Gad, S., Yousif, N. B. A. (2021). Public management in the education sphere: Prospects for realizing human capital in the development of knowledge management technologies. *Administratie si Management Public,* 37, 151-172. DOI: 10.24818/amp/2021.37-10

Public management in the education sphere: Prospects for realizing human capital in the development of knowledge management technologies

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Abstract: *The study aims to form and test a knowledge management model for universities, which made it possible to identify the most influential factors and their relationship with knowledge management processes. The sample of the study (N = 100) included members of the administrations of the United Arab Emirates universities, senior students (graduate students) and teachers. The data were collected based on a Google Forms questionnaire (65 questions). The model includes 6 main factors: leadership, organizational culture, organizational structure, human resources, information technology, measurement and control. It is assumed that the favourable influence of these factors will contribute to the effective implementation of the knowledge management process. Statistical analysis of the collected data was performed in SPSS and EViews. The model was verified with the help of the root-mean-square error of approximation. The factors "organizational culture", "human resources", "organizational structure", as the processes of creation, storage and use of information demonstrate the highest degree of compliance (value is 0.5 and below). Internal consistency was checked by calculating Cronbach's alpha (total Cronbach alpha is 0.97). To assess the existing relationships between the processes and factors of knowledge management, an analysis of Spearman's ρ correlation was performed (confidence level is 99%). The findings of the study show that the factor "organizational culture" has the greatest impact on the process of creating knowledge, and the factor of the organizational structure considerably affects knowledge management. It has been concluded that information technology is the least influential factor in the knowledge management process. The model demonstrates that the greatest influence of the "leadership" factor can be observed in the context of the process of applying knowledge. The validity of the model makes it possible to argue that it can be used as a public policy tool for the implementation of knowledge management initiatives in universities. The practical significance of the research lies in the fact that on the basis of the model described in the study, it is possible to perform a preliminary assessment of the knowledge assets of universities in order to improve the process of knowledge transfer in education and research. The model will provide university administrations with an opportunity to identify areas for improvement in*

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order for the knowledge management process to be more effective, which ultimately should result in the creation of human capital that meets modern needs.

Keywords: knowledge economy, knowledge management, knowledge management factors, knowledge management model, knowledge management processes

JEL: D83, J24, M54.

DOI: 10.24818/amp/2021.37-10

Introduction

As far back as the last century, researchers argued that a sustainable competitive advantage of a company is based on collective knowledge, its effective use, as well as the ease of acquisition of new knowledge (Davenport & Prusak, 1998). In the dynamic 21st century, any organization survives due to professional management and competent management of available resources. This makes it possible to identify and use new opportunities and risks, as well as to form adaptive abilities. In the course of the company activities, large volumes of raw and not always formalized information are generated, which is especially relevant to knowledge-based organizations, for example, universities (Trenev, 2018). However, many researchers note that with the development of the information economy and society, the problem of the oversaturation of information channels having no effects due to the lack of knowledge on the use of huge amounts of information has become of immediate interest. Therefore, it is logical that the ability to use information is the driving force behind the stage of social development referred to as the knowledge economy, which the government should be concerned with. In the knowledge economy, knowledge is recognized as the main source of wealth production, and effective and efficient knowledge management is considered a key success factor for achieving a sustainable competitive advantage (Zaim et al., 2018; Androniceanu et al., 2020a; Androniceanu et al., 2020b). At the same time, competitive advantage is increasingly often based on the successful application, use and creation of knowledge, especially the knowledge "embedded" in human capital (Banerjee, 2013; Idike et al., 2021).

The innovative development of the economy in the world, where the most progressive countries have become the post-industrial and information societies, largely depends on the quality of higher education, the development of the system of research institutions, the availability of education for the population and the formation of the concept of lifelong learning. Lack of information against the background of its rapid growth makes it difficult to take quick and effective management decisions. Thus, organizations should implement tools designed to structure information in order to ensure decision-making to manage this information and transform it into knowledge and intellectual capital (Siddiqui, 2012).

The use of knowledge management principles in the business sector has long been the focus of many scholars (Gadu & El-Khameesy, 2014; Khan, 2012; Omotayo, 2015), who have studied the principles, features, positive effects and risks of implementing knowledge management in business structures. A big number of studies are devoted to the problems and prospects of introducing knowledge management in the state and public organizations (Bučková, 2015; Basso et al., 2020; Haque, 2013). However, in the field of education and educational institutions, knowledge management for the development of human capital is still an urgent and understudied issue. This is also relevant to the system of higher education management in the United Arab Emirates, which is facing an acute problem of keeping up with the trend for the formation of human capital. The research is aimed at developing and testing a knowledge management model in the universities of the United Arab Emirates in order to accelerate human capital development.

On the other hand, there are many professions that deal with service institutions, such as universities. A good example here would be a position of a social service worker. By means of the method of community organization, particularly through important professional roles, social services contribute to the development of institutions of various types and subordination and thus help them improve their capabilities, structures, meet the needs of their members, and develop their resources.

Hence, the community organization plays a significant role in accelerating the human capital of these institutions through knowledge management as an intellectual and practical approach to institutions' development.

Accordingly, it can be declared that the method of community organization strengthens administrative processes, facilitates leadership development, improves organizational structures, spreads a positive organizational culture, develops resources, encourages implementing information technology, and promotes achieving organizational control and management that accelerate human capital development and growth (Çera et al., 2020).

1. Human capital and knowledge management

Currently, education and human capital development are of particular importance as they are the productive power of the knowledge economy (Ahmed et al., 2020).

1.1 Human capital and knowledge management in the higher education system

Human capital is defined as a constituent part of human potential – an asset accumulated as a result of private or public investment characterized by the availability of the knowledge, skills, abilities, qualifications, training, motivation, practical experience, and health needed (Becker, 1962). They are implemented in

economic activity, contribute to the economic and social efficiency of production, increase the competitiveness of the national economy and affect the growth of income of a person, enterprise and society (Manuti & De Palma, 2014). Researchers note that in the developed countries of the world, almost 2/3 of the increase in national income is ensured by the knowledge and education of society (Hanushek & Woessmann, 2020), and the share of new knowledge embodied in goods, education, and technologies is up to 80% (UNCTAD, 2021). These trends can demonstrate the formation of a global infrastructure of science and a system of lifelong learning and the emergence of the need to form a scientific and educational space to satisfy the population demand for education that can be received at a convenient time and regardless of location (Joynes et al., 2019). This, in turn, requires the development and implementation of programs of state regulation and reform at the level of different countries of the world. In this regard, it is necessary to implement structural changes at the macro-, micro-, and individual levels contributing to the modernization of education taking into account the requirements of the labor market, individual needs of human development, and aspects of the human capital formation.

Human capital can be referred to as one of the key factors contributing to the expansion of knowledge management capabilities (Vorontsova et al., 2020). At the same time, it must be kept in mind that employees can simply store tacit knowledge and there is a need to create the prerequisites for the creation and accumulation of information and establish communication in order to accumulate valuable intellectual assets (Zaied et al., 2012). Skillful, hardworking, and inspired professionals are the key to implementing any knowledge management activity. Modern organizations strive to attract and retain people with skills and experience that can add value to the knowledge accumulated in the organization (Hsieh et al., 2019). Through intellectual assets, in particular, the intellectual potential of employees, organizations profit and remain competitive. Hence the task of observing people who seek to form knowledge and share it with others becomes of paramount importance (Y. Lee & S. Lee 2013).

The experience of personnel related to the company procedures can contribute to the acquisition and use of knowledge within the organization more than contracting a new employee. People with different abilities are important for creating knowledge as they can coordinate different information resources, consolidate useful information and see its relation to the real problems of the organization. Subsequently, they can develop abilities in several areas thereby gaining new knowledge (Lopez & Esteves, 2013). Knowledge management as a combination of skills and competencies in the field of information, as well as human resource management is recognized as a key asset of a modern organization. It provides a framework for understanding the technologies, opportunities and challenges that organizations face in their knowledge management mission to transfer the right knowledge to the right people at the right time (Gonzalez & Martins, 2017) and affects human resource (human capital) management. Moreover, these phenomena are considered alongside as both people

and knowledge are resources of great potential. Knowledge management is a complex system of elements, processes and relationships between human resources, technology, infrastructure, knowledge and brain workers that are implemented in an environment that can both stimulate and inhibit knowledge management activities (Raudeliūnienė et al., 2018). As an integrated, regular, target, and continuous socio-technical function, it develops actions aimed at acquiring, generating, organizing, preserving, extracting, sharing, distributing, transferring and evaluating knowledge in order to form competitive advantages (Demortier & Delobbe, 2011). Company knowledge management implies a systematic and methodical approach to the use of mental abilities to achieve efficiency, increase competitive advantage and encourage innovation (Azam et al., 2016). This is a result of the improvement of the quality of decision-making and the introduction of effective changes in the strategies aimed at improving the resources of the technical and administrative spheres, human resources and organizational subsystems (Al-Hakim et al., 2012.).

Higher education is a public policy element that plays a critical role in the creation and dissemination of knowledge among stakeholders (Ciobanu et al., 2019). Educational organizations are the main tools of society for the constant search for knowledge (Raišienė et al., 2019). The role of knowledge management (KM) in educational institutions is critical and important. In educational institutions, employees are intellectuals; they must be well educated and qualified to carry out their professional responsibilities. Moreover, in universities, human capital is focused on two important issues – creative, scientific, and research work and relatively standardized pedagogical work (Rezaei et al., 2021). The use of knowledge management initiatives to achieve the goals set requires a deep insight into the relationship between knowledge processes, as well as the consideration of factors that influence knowledge processes and brain workers. As a result, researchers believe that knowledge management problems should be studied from the perspective of education subsystems (Alosaimi, 2016.).

Administrative, research, and educational processes, the quality of the provision of educational services, pedagogical and research activities, as well as the operation of subsystems, can be identified and studied in an educational organization through applied systems thinking and knowledge management (Omona et al., 2010). The results show that knowledge management has a positive effect on the formulation of the institutional strategy, however, there is a need to introduce more knowledge management practices at the level of government academic teaching and learning initiatives. In addition, universities that implement knowledge management are ranked as prosperous and competitive educational institutions (Suknunan & Maharaj, 2019). The use of knowledge management principles in an educational institution contributes to greater flexibility in decision-making, positive reforms and innovations in teaching and learning, increased access to scientific resources, promotes the formation of a more effective internal and external communication network, as well as ensures increased synergy between the knowledge of students and teachers to improve the qualitative and

quantitative indicators of research activities (Omona et al., 2011). Knowledge management benefits employees, learning networks and the organization. It contributes to the solution of problems through more effective dynamic and critical thinking, forges connections within the organization keeping the process participants in the picture about the recent events and providing more opportunities to make personal contributions. From this point of view, it aims to develop professional abilities, expand learning opportunities, encourage effective interaction, communication and administration, which contributes to the growth of human capital (Hayfa et al., 2018).

In the course of studying the effect of knowledge management on performance improvement, it was demonstrated that in educational organizations it can be used to create curricula and knowledge repositories, transform the accumulated data into knowledge to facilitate information access, and improve the environment for the use of available resources (Rohendi et al., 2020). Universities have objects, systems or projects contributing to knowledge management; these include libraries and their funds, electronic repositories of educational materials, network resources for communication and information uptake, information management systems. It has been argued that knowledge management is absolutely essential for universities as it can create innovative relationships that combine learning and experience and the curriculum reflects and solves real-world problems (Ngoc-Tan & Gregar, 2018).

The table demonstrates the functions and impact of knowledge management on the educational subsystem, which positively affect various components of educational activities (Table 1).

Table 1. Impact of knowledge management on the education system components

Subsystem	Main components	Influence
Technical	research activities, planning and curriculum development	Increase in the competitiveness of research, reduction of the time and cost of scientific and experimental developments. Strengthened interdisciplinary research links, connection with real market requirements. Increase in the quantitative and qualitative indicators of research on the integration with electronic resources, databases, and other researchers. Development of high quality training programs through the identification and implementation of best practices. Acceleration of modernization and update of training programs.
Administrative	administration and services	Improvement of the quality, efficiency and results of the provision of services to faculties, departments, internal and external stakeholders. Improved administrative processes, expansion of opportunities in the provision of services and access to information and knowledge resources.

Subsystem	Main components	Influence
Human resources (including educational)	teachers, education workers, students	Advanced training of human resources. Implementation of a fair system of remuneration and accrued bonuses. Implementation of an effective response and adequate communication with the development of informal communication. Improvement in the results of students' teamwork through the exchange of knowledge and experience. Creation of a flexible and functional environment for the implementation of lifelong learning goals and obtaining another education. Formation of an environment for social integration of students from different cultures.
Structural	university as an organization	Effective implementation of the mission. More efficient maintenance and use of assets, optimization of organizational knowledge, encouragement of knowledge generation and its use for effective and efficient teaching and learning. Combination of explicit and implicit information to improve competitiveness, productivity, and external partnerships.

(Source: compiled based on Costa et al., 2021, Mohammad and Jose, 2016 and Shih and Tsai, 2016)

1.2 Knowledge management components and factors

Available research has identified and reviewed a number of the key knowledge management components, which, according to various approaches, include creation, identification, acquisition, storage, distribution, sharing, and implementation of knowledge (Abdi & Senin, 2015; Aliyu et al., 2015; Bashir et al., 2014). The most important components of knowledge management are described in Table 2.

Table 2. Main knowledge management components

Component	Characteristic
Knowledge creation	The process of creating new knowledge where an organization encourages employees to express thoughts and points of view. Collective ideas contribute to the retention of the organization image, tacit knowledge becomes explicit. Knowledge can be created when the organization promotes learning and the generation of new knowledge that can be used to motivate employees, improve communication and the use of innovations. The creation of new knowledge results in achievements, products, hierarchical structures and procedures.
Knowledge acquisition	A method of collecting and receiving information from internal and external sources (from involved specialists, meetings, databases and archives, plans, etc.) associated with the promotion of new information

Component	Characteristic
	within the company, including improved or new use of current knowledge. The most common methods are process and idea mapping, observation, communication, training. To obtain data and knowledge, the Internet, periodicals, seminars or conferences, official publications, reports, telephone conversations, e-mail, etc. can be used.
Knowledge storage	The knowledge that is stored within an organization includes physical assets (documentation, electronic databases, methods, and procedures) and non-physical resources. When developing effective repositories of knowledge, it is necessary to allocate time and resources for information recording, create incentives to motivate employee participation, and be able to synthesize information into effective knowledge.
Knowledge transfer	It implies the dissemination of knowledge where it should be applied. The purpose of knowledge transfer is to transfer the right knowledge to the right people at the right time. Organizations must provide an infrastructure to facilitate knowledge sharing: knowledge must be available, the technological infrastructure must facilitate the dissemination of knowledge, and knowledge management initiatives must be supported by the company management.
Knowledge application	Use of knowledge and increasing its importance and dynamism. It includes retrieval, accumulation, sharing, and application of knowledge. The productive use of knowledge reduces costs and increases the efficiency and competitiveness of the organization.
Knowledge protection	Protecting knowledge within an organization from inappropriate or illegal use or theft. This involves structuring strategies to reduce staff turnover, protecting developments and signing nondisclosure agreements.

(Source: compiled based on Shujahat et al., 2019; Lopez and Esteves, 2013)

The impact of knowledge management in knowledge-based organizations such as universities on the ROI indicators in terms of intellectual capital and innovation is inevitable. Thus, it is no wonder that this area has attracted the attention of researchers (Hsu & Chen, 2021). It is important for any organization to have an integrated and consistent knowledge management strategy as it leads to effective knowledge management that increases innovation and productivity (Archer-Brown & Kietzmann, 2018). To achieve long-term success, organizations should focus on good knowledge management and create a culture in which employees are motivated to share knowledge as a result of the implementation of both their own and organizational goals (Singh, 2018). The extent to which an organization is capable of creating value depends on its ability to create, transfer and use knowledge. Researchers seek to identify incentives that drive knowledge management processes, including organizational structure, leadership, culture, and other factors (Iqbal et al., 2019). Thus, the factors that contribute to knowledge management are the totality of organizational, cultural, structural and technological elements that support the processes of creating, storing, transferring and applying knowledge in an organization. According to researchers, these include human

resources, leadership, culture, information technology, organizational structure and control (Table 3).

Table 3. Factors contributing to knowledge management in the organization

Factor	Characteristic
Organizational culture	It manifests itself in unrestricted norms related to the distribution of knowledge in the organization and among its participants. A culture based on trust and collaboration improves knowledge sharing and increases organizational effectiveness.
Leadership	A decisive factor in the implementation of cultural, organizational and technical changes, an element of the pyramid of processes and tools for effective knowledge management. The biggest obstacle to knowledge management (culture) can be overcome with effective leadership. It manifests itself in the provision of resources, motivation, time and space for the exchange of knowledge.
Human resources	Personnel training and development should be ensured to help employees understand the purpose of knowledge management and acquire competencies to participate in it. Technological solutions and incentive programs must be individualized taking into account the interests of the organization and its employees.
Information technology	The technological infrastructure includes a large number of information and communication technologies that facilitate knowledge management processes. It helps to manage explicit knowledge, maintain contact with employees to share knowledge that is not documented.
Organizational structure	It is fundamental to the success of knowledge management initiatives. It is connected with expert communities, social media, formal and informal hierarchies within the organization, and spaces that facilitate collaboration between employees. The elimination of status hierarchy also facilitates knowledge sharing and contributes to the success of knowledge management initiatives.
Measurement and control	This is one of the least developed aspects of knowledge management, which is explained by the difficulty of measuring something abstract (knowledge). The impact of knowledge management initiatives is usually measured through the overall performance of the organization (financial and non-financial indicators, and a combination of these).

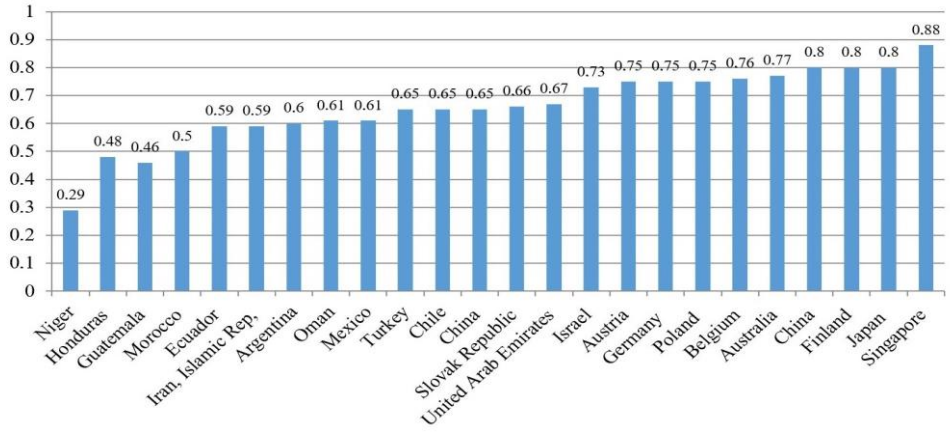
(Source: compiled based on Chang et al., 2012; Dayan et al., 2017; Kavalić et al., 2021; Rabelo and Conte, 2018) and Razmerita et al. 2016)

1.3 Human capital formation and educational practice in the United Arab Emirates

In the UAE, human resource development, in particular staff training and talent development, is one of the main objectives of the public workforce policy and human capital development strategy. In particular, efforts are aimed at studying the effectiveness of various scholarship programs, advanced training, and the provision of additional career opportunities (Al Afifi, 2016). According to the World Bank, in 2020 the United Arab Emirates (the UAE) ranked 43rd out of 173 countries in terms of the Human Capital Index (HCI), with an indicator of 0.67

(scale 0 - 1). The leader (Singapore) scored 0.88 while the lowest position in the ranking was taken by Niger with an index of 0.29 (World Bank, 2020) (Figures 1, 2).

Figure 1. Rank of the UAE in Human Capital Index, 2020



(*Source*: compiled based on World Bank, 2020)

Figure 2. Global map of countries ranked by Human Capital Index, 2020

(*Source:* World Bank, 2020)

HCI is one of the important socio-economic indicators that determine the level of education of the population. It was developed in 2018 as part of the project aimed at the global acceleration of progress towards the creation of conditions to allow every child to reach their full potential. The index compares the key components of human capital around the world. World Bank reports indicate that over the past 10 years, many countries have shown considerable progress in improving human capital. Based on the ranking (Figure 2), it can be noted that the UAE has managed to hit the top but the intervention of the COVID-19 pandemic threatens to wipe out these gains. Obviously, despite the fact that research on the impact of COVID-19 on human capital is at the initial stage today, the first models suggest that school closings, falling income levels, ill-conceived education policies of higher educational institutions during the period of the quarantine restrictions greatly affect the accumulation of human capital, and the pandemic can throw back

the delicate progress (World Bank, 2020). As a result, the world economies, including the UAE, are challenged to take urgent measures to safeguard human capital gains, in particular among the vulnerable population. The best results will be demonstrated by those countries that will remain committed to reform and apply a competent approach to policy making, including in the field of education.

Public administration in the field of human capital aims to develop the UAE as a knowledge-based economy; it seeks to increase market competitiveness through investments in science, technology, research and development, as well as to enhance relations between the academic community and the real sector of the economy (Al Afifi, 2016). It is worth noting strategies and concepts (for example, Abu Dhabi Economic Vision 2030) that are focused on the development of the knowledge economy and outline top-ranked education as one of the main goals with an emphasis on curriculum reform, international higher education standards, and equitable learning opportunities (Abu Dhabi Government Services, 2021). It is stated that an adequate public education strategy creates the potential that fosters economic progress through social mobility and education making the workforce more adaptable to different production needs (Ghaffari et al., 2012). As a result of this, the UAE universities need to make the most of labor market information when planning programs. Today, it is recognized that there is not much information on the labor market and knowledge management in the higher education system is not common. Thus, modern research should focus on the investigation of knowledge management technologies to update the education system and form human capital in the UAE.

2. Methodology of research

2.1 Research objectives

The research aims to develop and test a knowledge management model in the universities of the United Arab Emirates. The model consists of 6 factors, which include human resources, leadership, organizational culture, organizational structure, information technology, and measurement that facilitate the processes of creating, storing, transferring and applying knowledge.

The auxiliary objectives of the study are as follows:

- to assess the extent to which the factors affect the knowledge management process;
- to trace the establishment of relationships between the components of the model.

2.2 Research sample

The survey involved:

- 44 members of the administrations of the universities of the United Arab Emirates. The main selection criteria were direct acquaintance with the aspects of introducing a knowledge management system, interest in introducing knowledge management at the university, participation in the university

administration as a group of influence on the formation of the initiative for introducing knowledge management and human capital management.

- senior students (magistracy) (26 people) and teachers (30 people). The main criterion for the selection of senior students and teachers (professors and doctors of philosophy with at least 5 years of experience) was knowledge of the specifics of teaching and learning at universities, as well as direct association with human capital.

Demographic characteristics are described in Table 4.

Table 4. Demographic characteristics of the sample participants, N = 100

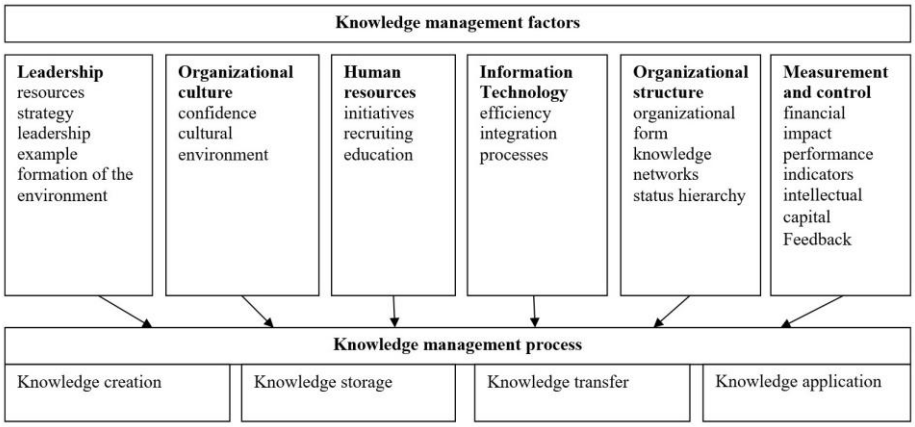
Characteristic		**Percentage**
Gender	men	58%
	women	42%
Age	Up to 30 years old	27%
	31-40 years old	21%
	41-50 years old	36%
	Over 50 years	16%
Position in the university administration	Director	20%
	Assistant director	27%
	Head of faculty (department)	53%
Academic representatives	Teachers (professors)	29%
	Teachers (PhD)	25%
	Students	46%

(*Source:* Authors)

2.3 Research design

A review of previous studies established the basis for the development of a knowledge management model (Figure 3).

Figure 3. University Knowledge Management Model



(*Source:* own development based on Chang et al., 2012; Dayan et al., 2017: Kavalić et al., 2021; Rabelo and Conte, 2018 and Razmerita et al., 2016)

Thus, the model includes 6 main factors: leadership, organizational culture, organizational structure, human resources, information technology, measurement and control (Tamulevičienė & Androniceanu, 2020). It is assumed that the favourable influence of these factors will contribute to the effective implementation of the knowledge management process. Each factor was supplemented with appropriate measures.

It should be clarified that all factors included in the model are not isolated from each other, that is, to implement knowledge management, the involvement of all factors is required.

2.4 Data collection and analysis

The data were collected with the help of a questionnaire (65 questions) distributed through Google Forms. The participants assessed each item of the survey on a five-point Likert scale (5 points): 1 - completely disagree, 2 - somewhat disagree, 3 - neither agree nor disagree, 4 - somewhat agree, 5 - completely agree. All survey participants were explained in detail the terms, concepts, and provisions of the questionnaire.

The statistical analysis of the data obtained was performed in SPSS (software for applied research in the social sciences) and EViews (software that provides statistical tools for forecasting and modeling).

2.5 Research tools

The model was verified with the help of the root-mean-square error of approximation. The value of $p \leq 0.05$ demonstrates a good level of conformity, $p \leq 0.08$ - acceptable conformity, and $p > 0.08$ - unacceptable conformity.

The model conformity was assessed on the basis of the reliability of the questionnaire questions. The scale used in the study for the assessment of the selected factors and processes affecting knowledge management was analyzed. Internal consistency was checked by calculating Cronbach's alpha. The reliable level is in the range from 0.9, the acceptable level is from 0.5.

To assess the relationship between the processes and factors of knowledge management, the analysis of Spearman's ρ correlation was performed as a measure of the linear relationship between random variables for nonparametric data.

2.6 Ethical issues

Participation in the study was voluntary. The participants were guaranteed the anonymity and confidentiality of the survey results.

3. Research results

At the first stage of the research, the model conformity assessment was performed and the model was adjusted to the objectives of the study (Table 5).

Table 5. Conformity assessment of the model

	root-mean-square error of approximation	not acceptable	acceptable	good
Factors				
Leadership	0.060		x	
Organizational culture	0.034			x
Human resources	0.049			x
Information Technology	0.073		x	
Organizational structure	0.42			x
Measurement and control	0.80		x	
Processes				
Knowledge creation	0.01			x
Knowledge storage	0.06			x
Knowledge transfer	0.055		x	
Knowledge application	0.025			x

(Source: own development)

Based on the data above, it can be concluded that the factors of organizational culture, human resources, organizational structure, as well as the processes of creation, storage and application of information demonstrate a high degree of compliance ($p \leq 0.5$). The factors of leadership, information technology, measurement and control, as well as knowledge transfer are characterized by the acceptable level of model conformity ($p \leq 0.08$); the most questionable factor is measurement and control, but it falls into the range of the acceptable value ($p \leq 0.08$).

Next, the validity of the model was assessed and the most important measures were selected (Table 6).

Table 6. Assessment of the convergent validity of the model

	reliability
Factors	0.96
Leadership	0.90
Organizational culture	0.73
Human resources	0.75
Information Technology	0.69
Organizational structure	0.87
Measurement and control	0.88
Processes	0.92
Knowledge creation	0.74
Knowledge storage	0.72
Knowledge transfer	0.79
Knowledge application	0.72
Total	0.97

(Source: own development)

According to the data given, all Cronbach's alpha coefficients exceed the minimum level of 0.5. The highest level is demonstrated by the leadership factor (0.90) and the lowest one - by the organizational culture factor (0.73). In the context of the processes, knowledge transfer is characterized by the highest indicator (0.79) while knowledge storage demonstrates the lowest one (0.72). The total Cronbach's alpha is 0.97, which indicates the high reliability and consistency of the model.

At the next stage, the correlation between the processes and factors of knowledge management was analyzed (Table 7).

Table 7. Assessment of the relationship between knowledge management processes and factors

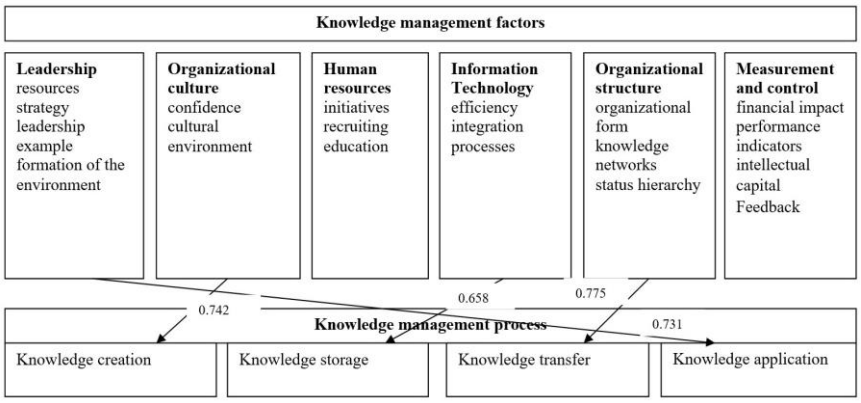
	Knowledge creation	**Knowledge storage**	**Knowledge transfer**	**Knowledge application**
Leadership	0.678	0.617	0.705	0.731
Organizational culture	0.742	0.567	0.676	0.682
Human resources	0.625	0.439	0.712	0.626
Information Technology	0.425	0.658	0.365	0.473
Organizational structure	0.636	0.672	0.775	0.670
Measurement and control	0.514	0.620	0.478	0.575

Note: confidence level is 99%

(Source: own development)

Further, a structural model of knowledge management at the university demonstrating the correlations between the factors and processes was described (Figure 4).

Figure 4. A university knowledge management model with the correlations between factors and processes



(Source: own development)

Based on the results, it can be noted that the factor of organizational culture has the greatest influence on the creation of knowledge at the university. The information technology factor has the greatest influence on knowledge storage. The knowledge transfer process is considerably affected by the leadership factor. The process of transferring knowledge is also most influenced by the factor of organizational structure.

4. Conclusions and discussion issues

Thus, in the study, a knowledge management model for universities, which made it possible to identify the most influential factors and their relationship with knowledge management processes, was formed and tested. The model has been designed to facilitate the transition of universities in the United Arab Emirates to the concept of knowledge management as it provides a set of factors that can be used at the initial stage to achieve goals set. Based on the findings, it can be generally concluded that universities should create an environment that encourages communication and lifelong learning, eliminates multiple hierarchies and barriers to trust between knowledge management participants (Sensuse et al., 2017). Research in the field of knowledge generation, management and application with the help of the Suricata model has identified the factors of successful knowledge management implementation in the context of publicly available elements, which have also been confirmed by this study (García-Holgado et al., 2015).

The findings of the study noting that the factor of organizational culture has the greatest influence on knowledge creation are in line with the data of previous research, which argues that culture is one the most important components contributing to knowledge management (Cooper et al., 2016; Muneer et al., 2014). However, in this case, the researchers focus on the fact that culture influences the direct exchange (transfer) of knowledge, which does not coincide with the results obtained in this study. General conclusions related to the importance of culture indicate that it is primarily manifested in the trustful relationship between the knowledge management participants and the ability to show tolerance towards the mistakes of others. The finding of previous research that the organizational structure factor has a significant impact on knowledge management has also been confirmed (Fullwood et al., 2013). It was shown that organizational structure that facilitates communication contributes to the creation of new knowledge and its further transfer, which is also in line with the results obtained in this study. The finding that information technology is the least influential factor in the knowledge management process is supported by early research. It suggests that the role of information technology was previously a bit overestimated from the point of view of effective knowledge management; moreover, this factor may not influence this process at all unless it is supported by the organizational culture and the example of the leader of the organization (Krzakiewicz & Cyfert, 2012). The latter statement was also confirmed by this study – the constructed model demonstrates that the leadership factor has the greatest influence on the process of applying knowledge.

Some studies single out employee motivation as a separate knowledge management factor and consider it as a predictor of the effectiveness of teaching, research, and citation (Fiscal, 2021).

The demonstrated validity of the model makes it possible to argue that it can be used as a public policy tool for the implementation of knowledge management initiatives in universities. The model described in the study will provide university administrations with an opportunity to identify areas for improvement in order for the knowledge management process to be more effective, which is ultimately expected to realize the state goal of forming human capital that meets modern requirements. The practical significance of the research lies in the fact that on the basis of the model described in the study, it is possible to perform a preliminary assessment of the knowledge assets of universities in order to improve the process of knowledge transfer in education and research. University administrations and representatives of public education authorities should consider that for the successful implementation of knowledge management, there is a need to use not only financial but also other resources (equipment, information technology); however, in the UAE, the main emphasis is often placed on financial resources. When developing initiatives and strategies, it is necessary to focus on the implementation of measures to develop trust, create a friendly atmosphere, and form a leader who will become an example for employees and students.

Obviously, the study has some limitations. It involved universities of the UAE and the results may be influenced by specific cultural and social contexts. This issue can be addressed by testing the model within the education systems of other countries. This will help to understand whether the cultural aspect determines the perception of knowledge management processes and the factors that influence knowledge management.

The purpose of the social service worker in general and the community organization in particular is to deal with various organizational variables, strengthen and enhance these variables, and accelerate the development of human capital in social institutions into the use of modern trends proven to be effective in this field (like knowledge management).

Therefore, it is necessary to expand the use of knowledge management in academic social work institutions in a way that would benefit them in terms of development, education, and social work practice.

Authors Contributions

Both authors contributed equally.

Conflict of Interest Statement

Authors declare that they have no conflict of interests.

Acknowledgement

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

References

Abdi, K. and Senin, A. A. (2015). The impact of knowledge management on organizational innovation: an empirical study. *Asian Social Science, 11*(23), 153-168. http://dx.doi.org/10.5539/ass.v11n23p153

Abu Dhabi Government Services (2021). *Abu Dhabi Economic Vision 2030.* https://www.tamm.abudhabi/en/

Ahmed, S. S., Guozhu, J., Mubarik, S., Khan, M. & Khan, E. (2020). Intellectual capital and business performance: the role of dimensions of absorptive capacity. *Journal of Intellectual Capital, 21*(1), 23-39. https://doi.org/10.1108/JIC-11-2018-0199

Al Afifi, Z. H. (2016). *Strategies and public policy models of effective human capital, talents and workforce development: an investigation into the effectiveness of different scholarship programmes in the United Arab Emirates, UAE*. A thesis to the Faculty of Applied Social Sciences and Humanities London Metropolitan University For the degree of Doctor of Philosophy (PhD).

Al-Hakim, L. A. Y., Hassan, S. & Abdullah, O. Y. (2012). Critical success factors of knowledge management, innovation and organizational performance: An empirical study of the Iraqi mobile telecommunication sector. *British Journal of Economics, Finance and Management Sciences, 4*(1), 31-49.

Aliyu, M. S., Rogo, H. B. & Mahmood, R. (2015). Knowledge management, entrepreneurial orientation and firm performance: The role of organizational culture. Asian Social Science, 11(23), 140-152. http://dx.doi.org/10.5539/ass.v11n23p140

Alosaimi, M. (2016). *The role of knowledge management approaches for enhancing and supporting education. Business administration.* Paris: Université Panthéon-Sorbonne.

Androniceanu, A., Kinnunen, J. & Georgescu, I. (2020a). E-Government clusters in the EU based on the Gaussian Mixture Models. *Administratie si Management Public*, *35*, 6-20. DOI: 10.24818/amp/2020.35-01. https://ramp.ase.ro/_data/files/articole/2020/35-01.pdf

Androniceanu, A., Sabie, O. M. & Pegulescu, A. (2020b). An integrated approach of the human resources motivation and the quality of health services. *Theoretical and Empirical Research in Urban Management*, *15*(1), February, 42-53.

Archer-Brown, C. and Kietzmann, J. (2018). Strategic knowledge management and enterprise social media. *Journal of Knowledge Management, 22*(6), 1288-1309. https://doi.org/10.1108/JKM-08-2017-0359

Azam, M., Bilal, A. & Khan, W. (2016). Knowledge management as a strategy & competitive advantage: A strong influence to success (A survey of knowledge management case studies of different organizations). *Public Policy and Administration Research, 6*(10), 1-15.

Banerjee, P. M. (2013). Sustainable human capital: Product innovation and employee partnerships in technology firms. *Cross Cultural Management: An International Journal, 20*(2), 216-234. https://doi.org/10.1108/13527601311313481

Bashir, D. S., Noor, A. B. H. & Aliu, O. A. (2014). Knowledge management and organizational performance of mobile service firms in Nigeria: A Proposed Framework. *Information and Knowledge Management, 4*(11), 89-95.

Basso, L. M., Freitas, W. R. S., Teixeira, A. A. & Oliveira, J. H. C. (2020). Knowledge management in the public sector: synthesis and research agenda. *Revista Conhecimento em Ação, 5*(2), 50-75.

Becker, G. S. (1962). Investment in human capital: A theoretical analysis. *Journal of Political Economy, 70*(5/2), 9-49. https://doi.org/10.1086/258724

Bučková, J. (2015). Knowledge management in public administration institutions. *Procedia Economics and Finance, 34,* 390-395. https://doi.org/10.1016/S2212-5671(15)01645-7

Çera, G., Phan, Q. P. T., Androniceanu, A. & Çera, E. (2020). Financial capability and technology implications for online shopping. *E&M Economics and Management, 23*(2), 156-172.

Chang, C. M., Hsu, M. H. & Yen, C. H. (2012). Factors affecting knowledge management success: the fit perspective. *Journal of Knowledge Management, 16*(6), 847-861. https://doi.org/10.1108/13673271211276155

Ciobanu, A., Androniceanu, A. & Lazaroiu, G. (2019). An integrated psycho-sociological perspective on public employees' motivation and performance. *Frontiers in Psychology*, 10; Article number: *36*. Doi: 10.3389/fpsyg.2019.00036

Cooper, A. L., Huscroft, J. R., Overstreet, R. E. & Hazen, B. T. (2016). Knowledge management for logistics service providers: the role of learning culture. *Industrial Management & Data Systems, 116*(3), 584-602. https://doi.org/10.1108/IMDS-06-2015-0262

Costa, A. D. C. G., Strozzi, C. R. P., Forno, L. F. D., Sartori, R., Godina, R. & Matos, F. (2021). Knowledge management and the political–pedagogical project in Brazilian schools. *Sustainability, 13*(5), 2941. https://doi.org/10.3390/su13052941

Davenport, T., & Prusak, L. (1998). *Working knowledge: How organizations manage what they know.* Boston: Harvard Business School Press

Dayan, R., Heisig, P. & Matos, F. (2017). Knowledge management as a factor for the formulation and implementation of organization strategy. *Journal of Knowledge Management, 21*(2), 308-329. https://doi.org/10.1108/JKM-02-2016-0068

Demortier, A. L. & Delobbe, N. (2011). Human capital and strategic human resource management in knowledge -intensive firms: An exploratory case study. In *11th Conference of the European Academy of Management* (pp. 1-35). Center for Research in Entrepreneurial Change & Innovative Strategies.

Fiscal, R. R. (2021). Knowledge management enablers and its impact on the performance outcomes of state universities in the Philippines. *Universal Journal of Management, 9*(2), 44-51. https://doi.org/10.13189/ujm.2021.090203

Fullwood, R., Rowley, J. & Delbridge, R. (2013). Knowledge sharing amongst academics in UK universities. *Journal of Knowledge Management, 17*(1), 123-136. https://doi.org/10.1108/13673271311300831

Gadu, M. & El-Khameesy, N. (2014). A knowledge management framework using business intelligence solutions. *International Journal of Computer Science Issues, 11*(5), 102-107.

García-Holgado, A., Cruz-Benito, J. & García-Peñalvo, F. J. (2015). Analysis of knowledge management experiences in Spanish public administration. In G. R. Alves & M. C. Felgueiras (Eds.), *Proceedings of the Third International Conference on Technological Ecosystems for Enhancing Multiculturality (TEEM'15)* (Porto, Portugal, October 7-9, 2015) (pp. 189-193). New York, NY, USA: ACM. https://doi.org/10.1145/2808580.2808609

Ghaffari, H., Rafeie, M. & Ashtiani, A. C. (2012). Quality open higher education via knowledge management. *Journal of Basic and Applied Scientific Research, 2*(2), 1787-1792.

Gonzalez, R. V. D. and Martins, M. F. (2017). Knowledge management process: A theoretical-conceptual research. *Gestão & Produção, 24*, 248-265. https://doi.org/10.1590/0104-530X0893-15

Hanushek, E. A. and Woessmann, L. (2020). *The Economic Impacts of Learning Losses.* OECD. https://www.oecd.org/education/The-economic-impacts-of-coronavirus-covid-19-learning-losses.pdf

Haque, M. S. (2013). Globalization, state formation, and reinvention in public governance: Exploring the linkages and patterns in Southeast Asia. *Public Organization Review, 13*(4), 381-396. https://doi.org/10.1007/s11115-013-0258-3

Hayfa, Y. A., Al Sokkar, A. A. M. & Blaqees, I. A. (2018). The impact of knowledge management on organizational performance. *International Journal of Advanced Computer Science and Applications, 9*(4), 204-208.

Hsieh, P. J., Chen, C. C. & Liu, W. (2019). Integrating talent cultivation tools to enact a knowledge-oriented culture and achieve organizational talent cultivation strategies. *Knowledge Management Research & Practice, 17*(1), 108-124. https://doi.org/10.1080/14778238.2019.1571872

Hsu, B. X. and Chen, Y. M. (2021). Why university matters: the impact of university resources on foreign workers' human and social capital accumulation. *International Entrepreneurship and Management Journal, 17*(1), 45-61. https://doi.org/10.1007/s11365-019-00629-x

Idike, A. N., Ukeje, I. O., Ogbulu, U., Aloh, J. N., Obasi, V. U., Nwachukwu, K., Osuebi, K. & Ejem, E. N. (2021). The practice of human capital development process and poverty reduction: Consequences for sustainable development goals in Ebonyi State, Nigeria. *Public Organization Review, 21*(2), 263-280. https://doi.org/10.1007/s11115-020-00482-5

Iqbal, A., Latif, F., Marimon, F., Sahibzada, U. F. & Hussain, S. (2019). From knowledge management to organizational performance: Modelling the mediating role of innovation and intellectual capital in higher education. *Journal of Enterprise Information Management, 32*(1), 36-59. https://doi.org/10.1108/JEIM-04-2018-0083

Joynes, C., Rossignoli, S. & Amonoo-Kuofi, E. F. (2019). *21st Century Skills: Evidence of issues in definition, demand and delivery for development contexts (K4D Helpdesk Report).* Brighton, UK: Instituteof Development Studies.

Kavalić, M., Nikolić, M., Radosav, D., Stanisavljev, S. & Pečujlija, M. (2021). Influencing factors on knowledge management for organizational sustainability. *Sustainability, 13*(3), 1497. https://doi.org/10.3390/su13031497

Khan, R. (2012). Dovetailing of business intelligence and knowledge management: An integrative framework. *Information and Knowledge Management Journal, 2*(4), 1-6.

Krzakiewicz, K., & Cyfert, S. (2012). The role of leaders in managing organisation boundaries. *Management, 16*(1), 7-22.

Lee, Y. C. & Lee, S. K. (2007). Capabilities, processes, and performance of knowledge management: a structural approach. *Human Factors and Ergonomics in Manufacturing & Service Industries, 17*(1), 21-41. https://doi.org/10.1002/hfm.20065

Lopez, V. and Esteves, J. (2013). Acquiring external knowledge to avoid wheel re-invention. *Journal of Knowledge Management, 17*(1), 87-105. https://doi.org/10.1108/13673271311300787

Manuti, A. and De Palma, P. D. (2014). *Why Human Capital is important for organizations: People come First.* Springer.

Mohammad, M. and Jose, G. J. A. (2016). An analysis of knowledge management in educational institution. *International Journal of Applied Sciences and Management, 2*, 211-218.

Muneer, S., Iqbal, J., & Long, C. S. (2014). An incorporated structure of perceived organizational support, knowledge-sharing behavior, organizational trust and organizational commitment: A strategic knowledge management approach. *Pakistan Journal of Commerce and Social Sciences, 8*(1), 42-57.

Ngoc-Tan, N. and Gregar, A. (2018). Impacts of knowledge management on innovation in higher education institutions: An empirical evidence from Vietnam. *Economics and Sociology, 11*(3), 301-320. https://doi.org/10.14254/2071-789X.2018/11-3/18

Omona, W., Van der Weide, T. & Lubega, J. (2010). Using ICT to enhance Knowledge Management in higher education: A conceptual framework and research agenda. *International Journal of Education and Development, 6*(4), 83-101.

Omona, W., Van der Weide, T. & Lubega, T. J. (2011). Knowledge management technologies and higher education processes: Approach to integration for performance improvement. *International Journal of Computing and ICT Research, 5*(S1), 55-68.

Omotayo, F. O. (2015). Knowledge management as an important tool in organisational management: A review of literature. *Library Philosophy and Practice, 1*(2015), 1-23.

Rabelo, J. and Conte, T. (2018). Influence factors for knowledge management initiatives. In *Proceedings of the 20th International Conference on Enterprise Information Systems* (pp. 17-28). ICEIS.

Raišienė, A. G., Bilan, S., Smalskys, V. & Gečienė, J. (2019). Emerging changes in attitudes to inter-institutional collaboration: the case of organizations providing social services in communities. *Administratie si Management Public, 33*, 34-56. https://doi.org/10.24818/amp/2019.33-03.

Raudeliūnienė, J., Davidavičienė, V. & Jakubavičius, A. (2018). Knowledge management process model. *Entrepreneurship and Sustainability Issues, 5*(3), 542-554. https://dx.doi.org/10.9770/jesi.2018.5.3(10)

Razmerita, L., Kirchner, K. & Nielsen, P. (2016). What factors influence knowledge sharing in organizations? A social dilemma perspective of social media communication. *Journal of Knowledge Management, 20*(6), 1225-1246. https://doi.org/10.1108/JKM-03-2016-0112

Rezaei, F., Khalilzadeh, M. & Soleimani, P. (2021). Factors affecting knowledge management and its effect on organizational performance: mediating the role of human capital. *Advances in Human-Computer Interaction, 2021*, 8857572. https://doi.org/10.1155/2021/8857572

Rohendi, D., Raspatiningrum, L., Komariah, A., Rahyasih, Y. & Kurniady, D. A. (2020). Knowledge management and sharing culture for university quality sustainability. *International Journal of Innovation, Creativity and Change, 12*(5), 664-675.

Sensuse, D. I., Cahyaningsih, E., Hidayat, E., Sukmasetya, P. & Wibowo, W. C. (2017). Implementation of government human capital knowledge management of republic Indonesia case study government ministries. In *2017 International Conference on Information Technology Systems and Innovation (ICITSI)* (pp. 139-144). IEEE. https://doi.org/10.1109/ICITSI.2017.8267932

Shih, W.-L. and Tsai, C.-Y. (2016). The effects of knowledge management capabilities on perceived school effectiveness in career and technical education. *Journal of Knowledge Management, 20*(6), 1373-1392. https://doi.org/10.1108/JKM-12-2015-0515

Shujahat, M., Sousa, M. J., Hussain, S., Nawaz, F., Wang, M. & Umer, M. (2019). Translating the impact of knowledge management processes into knowledge-based innovation: The neglected and mediating role of knowledge-worker productivity. *Journal of Business Research, 94,* 442-450. https://doi.org/10.1016/j.jbusres.2017.11.001

Siddiqui, F. (2012). Human capital management: An Emerging human resource management practice. *International Journal of Learning & Development, 2*(1), 353-367. http://dx.doi.org/10.5296/ijld.v2i1.1354

Singh, P. K. (2018). Knowledge strategy, sharing behavior and performance: Reviewing a knowledge-oriented approach. *Management Research Review, 41*(3), 395-411. https://doi.org/10.1108/MRR-01-2017-0001

Suknunan, S. and Maharaj, M. (2019). The role of knowledge management in institutional strategy development and competitiveness at leading African universities. *Knowledge and Performance Management, 31*(1), 19-31. http://dx.doi.org/10.21511/kpm.03(1).2019.03

Tamulevičienė, D. and Androniceanu, A. (2020.) Selection of the indicators to measure an enterprise's value and its changes in the controlling system for medium-sized enterprises. *Entrepreneurship and Sustainability Issues, 7*(3), 1440-1458. Doi: https://doi.org/10.9770/jesi.2020.7.3(1)

Trenev, V. N. (2018). Knowledge management in human capital development in the context of the digital economy. *International Journal of Engineering and Technology (UAE), 7*(3), 108-112. https://doi.org/10.14419/ijet.v7i3.19.16997

UNCTAD (2021). *Technology and Innovation Report 2021. Catching technological waves. Innovation with equity.* UNCTAD. https://unctad.org/system/files/official-document/tir2020_en.pdf

Vorontsova, A., Vasylieva, T., Bilan, Y., Ostasz, G. & Mayboroda, T. (2020). The influence of state regulation of education for achieving the sustainable development goals: case study of Central and Eastern European countries. *Administratie si Management Public, 34,* 6-26. https://doi.org/10.24818/amp/2020.34-01

World Bank (2020). T*he Human Capital Index 2020 Update: Human Capital in the Time of COVID-19.* Washington, DC: World Bank.

Zaied, A. N. H., Hussein, G. S. & Hassan, M. M. (2012). The role of knowledge management in enhancing organizational performance. *International Journal of Information Engineering and Electronic Business, 4*(5), 27-35. https://doi.org/10.5815/ijieeb.2012.05.04

Zaim, H., Keceli, Y., Jaradat, A. & Kastrati, S. (2018). The effects of knowledge management processes on human resource management: Mediating role of knowledge utilization. *Journal of Science and Technology Policy Management, 9*(3), 310-328. https://doi.org/10.1108/JSTPM-02-2018-0011