

The Future of Work: How to Develop 21st Century's Leading Competences?

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Abstract Today, the competence-based approach as the most sought after in the management of human resources initiates the restructuring of the systems of management HRM-system in a broader context. New competencies relevant in the 21st century become an object of a close study both in science and in real business practice. Education systems are faced with the task of forming the necessary competencies of graduates that are applicable in the modern labor market. The state is interested in combining efforts to introduce the competencies of the 21st century in all sectors of human life, such as economics, politics, or the civil society.

Our paper is devoted to the study of awareness and relevance of competencies of the 21st century among students of the Federal University, Russia. The authors propose to unite the efforts of all stakeholders to create a global single digital platform for the development of competencies of the 21st century.

Keywords: *employment, labour market, leading competences, human resources*

1 Introduction

Even though it appeared over some 50 years ago, nowadays the competence approach forms the basis of the most advanced management and educational systems. The creator of a competency-based approach to personnel management is the American psychologist McClelland, whose one of the main achievements is the introduction of innovative idea of the demand to abandon intelligence assessment (IQ) and conduct employee assessment in a real working environment (McClelland 1973; 1998; or McClelland DC and Boyatzis 1982).

It was McClelland who introduced the concept of “competence” as an externally observable behavioral characteristic that determines whether the performer is successful or not in the process. Competence (from the Latin word “*competere*” - to match, to approach) is the personal ability of an employee to solve a certain range of professional tasks.

In order to fully implement work functions within a workplace, an employee needs a set of active competencies, which are usually formally described as a model of competencies for official vacancy, particularly, in the form of behavior requirements to the position and personal, professional, etc. qualities of in the company (Silva 2010; Emmerling and Boyatzis 2012; Boyatzis 2014). Well-developed competences, appropriate to business strategies, streamline almost all human resource management processes from their planning and engagement to the preservation and development (Ballou 1999).

Many types of competencies, classified for various types (educational, informative and communicative; corporate (the main), managerial, special and personal, etc.), actualize the following questions: What competencies are the most demanded in the 21st century digital economy? (Hughes and Acedo 2014) What competencies should the education system at all levels form starting with pre-school and ending with higher education? (Barca-Lozano et al. 2012) Are the participants of the educational, and then the labor process aware of the importance and content of modern competencies that will allow the professionals to be as successful as possible and the most effective

employees of the organizations? (Voogt and Roblin 2012). What do state and civil institutions need to do in order for make young people enter into the digitalization era and to be as successful and productive as possible? (Lee 2017).

Nowadays, large companies are increasingly dissatisfied with graduates who are not prepared for work and life in the modern world based on the "knowledge economy" (Dede 2010; Nabi et al. 2010). That is why the Vice-presidents of the three largest companies - Microsoft, Cisco and Intel initiated the ATC21S international research project on assessment and teaching skills of the in the 21st century. This research was joined at the government level by six countries - Australia, Singapore, Portugal, Finland, the United Kingdom and the USA (Griffin et al. 2012).

The University of Melbourne was chosen as the leading organization (Australia's 2nd oldest university, currently the country's largest university, ranked 1st in the national ranking of Australian universities, is in the "Group of 8th" top Australian universities, occupies 60th place in Shanghai rating, 44th place in ARWU-Academic Ranking of World Universities (exists since 2003), etc.

The project's founder and leader was Griffin, a professor, deputy dean and director of Assessment Studies Center, who specializes in psychometrics in the field of education and, therefore, has his own scientific methods for developing specific tasks and curricula for various skills.

The main idea of the project is the transition to a new educational system, based on the formulating 21st century competencies. This study showed the most relevant and most demanded competencies that future university graduates will need:

- *skills* – basic knowledge of languages, counting, finance, science, culture;
- *abilities* - critical thinking, problem solving, creative thinking, cooperation;
- *personal qualities*- curiosity, initiative, perseverance, leadership.

Despite the fact that thanks to the ATC21S project, the competencies of the 21st century have already been formulated, the search for workers corresponding to these competencies remains extremely difficult. According to the results of the 15th annual survey completed by the CEOs of the largest companies in the world, every fourth manager claims that he cannot use market opportunities, or is forced to cancel or postpone strategic initiatives because of impossibility of hiring necessary specialists. Every third of 1258 CEOs interviewed indicated that the lack of competence will affect the ability to use innovative solutions in their company (Hofkins 2017).

2. Research design

The lack of competent specialists on labor market actualizes the task of training them in the professional education system of all levels, because mostly graduates are the ones, who annually replenish the labor market. We have conducted a study among the students (17-20 years old) in the Ural Federal University named after the First President of Russia Yeltsin (Yekaterinburg, Russian Federation) about the student' s of the 21st century competences and their attitude to them.

In the research, the questionnaire designed by the author was used as the research method. It is structured into 4 blocks:

- a) competency awareness;
- b) competency assessment;
- c) the importance of possessing competencies;
- d) ways to develop competencies.

3. Main findings

• Awareness of Competences

Our results showed that almost all respondents know the concept of "competence", and they have a clear understanding of the competences and their importance at present time.

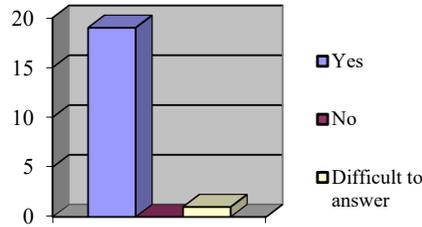


Fig.1. Importance of competencies
Source: Own results

Awareness about the ATS21C project under the direction of Griffin is exceptionally low: all respondents unanimously say that they have never heard about it. This indicates an absolute lack of the students' awareness of a new research in the field of developing (Fig.2).

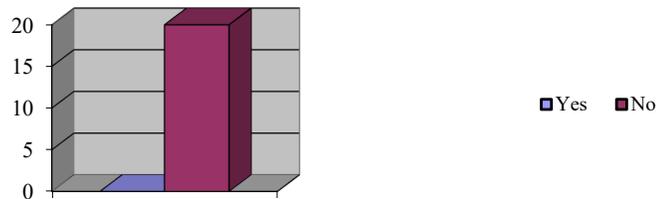


Fig.2. ATS21C project awareness
Source: Own results

Most of the students find it difficult to answer which competencies are the competences of the 21st century, however, none of the respondents chose the "No" option (Fig.3).



Fig.3. Knowledge of 21st century competencies
Source: Own results

Thus, the students' awareness of the 21st century competencies is dual: on one hand, students understand what competences are, but, on the other hand, they have no idea of their specific number, name and priority.

• **Competency assessment**

The results of the survey showed that students consider important to possess the 21st century competencies as a "time challenge", but respondents do not consider the employee's lack of these competencies as the reason why the employer may not recruit them in the near future (Fig.4).

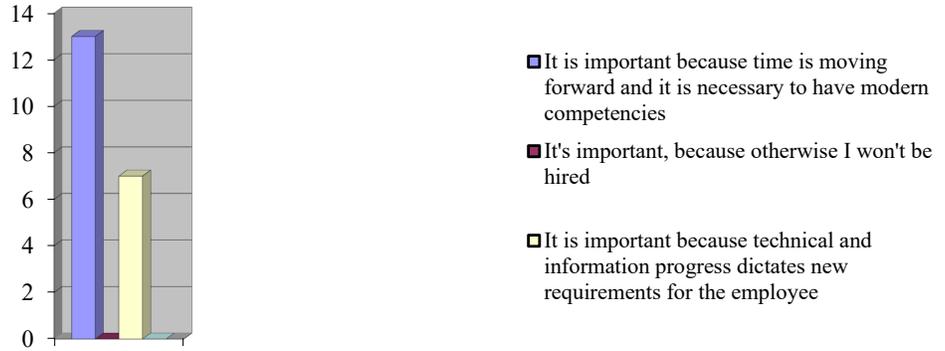


Fig.4. The gap between competence and employment
Source: Own results

Students agreed that the most important competence in the 21st century is mobility, the other opinions were divided: “critical and strategic thinking”, “tolerance”, “knowledge of information technologies” and “creativity”. This correlates with the list of 21st century competencies presented in Project ATS21C. The respondents are indifferent to “impact and influence”, “development of other people” competencies (Fig.5)

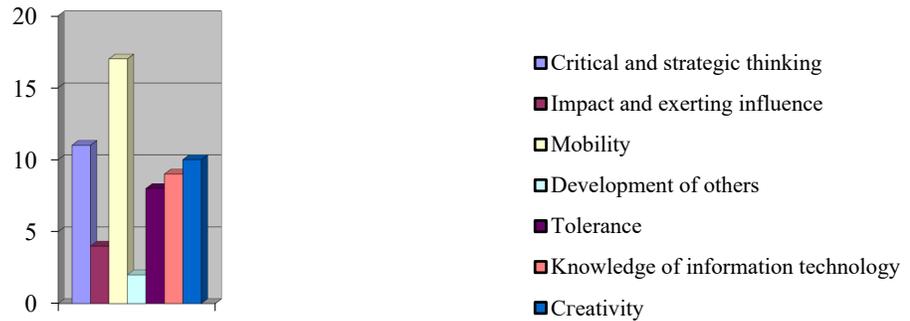


Fig.5. The most important competence of the 21st century
Source: Own results

The respondents consider the most authentic competencies, typical for the 21st century, such as: mobility and creativity. According to the project of Griffin (Griffin et al. 2012), these competencies are really the competencies of the 21st century and their advantage is as universal as possible. These competences are demanded in absolutely any branch of economy and social life (Fig.6).

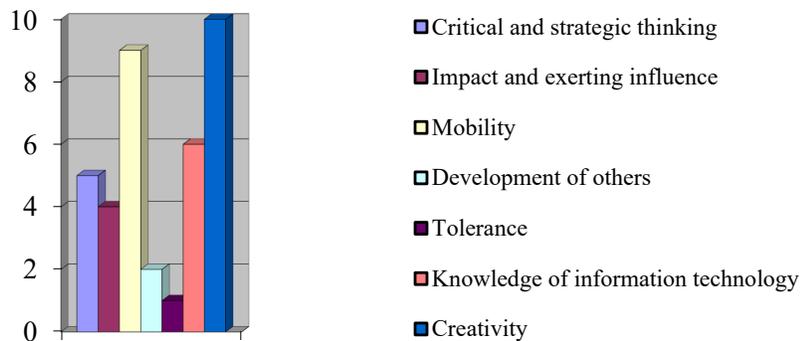


Fig.6. Universal competence of the 21st century
Source: Own results

In general, specifying the set of necessary competencies, students make a choice of the most universal ones - those that can be applicable in any field of activity and industry.

• *Possessing the 21st Century Competences*

The student self-examination of the 21st century leading competence showed that most of the respondents ranked “mobility” as the most important one (Fig.7).

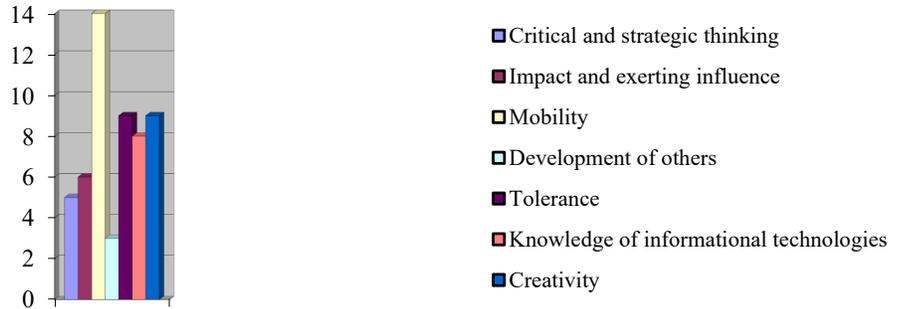


Fig.7. Self-esteem by students of leading competence
Source: Own results

Students mainly chose the lack of efficient educational system as the main reason for non-possessing the competences necessary in the 21st century (Fig.8).

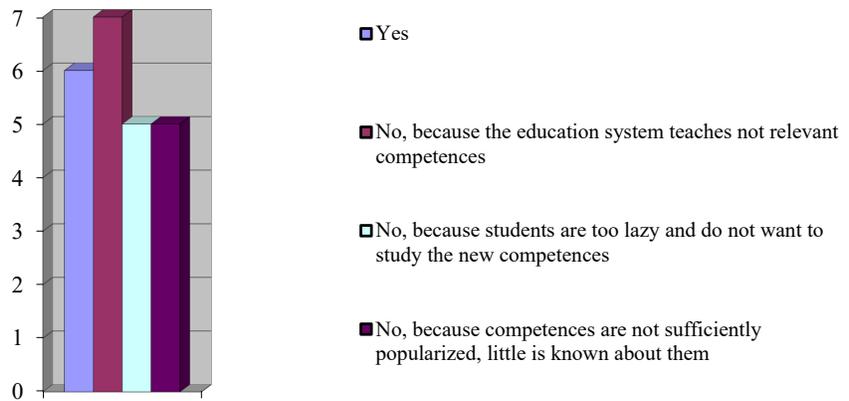


Fig.8. Reasons
Source: Own results

Students evaluation of their own university help in the formation of necessary competencies is contradictory: 50% confirm the support of the university, 50% find it difficult to answer (Fig.9).

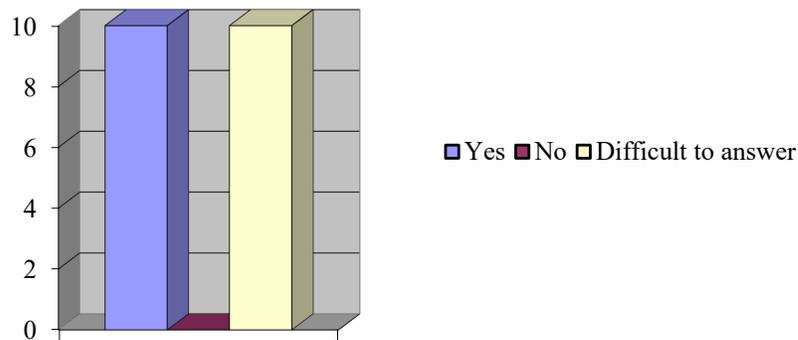


Fig.9. Evaluation of the university support in forming the necessary competencies
Source: Own results

Respondents who positively estimate the university support in studying the necessary competencies (50% of 100% of respondents) specify the forms of such support (Fig.10).

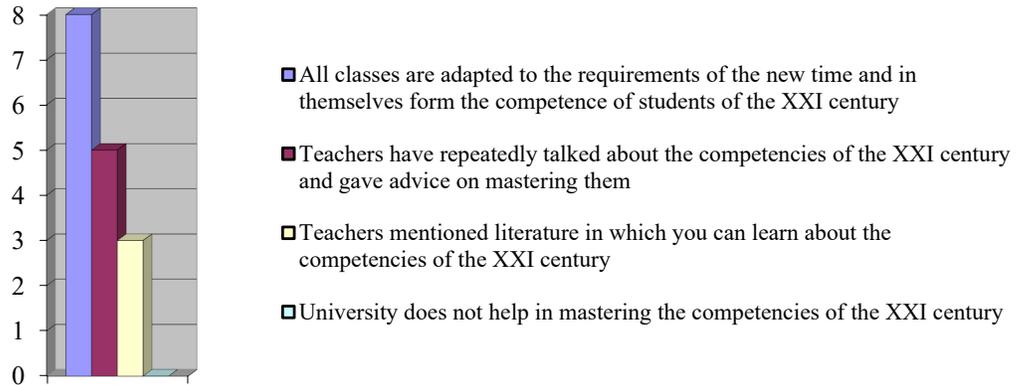


Fig.10. University support in studying competences of the 21st century

Source: Own results

Summarizing, we would like to emphasize that, in the question of competence level, the respondents critically evaluate modern educational systems as the environment for the formation of the necessary competencies in the 21st century.

• *Ways to develop competencies of the 21st century*

Almost all respondents agreed that the process of competence development starts from the early childhood (Fig.11).

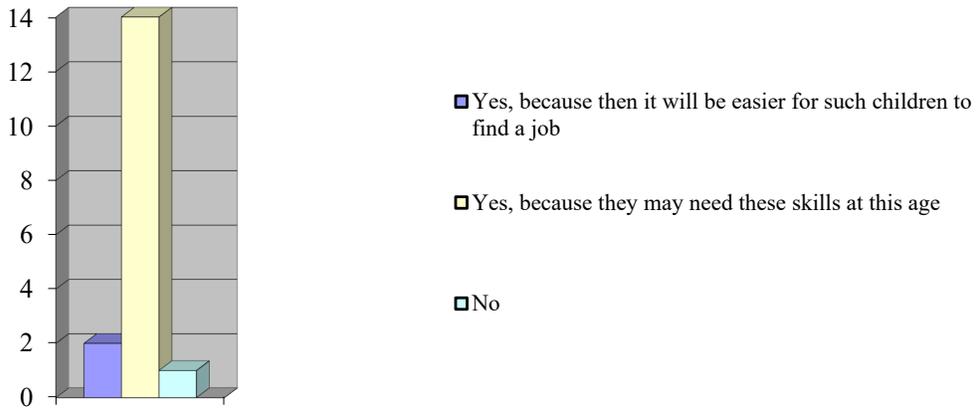


Fig.11. Starting the process of competence development

Source: Own results

The most effective methods in the development of the 21st century competencies were highly recognized measures related to changes in the educational system and public awareness (Fig.12).

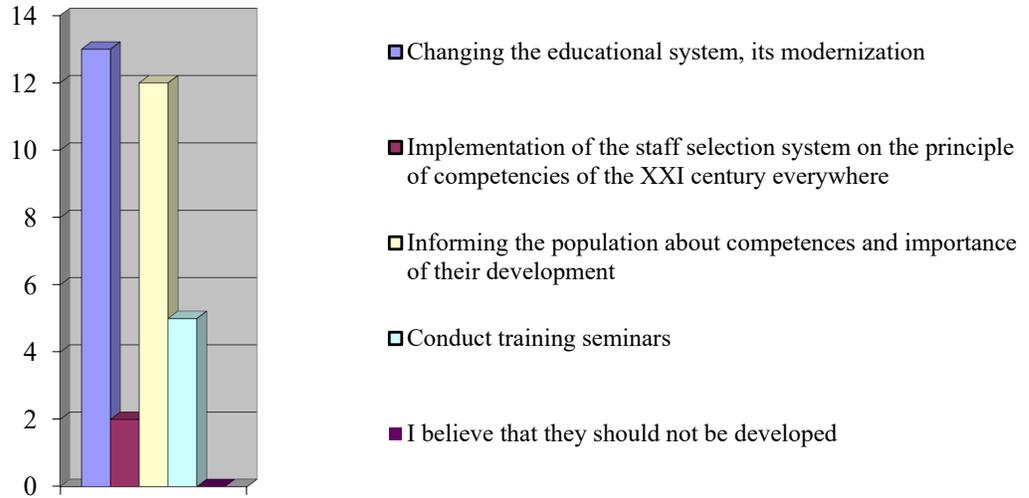


Fig.12. Methods of competence development
Source: Own results

Most of the respondents agreed that they all would like to develop the competencies mentioned above, because this would make them an indispensable employee within the organization and increase their competitiveness on the labor market (Fig.13).

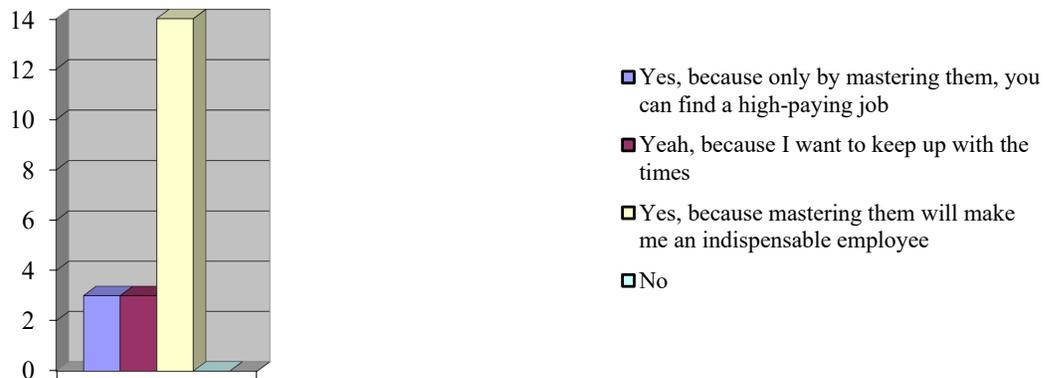


Fig.13. Importance of competence development
Source: Own results

Most of the respondents say that they would address to Internet resources and books, scientific articles to develop the 21st century competencies, and they also chose the university as the basis for their development (Fig.14).

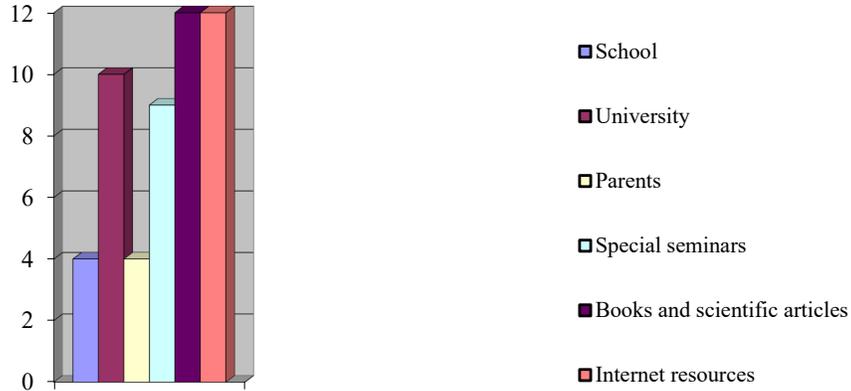


Fig.14. Base of competence development
Source: Own results

Students consider it is important for HR specialist to evaluate the level of competences the candidates possess before recruiting them (Fig.15).



Fig.15. Evaluation of competencies in recruitment
Source: Own results

Thus, developing competences from childhood, actively studying various information sources, students believe that they can develop their competence, which will allow them to be a competitive employee. Also they consider that the best methods of competence development are the changes in the educational system and extensive promoting.

4. Future of work dialog: competences for the 21st century development

Given the great importance of building the key competencies of the twenty-first century for the implementation of the "future work", we should start this work today. The world needs to create a common worldview about what competencies are in demand here and now, who and how will form them and assess who and when will create the environment for the maximum implementation of competencies in the real economy, what support will be provided for the purpose of competence development, how will the risks and difficulties of implementing the competence model be overcome.

In order to solve all these issues, we propose an international project "Future of work: competition 21st Century Development". The mission of the project was to create a tool of "soft power" and influence to solve the problem of uniting the efforts of all stakeholders in the global competence development of mankind.

The aim of the project was the development of competencies of the 21st century to form the "future of work", which meets modern requirements of development of society, economy, administration and education by combining efforts of all interested in the development of the parties. The target groups of the project were stakeholders (see Table 1 that follows).

Table 1. The stakeholders of the project and the scope of their responsibility

Stakeholders	Responsibility
Potential and real human resources (professionals of all ages and qualifications, families)	<ul style="list-style-type: none"> • Search and selection of relevant competencies for self-realization • Constant updating and development of competencies to improve their professional and personal potential
Employers, business representatives from all sectors of the economy	<ul style="list-style-type: none"> • Provision of information on relevant competencies • Formation of the organizational environment for the implementation of competencies
Political and governmental institutions (political parties and bodies of state power and administration)	<ul style="list-style-type: none"> • Formation of legislative and Executive framework to support competence development • Creating conditions for the implementation of the competence model, overcoming barriers and difficulties
Educational institutions (universities, education management bodies)	<ul style="list-style-type: none"> • Formation of necessary competencies in the labor market through ensuring the quality of training • Creation of opportunities for continuous transformation of competences in the system of continuing education
Civil society institutions (non-governmental and non-profit organizations)	<ul style="list-style-type: none"> • Formation of public demand for the development of competences • Assessment of the effectiveness of the implementation of the competence model, risk forecast organizations)

Source: Own results

The format of the project: a digital platform for open interaction of all stakeholders that will unite all the parties to discuss and develop a common conceptual model regarding the directions, development paths, methodologies and technologies for the development of the competences of the 21st century.

The design of platform should be to adapt to tasks of project – to connect stakeholders and to give opportunity to discuss all key aspects of competence development and finally to begin a real dialog.

The expected result of the project is creating and construction the common view on “future of work”, in which all participants contribute their own imaginations.

For the evaluation of the project’s effectiveness a key performance indicator should be developed jointly by all stakeholders. The number of participants: as project is international so coverage of participants is not limited and can involve all countries and continents all over the world. The algorithms and procedures should be constructing in on-line way in the process of interaction, here-and-now.

4. Conclusions

Our research which was based on the survey of students’ opinion, concerning of their attitude to 21st Century Competences showed a high level being in demand of analyses of “future of work” in the digital and “knowledge” economy in the modern society.

In order to make decision in this area it is very important to organize a wide dialog between all interested in the development of the parties of society - potential and real human resources; employers, business representatives from all sectors of the economy; political and governmental institutions; educational institutions and civil society institutions.

As a first step to organizing such dialog creating of the special Digital platform could be the best solution. Discussion stakeholders will be beginning of construction of the new paradigm “future of work” which will be the foundation of sustainable development for years to come.

Acknowledgments

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