labor force, by occupation in the main job, for 2008-2019 [24];
- distribution of higher educational institutions’ graduates of 2015-2017 and 2016-2018 years by labor force participation status and occupation in current or last job;
- share of higher educational institutions’ graduates of 2015-2017 and 2016-2018 years in the total number of working graduates by labor force participation status and occupation (%);
- dynamics of average accrued wages by occupation, for 2005-2019 [24];
- average monthly salary of employed graduates of 2010-2015 years by labor force participation status level and occupation, for 2016 [24];
- professions, the demand for which will grow by 2025 [22];
- professions, the demand for which will fall by 2025 [22].

At the second stage, skills and competencies reflecting the transformation of the labor market at the global level were recognized and analyzed using qualitative, descriptive, and graphical analysis methods. In this context, both general and specialized skills expected to be sought-after in the global labor market by 2025 were studied using data retrieved from the 2020 Future of Jobs Report [22].

At the third stage, based on the selected general and specialized skills, a universal list of managerial competencies defined as necessary against the backdrop of the digitalization of the economy and the labor market was developed. For this, the deduction method was applied.

The basis for studying the labor market's transformation at the country level was represented by the indicators of the Russian Federation. This particular choice stemmed from the fact that, despite Russia belongs to countries with above-average income (gross national product per capita over USD 4,046) [25], its economy remains resource-dependent [26]. On the other hand, the Russian Federation ranks 28th of 196 in terms of the share of the population with a personal computer (72%) and 40th in terms of the share of the population using the internet (82.64%) [27], which indicates its fairly high digitalization and internet use levels.

4. Results

Changes in the working population by occupation for 2009-2019 are presented in Figure 1.

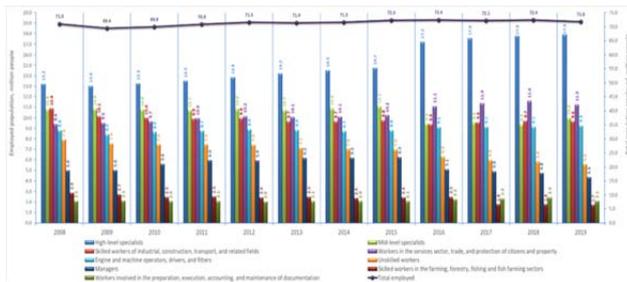


Figure 1. Number of working population aged 15-72 by occupation in the main job, for 2008-2019
Source: developed by the authors based on data retrieved from the Rosstat [24]

As shown in Figure 1., the total number of working people during the study period did not change significantly – its increase amounted to 0.8 million people (from 71 million people in 2009 to 71.8 million people in 2019). The most noticeable growth during this period was shown by the category of high-level specialists (from 13.2 to 17.9 million people), whereas the number of managers and mid-level specialists decreased by 0.7 and 0.8 million people, respectively. The number of unskilled workers declined by 2.3 million people; of workers

engaged in the services sector, trade, and protection of citizens and property rose by 1.9 million people; of workers in the farming, forestry, fishing and fish farming sectors dropped by 1.2 million people; of engine and machine operators, drivers, and fitters grew only by 0.4 million people; and of employees involved in the preparation, execution, accounting, and maintenance of documentation remained the same.

Figure 2. depicts how the share of the working population in the total population has changed with time.

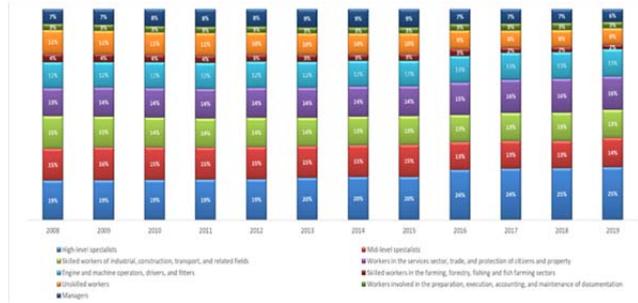


Figure 2. Share of working population aged 15-72 in the total labor force by occupation in the main job, for 2008-2019

Source: developed by the authors based on data retrieved from the Rosstat [24]

As evident from Figure 2., the percentage of highly-qualified workers in the total workforce progressed more than other categories (from 19 to 25%), whereas the proportions of managers and mid-level specialists decreased by 1% and 2%, respectively.

Similar dynamics were observed for graduates of 2016-2018. Compared to the years 2015-2017, the number of graduates working in managerial positions as well as the number of graduates with top-level qualifications decreased from 139 to 107 and from 1485 to 1250 thousand people (Figure 3.).

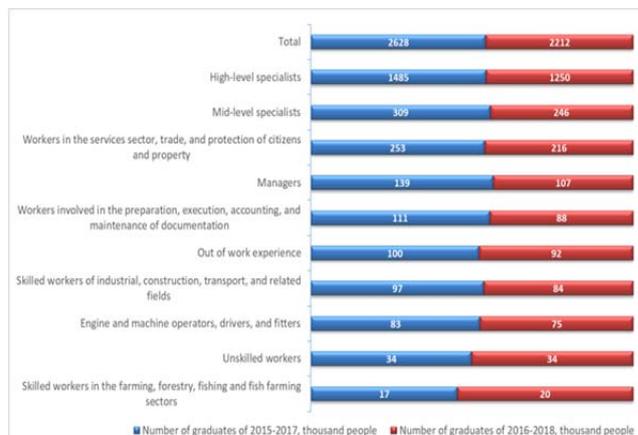


Figure 3. Distribution of higher educational institutions' graduates of 2015-2017 and 2016-2018 by labor force participation status and occupation in current or last job
Source: developed by the authors based on data retrieved from the Rosstat [24]

Since the total number of employed graduates reduced from 2,628 to 2,212 thousand people (Figure 3.), it also seems reasonable to discuss their share in the total number of working graduates of 2015-2018 by certain positions taken (Figure 4.).

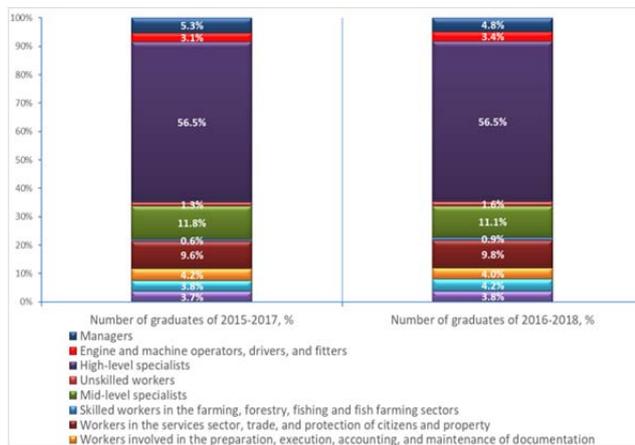


Figure 4. Share of higher educational institutions' graduates of 2015-2017 and 2016-2018 in the total number of working graduates by labor force participation status and occupation (%)
Source: developed by the authors based on data retrieved from the Rosstat [24]

According to the data given in Figure 4., in general terms, the share of graduates of 2015-2018 occupying managerial positions declined from 5.3% to 4.8%, whereas the percentage of those hired as top-level specialists remained the same. Against the background of a reduction in the total number of employed graduates, this fact indicates an advancement of their share in the total labor force.

Data displayed in Figure 1.-4. allow the inference about the transformation of the current labor market towards one with a more highly skilled labor force and increasing focus on service and trade sectors.

The dynamics of average accrued wages by occupation are shown in Figure 5.

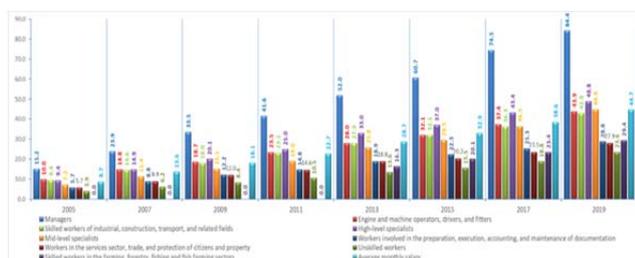


Figure 5. Average accrued wages by occupation, for 2005-2019, thousand rubles
Source: developed by the authors based on data retrieved from the Rosstat (2020)

Figure 5. confers positive dynamics for salary levels throughout the whole period under study for all categories of workers. The above data indicate that from the year 2005, the average monthly wages grew by 514%. The most striking changes were on

the part of managers (wages rose by 557%) and high-level specialists (wages rose by 519%). In quantitative terms, as of 2019, the highest income among all the considered categories was that of managers (84.4 thousand rubles). The second place goes to high-level specialists (48.8 thousand rubles), whereas the third – to mid-level specialists (44.9 thousand rubles). The lowest level of wages was observed for unskilled laborers (23.6 thousand rubles).

As for the graduates, the highest salaries were assigned to those taking up managerial positions (29.4 thousand rubles), followed by specialists of the highest qualification level (24.7 thousand rubles) and engine and machine operators, drivers, and fitters (24.3 thousand rubles) (Figure 6.).

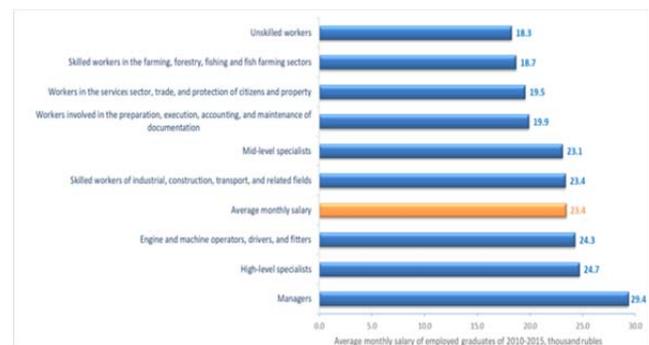


Figure 6. Average monthly salary of employed graduates of 2010-2015, by labor force participation status and occupation, as of 2016
Source: developed by the authors based on data retrieved from the Rosstat (2020)

Given the ongoing changes the world faces, it is not surprising that the global employment trends are likely to shift. In order to determine a universal list of competencies and skills of managers that would meet the requirements of the transforming labor market and digitalized economy, the present study reviewed global trends in the market transformation from the point of view of the demand for specific professions and functions (Figure 7.).

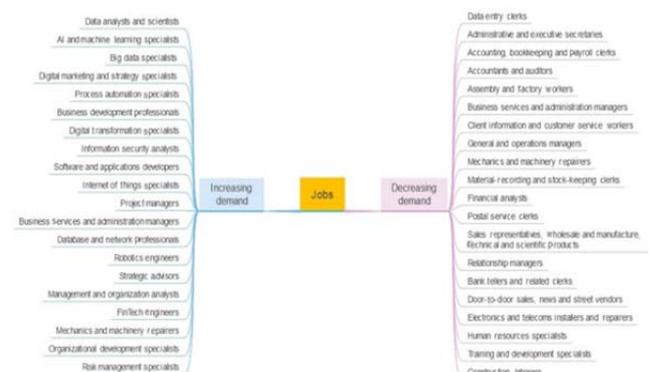


Figure 7. Professions expected to rise/fall in demand by 2025
Source: developed by the authors based on data retrieved from the Future of Jobs Report 2020 [22]

Figure 7. clearly demonstrates the transformation of the global labor market in favor of professions related to ICT (specialists in AI, machine learning, Big Data, digital marketing, process automation, digital transformation, Internet of Things). However, as can also be seen, business services and administration managers are both on the list of professions with increasing and declining demand for this job.

Based on the data above, the predicted top competencies and skills required by the global labor market from specialists in various fields can be identified (Figure 8.).



Figure 8. General and specialized skills supposed to be in demand in the global labor market by 2025

Source: developed by the authors based on data retrieved from the Future of Jobs Report 2020 [22]

Figure 8. indicates that along with traditional skills (problem-solving and critical thinking and analysis), such self-management skills as resilience, stress tolerance and flexibility, and active learning are also crucial. Since a number of skills are not directly related to general management competencies and are rather highly specialized (used in technological and graphic design, programming, product marketing, data storage, computer networks, web development, AI, etc.), within the framework of this research, only universal managerial competencies should be highlighted (Figure 9.).

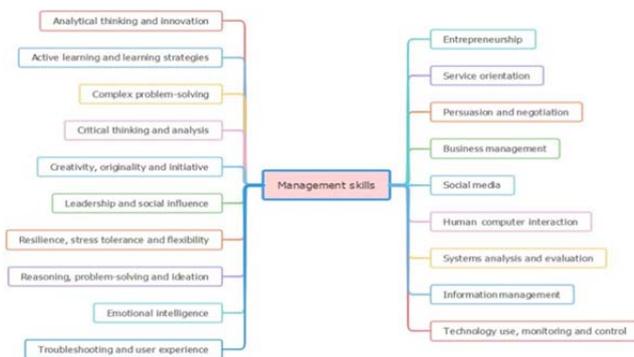


Figure 9. Universal competencies and skills of managers supposed to be in demand in the global labor market by 2025

Source: developed by the authors based on data retrieved from the Future of Jobs Report 2020 [22]

As shown in Figure 9., 19 distinguished management skills and abilities also include competencies directly related to ICT (technology use, monitoring and control; social networks; human-computer interaction; information management; system analysis and assessment).

5. Discussion

The past few years have become the time of a dramatic transformation of the Russian Federation’s labor market. Along with the relative preservation of the total number of employed in the economy, the country experienced a meaningful decline in the absolute and relative number of managers, mid-level specialists, and individuals engaged in working specialties (in agriculture and forestry, fish farming and fishing, unskilled labor) and the increase in high-level specialists; workers in the services sector, trade, and protection of citizens and property; and engine and machine operators, drivers, and fitters. As the evidence shows, relative stability was established only in the number of employees involved in the preparation, execution, accounting, and maintenance of documentation [3].

The same trend applies to employed graduates of higher educational institutions in the Russian Federation. Against the background of a decrease in the total number of recruited graduates, the actual proportion of high-level specialists is growing with diminishing relative importance of managers. The period under consideration witnessed a redistribution of the economy’s labor resources towards the rise in high-level specialists’ importance. The increase in the number and proportion of employees holding positions requiring higher qualifications against a drop in the number and share of managerial positions can be explained by the fact that high-level specialists perform certain managerial functions along with their direct responsibilities. Correspondingly, in some cases, this eliminates the need for an additional manager in the staff [6].

The investigated period of time is notable for the positive dynamics in earnings for all categories of workers in the Russian Federation (from 180% to 623% in 14 years). As of 2019, the highest salaries among the studied laborer groups were paid to managers. Then, with a significant lag followed the salaries of high- and mid-level specialists, and the lowest wages were recorded for unskilled workers. Potentially high wages of managers represent the factor stimulating the delegation or redistribution of managerial functions among other employees, primarily highly-skilled, to save money on labor costs [5]. It should be noted that the observed growth in salaries is supposed to be caused not only by the growth of the economy and labor productivity but also by the crisis in the Russian and world economies in 2014-2019 and the Russian ruble devaluation [26]. The wages of graduates of Russian higher

educational institutions were approximately the same as average earnings on the market. On the other hand, in contrast to the general labor market, the variation in their wages across different occupations was relatively small: from 18.3 thousand rubles (unskilled labor) up to 29.4 thousand rubles (managers) with an average salary of 23.4 thousand rubles. This can be explained by the fact that employees with little experience and skill level above the average are rarely paid more than the average monthly salary [17].

The global labor market trends demonstrate a gradual but steady transition from the traditional professions of the industrial economy (assembly and factory workers; sales representatives, wholesale and manufacturing, technical and scientific products; door-to-door sales, etc.) towards professions directly connected with ICT (specialists in AI, machine learning, Big Data, process automation, digital transformation, and Internet of Things) [20]. Among the occupations for which demand is falling are those the processes of which are primarily automated, or a person is replaced by robots or AI: accountants and auditors, cashiers and ticket clerks, bank tellers and related clerks, assembly and factory workers, client information and customer service workers, postal service clerks, sales representatives (wholesale and manufacturing, technical and scientific products), door-to-door sales workers, and news and street vendors [23].

Even though such popular professions as scientists, strategic advisers, management and organization analysts, organizational development specialists, and risk management experts are not directly related to the ICT, the increased demand for them is often precisely in the ICT-related fields [18]. Today's rapidly changing world facilitates the synergy of a number of emerging professions requiring managerial competencies. In particular, these are business development specialists, project managing experts, and business services and administration managers. Tellingly, the latter is now both in the list of professions with growing and declining demand for these functions. This fact can be caused by the increasing need for such a specialty in high-tech industries and its simultaneous decrease in importance in the industrial economy's traditional sectors [7].

It is common knowledge that new professions require new competencies. So far, the traditional set of required skills was supplemented with resilience, stress tolerance, flexibility, and active learning [12]. Besides, a number of modern skills and abilities such as technology and graphic design, programming, social media, data storage, computer networks, web development, and AI, are now of a highly specialized nature, largely associated with the development of the internet, digitalization, and the widespread use of the Internet of Things [16]. Particular attention

should also be paid to such cross-functional skills and competencies as product marketing, digital marketing, and human-computer interaction. Lately, they have become increasingly popular and are believed to turn even more desired [22].

Given that the 19 selected universal managerial competencies meet modern requirements and correspond to the current level of technical progress, they are expected to promote educational institutions' focus on their development in students prepared as future managers, thereby complementing the available preparation programs. The inclusion in the curriculum of modules devoted to the professional training of managers that meet the requirements of the digital economy and keep pace with the transformation of the market and society is predicted to improve future specialists' training process, make educational institutions graduates more competitive in the labor market, and minimize employers' costs for retraining and professional development of young professionals [2,4].

6. Conclusions

The current research presents a grounded analysis of the quantitative indicators reflecting the transformation of the labor market in the Russian Federation and globally for the period from 2009 to 2019 and outlines the most demanded skills and competencies of future managers. Its findings allow drawing a reasonable inference about a considerable transformation of the labor market. Although a striking decrease in the absolute and relative number of managers, mid-level specialists, and individuals engaged in working specialties (in agriculture and forestry, fish farming and fishing, unskilled labor), the capacity of high-level specialists as well as those employed in the services, trade, security of citizens and property, or working as engine and machine operators, drivers, and fitters, increases. Relative balance is observed only in the number of personnel in charge of preparing, executing, accounting, and maintaining documentation. The situation with recently hired graduates of higher educational institutions of the Russian Federation is quite similar: against the backdrop of a decrease in their total number, the actual proportion of specialists with a higher qualification level is growing, and the comparative importance of managers is diminishing.

The examined 14-year period is characterized by the substantial increase in wages for all categories of employees in Russia (from 180% to 623%). As of the year 2019, the highest income among all the considered categories was that of managers. The second-largest was the salary of high-level specialists, whereas the income of mid-level specialists occupied third place. The lowest-paid were unskilled laborers. As for the higher educational institutions' graduates, their income was

approximately equivalent to the average market earnings. However, as opposed to the general labor market, the variance in their wages across different job types was quite marginal.

The available tendencies on the global labor market indicate a shift away from the traditional professions of the industrial economy towards jobs directly related to ICT. Provided that new professions require new competencies, the present work set out 15 general and 19 specialized skills, of which the following 19 universal managerial competencies meeting the requirements of Economy 4.0 were identified: analytical thinking and innovation; active learning and learning strategies; complex problem-solving; critical thinking and analysis; creativity, originality and initiative; leadership and social influence; resilience, stress tolerance and flexibility; reasoning, problem-solving and ideation; emotional intelligence; troubleshooting and user experience; technology use, monitoring and control; information management; systems analysis and evaluation; human-computer interaction; social networks; business management; persuasion and negotiation; service orientation; and entrepreneurship.

The findings obtained may help education officials of the Russian Federation and other countries elaborate a strategy for developing the educational system and creating training modules and programs aimed at preparing future managers. The central limitation of the current research lies in the definition of the universal skills of managers that correspond to modern reality. However, future work can be focused on developing programs for these skills improvement as well as systems for their level assessment.

References

- [1]. Nikitina, T., & Lapiņa, I. (2019). Creating and managing knowledge towards managerial competence development in contemporary business environment. *Knowledge Management Research & Practice*, 17(1), 96-107.
- [2]. Veliu, L., & Manxhari, M. (2017). The Impact of Managerial Competencies On Business Performance: Sme's In Kosovo. *Management (16487974)*, 30(1).
- [3]. Bohlouli, M., Mittas, N., Kakarontzas, G., Theodosiou, T., Angelis, L., & Fathi, M. (2017). Competence assessment as an expert system for human resource management: A mathematical approach. *Expert Systems with Applications*, 70, 83-102.
- [4]. Hermalin, B. E., & Weisbach, M. S. (2019). Understanding corporate governance through learning models of managerial competence. *Asia-Pacific Journal of Financial Studies*, 48(1), 7-29.
- [5]. Abbasi, F. K., Ali, A., & Bibi, N. (2018). Analysis of skill gap for business graduates: managerial perspective from banking industry. *Education+ Training*, 60(4), 354-367.
- [6]. Razinkina, E., Pankova, L., Trostinskaya, I., Pozdeeva, E., Evseeva, L., & Tanova, A. (2019). Influence of the educational environment on students' managerial competence. In *E3S Web of Conferences* (Vol. 110, p. 02097). EDP Sciences.
- [7]. Łupicka, A., & Grzybowska, K. (2018). Key managerial competencies for industry 4.0-practitioners', researchers' and students' opinions. *Logistics and Transport*, 39, 39-46.
- [8]. Bashir, F. M. (2017). An analysis of managerial competencies and their influence on staff productivity: a case of Wajir county government employees. *Human Resource and Leadership Journal*, 2(2), 81.
- [9]. Paulienė, R. (2017). Interaction between managerial competencies and leadership in business organisations. *Regional formation and development studies*, (1), 98-108.
- [10]. Grzybowska, K., & Łupicka, A. (2017). Key competencies for Industry 4.0. *Economics & Management Innovations*, 1(1), 250-253.
- [11]. Bhanugopan, R., Wang, Y., Lockhart, P., & Farrell, M. (2017). Managerial skills shortages and the impending effects of organizational characteristics: Evidence from China. *Personnel Review*, 46(8), 1689-1716.
- [12]. Sonia, B., & Parvaiz, T. (2017). Competencies of hotel general managers: a conceptual framework. *International Journal of Contemporary Hospitality Management*, 29(1), 393-418.
- [13]. McKinnon, A., Flöthmann, C., Hoberg, K., & Busch, C. (2017). Logistics competencies, skills, and training: a global overview. Retrieved from: <https://openknowledge.worldbank.org/handle/10986/27723> [accessed: 05 March 2022].
- [14]. Shah, M. N., & Prakash, A. (2018). Developing generic competencies for infrastructure managers in India. *International Journal of Managing Projects in Business*, 11(2), 366-381.
- [15]. Ryzhenkova, I. K. (2019). *Professional'nyye navyki menedzhera. Povysheniye lichnoy i komandnoy effektivnosti* [Professional skills of the manager. Increase of personal and team efficiency]. Litres. (In Russ.) Retrieved from: <https://eksmo.ru/book/professionalnye-navyki-menedzhera-povyshenie-lichnoy-i-komandnoy-effektivnosti-2-e-izd-430187999/> [accessed: 05 March 2022].
- [16]. Yermekbayeva, D. (2014). Evaluation of industrial policy: A case study of Kazakhstan vs. Russia. *Aktual'ni problemy ekonomiky*, (3), 91-97.
- [17]. Kenayathulla, H. B., Ahmad, N. A., & Idris, A. R. (2019). Gaps between competence and importance of employability skills: evidence from Malaysia. *Higher Education Evaluation and Development*, 13(2), 97-112.
- [18]. Ravarini, A., Locoro, A., & Martinez, M. (2020). Digital transformation projects maturity and managerial competences: A model and its preliminary assessment. In *Exploring Digital Ecosystems* (pp. 261-272). Springer, Cham.

- [19]. Larsson, A., & Teigland, R. (2020). *The Digital Transformation of Labor* (p. 372). Taylor & Francis.
- [20]. Torre, F., Teigland, R., & Engstam, L. (2019). AI leadership and the future of corporate governance: Changing demands for board competence. In *The Digital Transformation of Labor* (pp. 116-146). Routledge.
- [21]. Ivanschitz, R., & Korn, D. (2017). Digital Transformation and Jobs. *The University of Miami Inter-American Law Review*, 49(1), 41-50.
- [22]. World Economic Forum. (2020). *The future of jobs report 2020*. World Economic Forum. Retrieved from: <https://www.voced.edu.au/content/ngv:88417> [accessed: 05 March 2022].
- [23]. Øvretveit, J. (2019). Impact of digitalization on employment and working conditions. *The Digital Transformation of Labor*, 334.
- [24]. Rosstat. (2020). *The situation on the labor market in tables, graphs, charts*. Presentation. Federal State Statistics Service of the Russian Federation. Retrieved from: <https://rosstat.gov.ru/storage/mediabank/situaz.pdf> [accessed: 05 March 2022].
- [25]. Bank, W. (2021). World Bank country and lending groups—World Bank data help desk. Retrieved from: <https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups> [accessed: 05 March 2022].
- [26]. Connolly, R., Hanson, P., & Bradshaw, M. (2020). It's déjà vu all over again: COVID-19, the global energy market, and the Russian economy. *Eurasian Geography and Economics*, 61(4-5), 511-531.
- [27]. International Telecommunication Union. (2019). *Core indicators on access to and use of ICT by households and individuals*. Excel Data. ITU. Retrieved from: <https://www.itu.int/en/ITU-D/Statistics/Documents/statistics/2020/CoreHouseholdIndicators.xlsx> [accessed: 05 March 2022].