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Dear Readers and Authors of Journal ACCESS!

This is the first issue of the journal "ACCESS: Access to science, business, innovation in digital economy" for the calendar year 2021! On behalf of the Editorial Board and the Scientific Council of the journal, I wish you a healthy, peaceful, controversial and creative year 2021!

Happy New Year!

In modern conditions of coronavirus pandemic, instability, systematic crises and significant turbulence, the modern world is experiencing global transformations. The problem of developing methods and technologies for analysis, modeling, management, forecasting and decision making for stable development of viable socioeconomic systems has become the most important.

The New Year is a time for looking back and for looking forward.

Access to science, business, innovation in digital economy is already included in The National Reference List (NRL) of contemporary Bulgarian scientific publications with scientific review, maintained by the Minister of Education and Science through the National Center for Information and Documentation; Google Scholar; EconPapers/ RePEc (Research Papers in Economics); eLibrary; ESJI, EuroPub, Index Copernicus International; Polska Bibliografia Naukowa - portal of the Polish Ministry of Science and Higher Education, CiteFactor, Scilit, InfobaseIndex.

We are glad that our journal has become a platform for international cooperation of scientists from Europe and Asia. The magazine has published 38 authors from 25 organizations from Bulgaria, Georgia, Kazakhstan, Latvia, Nepal, Norway, Poland, Russian Federation, Ukraine, Yemen.

Receiving such recognition is unthinkable without the dedicated work of the journal's team and all its supporters and friends.

I'd like to thank the authors who present scientific articles of both theoretical and empirical content, representing scientific and practical interest in all areas of economic science.

I am grateful to the members of the editorial board for their undeniable competence, commitment and gratuitous work to create and promote a network of scientific communities in the profile of the journal and to promote research!

I am also grateful to the reviewers for the analytical and well-intentioned motivating reviews!

Wishing you, your families and friends the very best in the coming year!

Have a fruitful, healthy and happy 2021!

Stay health and take care!

With best regards,

Prof. DSc. Mariana Petrova

Editor-in-Chief

ACCESS: Access to science, business, innovation in digital economy

CONTEXT OF MUSEOLOGY IN SOCIAL ENTREPRENEURSHIP IBS STUDY IN NEPAL AND SANDAL PRIVATE MUSEUM

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ABSTRACT

Important aspects of museology or museum science are Collection Management, Documentation, Conservation Management and Exhibition Management. Fundamental objective of museology is collection, preservation and management of tangible and intangible form of natural, historical, cultural and scientific objects as well as intellectual work and knowledge for education. Collecting, preserving and managing the output of every scientific field is possible by Museum Science. Museum today is not the mere place of collecting and preserving the art work and cultural objects but becoming effective mode of informal education and communication. Basic objective of this paper is to delve into the different aspects of museum science, social entrepreneurship education in Nepal and contribution of Sandal Institute and museum. The methodology adopted is review of literature and cases as well as interviews. In this paper basic aspect of museology, importance of preserving objects with museum values has been discussed along with the context of social entrepreneurship and contribution of Fil. Dr. Jan-U. Sandal Institute in this field and it's context of Nepal as well. Entrepreneurs with their self-motivation and judgmental decision create innovation and are the creator of civilization. Education in the subject of Social Entrepreneurship is crucial to understand the role of entrepreneurship in social transformation. Study on the life and work of entrepreneurs is utmost important to understand the process of innovation. Establishment of Sandal Private Museum is an important initiation in this field and this will not only help the education of school students but education to educated individual in the entire sphere of the societies.

Keywords: Artifacts, Innovation, Entrepreneur, Social, Museology, Museum, Science.

JEL classification: A12; A31; F54; L26; L31; O31; O35; Z11

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INTRODUCTION

This paper is part of the study of scientific course with the institute. Initiation by institutions and the individual representing the institution like Fil. Dr. Jan-U Sandal Institute is important to be documented and preserved for reference of education for future generation. In this paper brief discussion on the institute's initiation on scientific study on social entrepreneurship has been discussed while highlighting the museology and its important aspects with literature review followed by discussion on findings and the ending up with conclusions.

Museum is generally taken as an institution involved in collection, conservation and exhibition of an object of high interest and lasting value. The categories of such objects may include art, cultural, historical, natural,

and scientific and many more. Museum science also called as museology is the branch of scientific study of any of the aspects of museum object.

Among the lot of previous literature studies on the contribution of independent scientists in social transformation process through their act of innovation seem lacking and somehow neglected. This is very important because artifacts are also created by these scientists in the production function. These artifacts also need to be preserved for education. This paper is purpose to contribute the gap.

Independent scientist does not work in a beset of government or public sector. Moreover, public museums are governed under a given selected legacies, hence rarely bothered to promote and preserve work of such independent individuals, as a result, private museum emerges. Sandal Private Museum is also one of such initiations. In this paper along with the general review of museums initiation of social entrepreneurship education by Prof. Sandal and its connection with Nepal as well as establishment of Sandal Private Museum has also been discussed. The following are the specific objectives of this paper

- A. To enquire into the various aspect of Museum Science and
- B. To review the achievements of Social Entrepreneurship IBS education program in Nepal.
- C. To analyze the involvement of Fil. Dr. Jan-Urban Sandal Institute, Norway in promoting museum science.

The methodology applied for this paper is review of literature including the including the internet sources and cases as well as and interview and discussion with people related to the Social Entrepreneurship IBS education program implementation in Nepal.

DISCUSSION AND ANALYSIS

Museology is the study of museum. It is an important part of subject of science and an interesting topic for scientific study. Museology helps to explore the history of museums and its importance to the society and its conservation. While the term 'Museology' is more prevalent, it is also called as 'musiographia', 'museum practices', 'museum studies', and 'operational museology' (Wikipedia, 2020b). Wealthy individual's private collection is the early form of museum. Ennigaldi-Nana's museum is one of the oldest museum built at the end of Neo-Babylonia Empire date backs of 530 BCE (Wikipedia, 2020c). The Ashmolean in the Oxford is the first public museum (Parris, 2017). Various types of objects with historical, religious, economic, technological features and objects from many other areas of the features are acquired in the museum because these objects create important messages (Avaro, 2010) about creation of these objects and their features.

Museum is a place of intercultural dialogue. Intercultural dialogue is a process that provided open and respectful exchange of ideas and interactions between the individual and group of individuals and organizations with diverse cultural background and world views (Bodo, Gibbs, & Sani, 2009). Museums today are not the mere place for conserving the past treasures or displaying art and science product rather an area for informal education and effective tool for communicating the mass culture (Günay, 2012). One important aim

for many science centers, science museum and natural history museums is to contribute in science learning (Hauan & Kolstø, 2014). Museology covers all aspects of museums; hence, it is the science related to study of museum in totality. But there is no uniformity in the curriculum of museum studies among the universities (Soni, 2004) which may attract important contributions of museum scientists and educationist in unifying the curriculum and system of education. For students museums provide opportunities for active participation in simulation setting by manipulating the real objects which enhances the conceptual learning in the classroom as these components of learning are significant for their understating of complex science concepts (Ramey-Gassert, Walberg, & Walberg, 1994) as this gives first hand description of the object of education.

Neil MacGregor, Director of British Museum (2015) opines museum is a point which allows citizens to be better citizen. With access to the museums and galleries, individuals are allowed to enter and think the another world, see the world from somewhere else and reimagine themselves and their own world (National Museum Director's Council, 2013). Such eyewitness of the real world provides opportunities to understand the things deeply.

Museums consists tangible and intangible objects. According to Koichiro Matura, Director General (1999) of UNESCO all tangible heritage embodies intangible components like spiritual values, meanings, knowledge, symbols, or know how of craftsmanship and construction. The intangible cultural values embodied in tangible heritage are recognized as integral components of world heritage (Matura, 2010). Museum is concerned with all tangible as well as intangible objects, because all of the tangible objects embody an idea, environment, circumstances or other phenomena with utmost importance of collection, preservation, documentation and exhibition for education.

1.1. Museology and its Important Aspects:

Collection Management:

In museum science collection management is administrative responsibilities of collection, care and physical preservation of artistic work. It involves the development, storage, preservation, ensuring long term safe and sustainability of collection of cultural heritage. Nowadays, collections are managed through software, the Collection Management System having standard features like Cataloging, Acquisitions, Deaccessions, Loans, Conditions and Conservations Reports, Security, Copyright and Multimedia (Wikipedia, 2020a) . Collection and collection management is the first and foremost important aspect of museology.

Since 1970s, the world of museum has gone radical changes and the attention of museum professional has been shifted from their collection towards visitors. Thus, 'new museology' has been identified within the profession due to the climate of increasing reflexivity (Ross, 2004). Horizon of every field of scientific study is to increase every day as a natural process. As a result practitioners of museum science have been developing as unique and prestigious professional.

Documentation and Conservation Management:

Documentary prepared by Sagarmatha Television (STV) as uploaded by Pramod Sedhain in YouTube shows that the Nepal Museum in Chhauni has not only 13 crores (130 million) years old Lycopetra gifted by China to Nepal, but also Nepal's flag carried to moon in Apolo XVII mission gifted by President Nixon on behalf of the people of the USA to the Kingdom of Nepal along with a piece of rock of moon (STV, 2011). These altogether represents the act of conservations in museums for the education of future generation

Documenting the existing conditions of the object of museology is the most important step in conservation process. For every object that are taken into the conservation process are documented (Barok, Noordegraaf, & de Vries, 2019) . When an object is arrived at the museum it is entered in the 'Entry Register' denoting its identification as gift, purchase, loan, transfer or whatever with name, address and signature of the depositor and specific accession number is allotted to the objects entered (Avaro, 2010). Trinomial numbering system is used where normally the first number denotes the year of accession, second number denotes the type of object and the third is the object number (Sonoda, 2016). Document can be evaluated itself considering the symbolization of an even or individual or certain identity as an icon (Allyn, Aubitz, & Stern, 1987). Large extent of the value, safety and accessibility to the object in the museum depends upon its documentation. Documentation is the organization of the information pertaining to the object in the museum which enables the museum about proof of ownership, location of object, number of objects making up the collection and its inventory, establishing the identity of the object, linking the information pertaining to it with access to the information, contributing to the safety of the collection and carrying out an insurance valuation (Avaro, 2010). Growing presence of artistic work in the museum collections is increasing the importance of documentation and collection management systems has limitation in adequately presenting rich form of documentation (Barok et al., 2019). Documentation is crucial before the objects enters the museum and in regular practices as well (Lourenço & Gessner, 2014). Documentation and conservation follows back and forth process. Conservations are documented and documents are conserved.

Exhibition Management:

To make objects of the museum accessible and available to the public is the fundamental mission of any exhibition. Important way of providing access to such objects in the museum and to understand its cultural heritage is exhibition. Similarly, exhibition provides opportunities to the historians, curators and archivists to fulfill their obligation to educate a broad spectrum of society consisting scholars, curious children and adults (Allyn et al., 1987). Greater attention should be given and innovative approach is needed to provide satisfactory solution to address the question of archiving exhibitions (Knecht, 2014). Emphasizing the outreach access by those who are unable to visit museum can be enhanced. This can help with the growth of new museum pedagogy and the cultural democratization of the museum (Joshi, 2018) for education.

Developments in society influences museums (Knerr, 2000). Museums collects, conserves, documents and exhibits the past treasure of art, science culture, history and many more aspects of development achievements along social transformation process in human society. Museum Science and its effective partnership with educational institution have beneficial to the students. We can find many studies with the objectives of analyzing the impact of museum activities on the scientific knowledge and nature of science. The important finding of such studies were that activities involving museum science is important not only to promote the understanding of scientific concepts but also to stimulate the development of knowledge about science and construction of scientific knowledge (Faria, Guilherme, Gaspar, & Boaventura, 2015). In the last couple of decades educational role of museums has been rushed worldwide due to the reason that museum education being a unique discipline with roots in various field science has been acknowledged (Xanthoudaki, 2002) and every segment of the society is being more concerned about the connection between museums and knowledge base.

Science is a way of thinking. Museum science and concept of independent science seems to be connected. Fundamental of the concept of independent science is that science is intuitive and not relied upon other's work. Similarly theory of independent science is managed by individual and not by institutions (Sandal, 2016) and it is free from any influence from any religious, political and cultural values. Independent science is an individual's knowledge and his intuitive act that any scientific result comes out of his work. The world economy today fostering economic growth and social change has wide range of recognition of the importance of knowledge and intellectual capital. But this status has been attached with a challenge to devise an appropriate useful way to measure the importance of knowledge and intellectual assets. In every stage of the production process key components of knowledge economy includes a greater reliance on intellectual capabilities. Independent science has indispensable contribution to the economy and knowledge industry; and the acts of independent scientists keep going on irrespective of political or other mindset of the society (Nepal, 2017). The crux of this idea is that knowledge and work of independent scientists as shall be collected preserved and managed in an effective way that ensures its availability for the education of future generation.

1.2. Fil. Dr. Jan-U. Sandal Institute and Social Entrepreneurship IBS education in Nepal

Fil. Dr. Jan-U Sandal Institute has scientific research activities in many countries. The Institute comprises three separate departments for social science, education and culture. The institute is building its network with international universities and currently this network has 8 universities and colleges with 85 thousand students and 20 thousand faculty members (Sandal, 2016). Prof. Fil. Dr. Sandal has been running the institute as its Owner and Rector. He lectures the Social Entrepreneurship School IBS. IBS stands for the Innovation, Business and Society. The 20 weeks full time program of the course consists of the following part:

A. International Study course in Social Entrepreneurship

- B. International Study on Innovation Management
- C. International Study Course in Service Management

After completion of the course followed by examinations the participating students graduate and having signed the Certificate receive the award and the title of Diploma in Social Entrepreneur IBS along with the Glass Statuette as the Insignia of Graduation. The importance of such initiation of international education that too on voluntary basis without any motive of economic gain is important in broadening the horizon of scientific education on entrepreneurship because it paves the way for thinking globally and acting locally for the students and professionals participating in the program.

Social entrepreneurs are individuals who voluntarily involve in any innovative idea, work or initiation without initial motive of making profit. But express or implied objective of their effort is social transformation to make everybody's life easy. If their initiative is proven successful they gain economic benefit from their innovation. There are various important aspects of social entrepreneurship which helps any prospective social entrepreneur to learn about managing entrepreneurship to face challenges and to create opportunities.

The institute provides fellowship program as well. There are different categories of fellowships provided. This includes the Affiliated Scientific Fellowship, Affiliated Honorary Research Fellowship and Honorary Senior Fellowship. Affiliated Honorary Research Fellowship can be provided to the Social Entrepreneurship IBS graduated upon completion of further scientific course and fulfillment of the criteria as decided by the institute. Various study course modules have been given under this fellowship category. Museology as an integral part of the affiliated honorary research fellowship program has been studied with the Fil. Dr. Jan-U. Sandal Institute.

Fil. Dr. Jan-Urban Sandal made first exchange visit to Nepal and had Memorandum of Understanding with the South Western State College, Basundhara, Kathmandu for scientific collaboration in education of all levels (Sandal, 2016). Since then many batches of the students, professionals and senior professionals from various sectors of Nepal have been graduated from the program. The Social Entrepreneurship IBS program conducted by the institute at the SWSC, Basundhara, Kathmandu through three different courses: Social Entrepreneurship, International Study Course on Innovation Management and International Study Course on Service Vision Management. The study method consists of lectures by Prof. Sandal and group works and presentation. Altogether 20 lessons are taught and the study completes with final examination. Since the program was started in 2017, four batches of students comprising altogether 97 (36 in February 2016 batch, 26 in September 2016 batch, 12 in 2017 batch, 17 in 2018 batch and 6 in 2019 batch) individuals have graduated in Social Entrepreneurship IBS so far from the SWSC (Fil. Dr. Jan-U. Sandal Institute, 2020). This number of graduates can contribute immensely in further promoting the social entrepreneurship education which can give good results in promoting social entrepreneurship and new innovation in Nepali society.

1.3. Museum and Work of Independent Scientists

Tangible heritages are not only the object of museology. Treasures of intangible nature like intellectual achievements and work and effort of independent scientists are of great importance from the viewpoints of human civilization of social transformation process. Further revolution in the information technology sector shows intangible heritage pertaining to the evolutions are also necessary and possible to preserve for the education and benefit of future generation.

Museum has been recognized as broader learning and knowledge institution for the society (Ahmad, Abbas, Yusof, & Taib, 2013). Preservation of the contribution of scientists is important to assure the preservation of intellectual contents of the scientific work. Museums today are important places of preserving natural, scientific, historical, cultural and all other heritage.

Government cannot do the same as independent scientist and entrepreneur for innovation. Museum Science is also rooted in analyzing the work of entrepreneur and independent scientist (Sandal, 2019a). Entrepreneurs are the creators of the civilization. It is the function of entrepreneur which creates entrepreneurial profit through addition of innovation. Over the time, entrepreneurial profits vanished. Any object representing the work of independent scientists become artifacts after the production is over and productive use of the object is over. Therefore, when the innovation is ended the nature of production means needs to be treated as artifacts. Independent scientists creates artifacts through production function, (Sandal, 2019b), which needs to be preserved for education of future generation. The work of independent scientist is not under any auspices of the government or any other public entity or organization. So, doing such work in the society the scientist may not come under the general rule, process or practice of the government, it may also be true the government might not be interested. But the preservation of such artifacts has far reaching importance from the view point of development of civilization and social transformation process.

Western museums are linked to colonialism, imperialism and European Missionary work (Wikipedia, 2020b). Many museums around the world are having controversies surrounded by cultural imperialism and nationalism and issues relating to right over the possession of artifacts. The issue is complicated when question raised whether a person can sell or destroy an antique item of significant cultural and historical value found in his/her backyard (Do, 2019). The questions is still more pertinent about the stolen and owned museum treasures in the US and European (especially the British Museum) countries belonged to non-western countries in the past (Little, 2018). Taking an example from Nigeria, some 4000 sculptures were stolen by British troops after invasion of the Kingdom of Benin are being displayed after centuries later in UK, USA, Austria and Germany, but none in Nigeria (Little, 2018). Lots of priceless treasures including those dates back to 200 AD looted from south-eastern India are in British Museum (VicStefanu, 2018). These museums are mourning pressure to return the looted priceless treasures in colonial times (Horton, 2018). There are also cases of dislocation or disappearance of the antique heritage from its place of origin due to different reasons. Nepal in history was very successful to stop the colonial and imperialist forces in its territory. Unlike the case of looting

from colonized countries, Nepal is still facing the problem of stealing generally and sometimes plundering as well of the antique objects. Kathmandu Valley Protection Trust (KVPT) reports, stealing of such treasures in modern time is continued as 54 significant sculptures, woodcarving and icons from Nepal are stolen within a 18 months period (KVPT, 2020). This clearly indicates the threats on preservation of such antique objects.

History shows artifacts from around the world have been stolen and collected in museums or private collections in places other than those where the objects were created. No less than 90 per cent of the African cultural heritage now resides in museums in European countries (Robertson, 2020). One example, as Mark Hurton described, none of the African artifacts stayed there but scattered in museums and private collections around the world. The British museum holds almost 40 percent of the haul (Horton, 2018). Another example, many of the 15th century idols of Nepal have been stolen from its old city Patan which have been found in Dallas Museum (Baral, 2019). This is only a sample case from thousands of Nepali art and craft stolen.

It has been found that public museums are harshly often judged for chosen heritage selected by their key decision makers (Brown, 2017). Currently, culture landscape is being changed as the privately owned museums are on continuous rise (Brown, 2017). Private museum historically was started some times as per the whim of looters and most of the time according to their planned looting to collect the artifacts. However, need of modern time is where the government finds itself least bothered to preserve the individual scientific artifacts, current private museums have emerged.

1.4. Sandal Private Museum

A private museum is operated by enthusiasts individuals, collectors, club or companies unlike government or public museum (Wikipedia, 2020d). As discussed earlier, the basic purpose of any museum is to collect for preservation, management of utilizing the cultural, historical, scientific, natural, artistic or any other such object for the education of public at large. We can observe various categories and types of museums. One of such categories is the public and private museum. Public museums are understood as museums sponsored by the government generally. Unlike public museum private museum are not funded and supported by any public authorities or government.

Fil. Dr. Jan-Urban Sandal Institute on 17th August 2018 consecutively decided to open Sandal Private Museum. In order to secure long term financing, museum fund has also been erected on September 6th of the same year. The museum is located at the institute campus#2 where a large number of artifacts have been accumulated (SandalMuseum, 2018). The museum was inaugurated by the Vietnamese Embassy Minister Counselor amidst a program attended by the foreign prominent scientists, professors, students and guest on 15th June 2019 (SandalMuseum, 2019). The mission statement of museum mentions with their judgmental decisions entrepreneurs create innovations and they are the creators of civilization, therefore, it is extremely important to study of their life and work for deeper understanding of the innovation process.

We can find questions pertaining to relevance of private museums. It has been stated that private museums have relevance on historical research only and only if it can complement to national collections (Wikipedia, 2020d). This may be just one of the ideas among all other ideas justifying the private museums. Further, preserving new innovative contributions of social entrepreneurs has significant relevance with historical content of research and can complement the effort on which government would have been involved.

CONCLUSION

Museum science is an important part of the scientific learning of universal body of knowledge. Collection Management, Documentation and Conservation Management and Exhibition Management are important aspects of museology and museum science. Basic motive of museology is collection, preservation and management of tangible and intangible form of natural, historical, cultural and scientific objects as well as intellectual work and knowledge in an effective way that ensures its availability for future generation. Museum science is a science which collects preserves and manages output of every scientific field. Museum history has notorious stories of stealing and looting.

Public museums can be judgmental on the museum object based upon selection of its key decision makers. As such an achievement pertaining to independent scientific work may be left behind from preservation which is immensely important from the view point of collection, conservation, documentation and exhibition of the milestone achievements of social transformation process. Globally contribution of social entrepreneurship is somehow neglected while focusing in business entrepreneurship. Fil.Dr. Jan-Urban Sandal Institute is contributing to independent social scientists movement. After his own learning process Prof. Sandal started global education program on Social Entrepreneurship. Through the institute educational programs on social entrepreneurship to the individual from the entire sphere of scholars, professors, universities, practitioners, political and governments are effectively going on. Nepal also has benefited from this initiation Prof. Sandal. More importantly, the start of Sandal Private Museum is breath of fresh to social scientist all over the world but it needs time to work for preserving independent scientific achievements with global perspectives.

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Conflict of Interest:

The author declares that there is no conflict of interest.

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WHAT DO YOUR CUSTOMERS THINK ABOUT? TO GUESS OR TO KNOW?

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ABSTRACT:

The customer is central to any company's activity. Although this is the fundamental truth, many companies turn their attention to the customer only when sales decrease. This article tells how to prevent the negative changes. This article will not reveal the communication strategy elements for interacting with customers, neither will it consider building the necessary IT infrastructure for its implementation, it will rather address the basics of developing approaches to interacting with different types of customers. These approaches are based on customer needs and, most importantly, their expectations, which can be recognized and hidden, that is, those that cannot be reflected in a contract or similar regulatory documents. The global best practice of interacting with customers is based on application of different approaches to different customer types. Moreover: approaches to interacting with customers should bring not only immediate economic effect, but also work in all areas in the long term on a systematic basis - that is, help to turn potential and new customers into regular and loyal, the most valuable to the company.

Key words: Voice of Customer, VoC, Customer centricity, Customer requirements, Customer expectations, research, continuous improvement, quality function deployment, QFD.

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INTRODUCTION

Customers are different: new and constant, random and loyal, potential and adherents. All customers contribute differently to the total revenue, but they are all equally important. Existing ones generate regular income and affect the well-being of the organization at present. New ones affect the regular (but not radical!) renewal of the customer base and also play a major role in identifying the directions and development potential of the company.

It is the customer-oriented approach (Ernst & Young Global Consumer Insurance Survey 2012) that is an integral part of the corporate culture, focused on the company's products or services consumer. By the way, a

special emphasis is placed on the organization's customer focus in the new generation of the system standard. Thus, ISO 9001: 2015 (ISO 9001:2015 Quality management systems– Requirements Standard), unlike its predecessor, ISO 9001: 2008 (ISO 9001:2008 Quality management systems – Requirements Standard), contains two new sections: “Understanding the needs and expectations of stakeholders”. The purpose of these two sections is to identify problems and requirements that may affect the planning and development of the QMS. The requirements of the process approach are described in the new eponymously named section. “Customer Orientation of the New Quality Management System Standard.” Following the requirements of the standard will lead the organization to a deeper understanding of both customer expectations and the possibilities for the organization to achieve the desired result.

METHODOLOGY

So, what is the way to identify customer expectations without waiting for the new generation of the standard release and significant spending? “Voice of the Customer” (Voice of the Client) - appeared in 1993 (Griffin & Hauser, 1993) as a set of methods for identifying, organizing and prioritizing customer expectations in addition to the quality deployment function.

The Voice of the Customer methodology provides 4 steps: customer identification – information collection, data processing and results interpretation, developing an improvement program, as shown in Figure 1.

Figure 1. Four Steps of the Project to Identify the Needs and Expectations of Customers According to the “Voice of the Customer” Methodology

Before launching the Voice of the Customer project, in order to avoid unnecessary errors and cost, it is advisable to perform the following simple steps and answer some questions:

1) Define goals and objectives. What type of customers needs to be studied? Is there an understanding of the differences between a certain customer type from others? Does the project research relate to specific areas that require change, or should it cover the whole process? Is a new product launch is planned or existing products promotion program developed? It is recommended to write down the goals and objectives of the project for regular reference, in order to avoid deviation from the selected course.

2) Decide what exactly needs to be learned from customers. It is necessary to remember that focus groups and surveys do not allow answering all available questions. There is no need to ask customers what is already known, or can be found in other sources. For example, to understand how long customers are waiting in line, it makes sense to use a stopwatch, but in order to find out customer emotions in relation to it, it is worth asking them directly.

3) Obtain manager's support. The lack of such support may discredit any efforts aimed at improving, especially if the results of the study become the basis for serious changes, especially in processes owned by the boss.

4) Assemble a team. Customer needs research is too conspicuous and too complex a project to be implemented by one person. The project team must include employees directly interacting with customers and experts on the studied issues (these can be technical specialists, marketers, finance and tax specialists, product managers). It is important to consider the willingness of all team members to devote sufficient time to the project.

5) Get advice. It is necessary to be in a constant dialogue with customers on the research subject and inform them of how the research results will be used - to improve product characteristics or the quality of a particular service. All interview questions or questionnaires should be tested on a small group of people before launching them en masse. Upon completion of the information collection, the obtained results must be compared with data obtained from other sources in order to avoid inconsistency. It would be wise to adhere to a realistic approach to all changes and improvements implementation.

So, the Voice of the Customer project implementation is a four-step process that is passed in the following sequence.

Identify the target customer audience

Who is your organization's customer? Write down everything you know about customers: who contacts you, with what requests, what attributes can be assigned to customers. Highlight the opportunities and challenges that the organization faces. Determine what specific information you need to get from customers.

The value of this stage: obtaining a clear understanding of why it is necessary to study customers' needs, why it is necessary to investigate the needs of a particular customer type, knowledge systematization, thinking through questions for research.

The sequence of steps at customer identification stage:

1. Documenting the goals and objectives of the study: this step helps to identify different types of customers, the problems faced by the organization and opportunities for improving its work. The structure of the suggested document with goals and objectives is shown in Table 1. In general, it consolidates, for the most part, the assumptions about clients that the project team members have and sets the direction for the entire study. In the course of receiving new information in the framework of the project, it is advisable to review this document.

Table 1. Goals and Objectives of the Research, Executed According the Voice of the Customer Methodology Must be Documented

GOALS AND OBJECTIVES OF THE RESEARCH		
Who are the consumers of our products/services?	What problems and opportunities does our organization face?	What information about customers do we need?
Target question: Why do we study our customers?		

Source: prepared by the authors

2. Customer segmentation: the main tool for segmentation is the profile matrix shown in Table 2. It helps to describe each segment in detail and enter all available information. The areas where information is not available will be the basis for asking questions to customers in the next step of the study.

Table 2. Customer Profiles Matrix for Their Further Segmentation.

Profile matrix			
Segment	Segment 1	Segment 2	Segment 3
Description			
Name			
Share of total amount			
Share of total turnover			
Questions of the study			
What do they want?			
What do they get?			

Source: prepared by the authors

3. Development of research questions: this step is necessary to check the research objectives and identified customer segments, identify possible gaps and check theoretical assumptions. The template for developing the question is shown in Table 3.

Table 3. Template for Research Questions Development

Questions of the study	
Target question: Why do we study our customers?	Customer segment:
Assumptions:	Questions to study:

Source: prepared by the authors

So, the results of project stage 1 accomplishment are: the goals and directions of the project to study the Voice of the Customer are defined; it is clearly established what should be done and for whom; customers are grouped by their needs (segmented); knowledge about customers is consolidated and structured; research areas are identified.

Information collection

What are the needs and expectations of your customers? How do they perceive your company? This stage provides the opportunity to get answers to these questions by directly asking customers. At this stage, interviews and focus groups are conducted, during which written notes are continuously made - qualitative data, as well as written surveys (questionnaires), based on which quantitative data can be obtained for subsequent interpretation.

The value of the stage: the needs of customers, their expectations, concerns and perceptions are expressed in their own words. Possibility to research assumptions, trends and test new ideas. Identification of the most important characteristics of the product/service for the customer. Identification of changes in customer expectations. Assessment of satisfaction level.

Sequence of step at the information collection stage:

1. Collection of qualitative (linguistic) data: the expectations and needs of customers are investigated during an interview or focus group (Akao, 2004). To conduct them, it is recommended to prepare appropriate scenarios, a schedule and instructions for their interpretation. As part of the interpretation process, notes made during the interview and focus groups are recorded in the so-called "Customer Voice Cards", containing identification information and the contextual component of the interview or focus group. At the end of the interview/focus group, it is useful to highlight a key comment on each issue and record it in the appropriate cards.

Table 4. Sample of Voice of the Customer Card.

Voice of the Customer card
Question:
Short-hand notes of response:
Key words:
Source:

Interviewer:
Date:

Source: prepared by the author

Upon completion of the interviews, all cards are collected and grouped into clusters with similar comments/answers/ideas. Each cluster is assigned a name. In a professional language, this process is called decomposition by an affinity diagram.

Table 5. Template for Voice of Customer Cards Decomposition by Affinity Diagram

Affinity diagram					
NEED					
	Voice of the Customer card 1				
		Voice of the Customer card 2			
			Voice of the Customer card 3		
				Voice of the Customer card 4	
					Voice of the Customer card 5

Source: prepared by the author

The next recommended step is building a tree diagram in which clustered comments/answers/ideas are posted in the first, second, and third level of detail. These characteristics will become attributes for quantitative evaluation in the next step.

Table 6. Grouping Customer Needs According to the Tree Diagram Method

The tree diagram		
1 st level need	2 nd level need	3 rd level need #1
		3 rd level need ##
	2 nd level need	3 rd level need #1
		3 rd level need ##

Source: prepared by the author

2. Collection of quantitative data: at this step, as a rule, a customer survey is conducted in a questionnaire format. The questionnaire itself should contain the following information:

- introduction: why and for what purpose the survey is conducted
- rating values of importance and satisfaction: the customer is invited to assign numerical values to the product/service criteria important to the customer, as well as the degree of his satisfaction with these criteria at present;
- overall satisfaction rating: the customer is invited to evaluate the overall level of satisfaction.

- explanations: the customer is invited to comment on why he/she assigned the highest or lowest value to the criteria.
- additional questions: clarifying questions are a good opportunity to get ideas for improvement.
- Gratitude for participating in the survey.

So, the results of stage 2 accomplishment are: the needs and expectations of customers are identified, the important criteria for the product/service and the degree of customer satisfaction are determined.

RESULTS INTERPRETATION

At this stage, the data collected during the interview, quantitative survey and from other sources is structured and collated.

The sequence of steps at the results interpretation stage:

1.Data processing and grouping: the received questionnaire data is consolidated, for each criterion of a product/service the average value of importance and satisfaction is calculated.

Table 7. Quantitative Assessment of Product/Service Characteristics Importance Level

Importance evaluation									
Customer Characteristic \	1	2	3	4	5	6	7	Total	Average
A	2	3	5	1	3	3	3	20	2,8
B	2	1	1	1	5	4	4	18	2,6
C	2	5	5	5	1	4	5	27	3,8
...	...	...	...		...	...	...	...	...
Total value of importance									3

Source: prepared by the authors

Table 8. Quantitative Assessment of Product/Service Characteristics Satisfaction Level

Satisfaction evaluation									
Customer Characteristics \	1	2	3	4	5	6	7	Total	Average
A	2	5	5	5	1	4	5	27	3,8
B	2	2	1	3	5	5	4	22	3,1
C	5	5	5	4	1	4	4	28	4
...	...	...	...		...	...	...	...	...
Total Value of satisfaction									3,6

Source: prepared by the authors

Further, the values are distributed in a two-dimensional matrix, where the vertical axis corresponds to importance, and horizontal axis - to the level of satisfaction.

The intersection of importance and satisfaction in the upper right corner means the following: everything you do is right. The upper left corner (high importance, low satisfaction) means the need for immediate

improvement. The presence of characteristics in the field of low importance and low satisfaction is not a cause for concern, but in the bottom right corner - a signal for additional communication with customers or reduction of non-essential characteristics.

Figure 2. Grouping Importance and Satisfaction Level Values in Order to Determine Next Steps.

RESULTS APPLICATION

Grouping customer needs according to the tree diagram method and interpreted results grouped importance and satisfaction level is the first step for Quality Function Deployment (QFD) process, developed by Yoji Akao (Akao, 2004) in the late 1960s. QFD is a method to assure customer or stakeholder satisfaction and value with new and existing products by designing in, from different levels and different perspectives, the requirements that are most important to the customer or stakeholder.

These requirements should be well understood through the use of quantitative and non-quantitative tools and methods to improve confidence of the design and development phases that they are working on the right things. In addition to satisfaction with the product, QFD improves the process by which new products are developed. Reported results of using QFD include improved customer satisfaction with products at time of

launch, improved cross-functional communication, systematic and traceable design decisions, efficient use of resources, reduced rework, reduced time-to-market, lower life cycle cost, improved reputation of the organization among its customers or stakeholders (ISO 16355-1:2015).

So, QFD is a must for a successful TQM program (Berk & Berk, 2000) and nowadays it widely spread all over the world. Retail outlets, apartment layouts, cars, computers, software, printers, cameras, airline services, paints, surgical instruments, diagnostic instruments, office equipment, consumer products, tools, retirement plans, movie theatres, health insurances, financial services, telephone services, gas and electrical services, distribution networks are some examples of products and services which are developed with the help of QFD (Benner et al, 2003).

CONCLUSIONS

As often happens, after conducting a study using the Voice of the Customer methodology, the organization stops and does not take any improvement steps. Having received valuable information from customers, having analyzed it, comparing it with opportunities and barriers, you should not stop until an improvement plan is developed.

The sequence of steps at improvement implementation stage:

1. Prioritization: after studying the final table, it can be seen that the improvement steps must be taken in completely different areas. In order to prioritize the improvement program elements, first you need to work out the following situations:

1) A high score was received from customers. If the answer is yes, this is a significant news item that can be conveyed to employees, the press, partners, shareholders and other stakeholders.

2) Specific problems identified. Very often customers point out a specific process or program that requires improvement. This need should not be ignored.

3) Insufficient informational transparency of the company. Often, customers do not understand the true value of their participation in such studies, and sometimes they are even disappointed that their wishes (possibly unrealistic) were not taken into account. Regardless of the scenario, feedback results should be communicated.

4) Customers do not care. Sometimes an indifferent attitude to a service or product is revealed, and the cause of this phenomenon cannot be established. This is the case for the resources reallocation, the layoff of a product or service.

5) Confusing answers received. Sometimes research can lead to a possible problem, but not to a deep understanding of it. Clients answer questions vaguely and confusingly, which creates certain difficulties for a clear understanding of their needs. The way out of this situation would be the collection and execution of research within the focus group.

6) Numerous problems were identified. An organization may encounter such an incredible amount of negative feedback that it is difficult to decide where to start. In this situation, the internal systems evaluation tool can help to evaluate the organization and give an understanding of its effectiveness.

2. Development of a plan for improvements implementation: if the project team has reached consensus on the next steps, it is necessary to prepare an appropriate plan taking into account the answers to the following questions:

- What actions need to be taken to implement the intended step, and in what time frame?
- Are approvals required?
- What resources are required?
- Who will be responsible for the results, deadlines and quality of implementation?
- How will the obstacles to complete the steps be overcome?
- How will the result be measured?
- How will the implementation of improvements be monitored?

Having implemented a time-consuming but very valuable for the organization project according to the Voice of the Customer methodology, it is worth continuing activities of interacting with customers and examining their needs. After all, they never end. As well as efforts to improve organizations (Croll & Power, 2009), they should never run out.

CONFLICT OF INTERESTS

The authors declare no conflict of interest.

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THE USE OF INTERACTIVE TRAINING TECHNOLOGIES IN TEACHING ACADEMIC DISCIPLINES FOR STUDENTS OF TOURISM SPECIALITIES

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ABSTRACT

The article substantiates the expediency of using the interactive training technologies of teaching in the educational process for students of tourism specialities since training of the specialists for tourism sphere is one of the most important issues because the quality of personnel is a key factor of the tourism development. The essence of interactive teaching methods as compared to the traditional ones has been analysed. The advantages and features of using the interactive methods in the educational process which help to achieve learning objectives, enhance motivation to study, mould professional creative thinking, increase students' interest, stimulates teamwork, overcome shyness and insecurity in the real working environment have been highlighted. In the context of the tourism specialists' professional competences formation, a conceptual structure of the training including content blocks, methods of work, expected results has been proposed. On the basis of the interactive teaching technologies, a training concerning the development of an advertising campaign for a tourism company has been developed. Taking into account the specifics of the tourism industry, the authors have suggested a step-by-step running of an advertising campaign of the tourism company including a complex of interconnected advertising activities developed in accordance with the company's marketing program, covering a certain period of time and aimed at a given target audience in order to provoke a reaction that helps the company solve its strategic and tactical tasks. The article also highlights the advantages and disadvantages of advertising in tourism industry, its effectiveness in different media.

Keywords: tourism industry, interactive teaching methods, professional competence, advertising campaign, training.

JEL classification: M37, Z32, Z39

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INTRODUCTION

Intensification of competition in the context of global economy does not only urge the development and creation of modern tourism products but also requires the development of measures of these products market promotion (Lukjanova & Odinkova, 2020). The positions of Ukrainian tourism companies at the tourism services global market is weakening. This is not only caused by insufficient investments and a corresponding lag in the service sphere, inadequate state support, a general economic slowdown caused by prolonged hostilities in the east of Ukraine, depreciation of the hryvnia and a general decrease in consumer demand, but also by insufficient attention of the top management of enterprises of the tourism industry to the issues of advertising the product they propose.

Competent market promotion of the tourism product, gaining consumer preferences, building an effective sales network largely depend on the future specialist's competencies that are formed during the process of education. In this context, the issues of training of specialists whose skills and knowledge meet the modern requirements of the tourism industry become especially relevant. Standard forms and methods of teaching in the tourism field do not sufficiently contribute to the specialists' professional competencies formation.

In the contemporary conditions of global tourism business informatization such interactive methods of teaching as trainings, business simulations, business games, methods of the specific situations analysis, case studies, projects, etc. become really important. The application of the up-to-date interactive learning technologies allows students to develop professional competences and to bring them closer to real conditions, situations, to help using the accumulated theoretical knowledge in practice, to adapt the acquired knowledge and skills in accordance with the conditions of the modern business functioning.

METHODOLOGY

The priority direction of contemporary education is an increasing role of electronic educational and methodical materials for different specialities. They do not only ensure performing of the interactive teaching and learning tasks but also have a special functional load as an additional tool for the formation of the students' subject knowledge and skills as well as optimization of the teachers' professional activity, creation of conditions for their creative potential (Shahina, 2017)

Along with the conventional types of teaching, the scientists research positive and negative aspects of e-learning, distance learning and mixed learning. Mixed learning is considered as the most adequate to the requirements of Ukraine's development within the framework of European education (Diachok et al, 2020; Zagorodnya et al, 2020; Petrenko, 2017) as it strengthens a student's orientation, increases the number of students involved in this type of learning, enhances the interaction between a teacher and a student in virtual environment, increases student's autonomy through independent work with a large number of the Internet databases, personalizes learning process. Mixed learning is a model of using informational and educational resources in conventional teaching using the elements of distance learning, practiced as an element of full-time learning during the students' in-class and independent work. Consequently, mixed learning inherits the elements of distance learning, but in turn eliminates its disadvantages (Kobysia, 2017).

One of the most widely used platforms for mixed and e-learning is LMS Moodle which is free of charge, can be easily edited and modified according to the needs, provides a possibility to learn and teach in the synchronised and asynchronous modes; offers a wide range of network testing; etc. Introduction of the content methods and Moodle information-based online forms of learning to the traditional vocational education is provided with the use of distance courses the structure of which involves step-by-step study of the educational themes in a modular way. Forms and methods are defined for each of the stages of modular learning and involve a combination of individual, networking and classroom activities (Bolubash, 2013).

New methods of testing and grading of the students' knowledge are offered to fully estimate their progress during the e-learning (Bilousova, et al, 2013). Computer testing allows the lecturers receive a wholesome and comprehensive outlook of the students' skills and abilities provided by the unconditional testing quality.

Consequently, the above stated underlines the necessity for the improvement of professional competence of the university lecturers conditioned by the informatization of education, introduction of distance and e-learning (Popova & Verdenhofa, 2015; Popova, 2015; Linde & Petrova, 2018). In this context, D. Bodnenko (2013) analyses a new paradigm of the teacher's professional competence concept, identifies and describes informational and communicational professional skills to provide a high level of education. It is important to mention here that 75.40% of lecturers actively use information and communication technologies for training bachelors of different specialities (Dyshko et al, 2017). Thus, Skype, Viber are used for videoconferencing, Moodle, Dokeos, ATutor, "Blackboard", "Prometheus" are used as platforms for electronic education. To support the teaching staff in this direction, various types of workshops for teachers have to be proposed (Veselinovskaa et al, 2010).

The issues of the interactive methods usage, elements of which are trainings of different types, are receiving a lot of attention nowadays. In particular, Dolbneva D. (2014), Bodruh N. (2014), Kreps T. (2018), Fedorenko N. (2015) consider various aspects of the interactive teaching of the academic disciplines in the higher educational institutions. These authors insist that these methods can and should be widely used for the majority of specialities. In this respect a high level of material prepared, logical and well thought out structure of the interactive lesson comes to the fore as the teacher ceases to be central in the teaching process, he / she only regulates the process, monitors and consults (Pozdeeva et al, 2015). Besides, the lecturers try to analyse and assess the results of interactive teaching compared to the conventional one (Usmanova et al, 2015).

It is obvious that a strong theoretical basis for the use of interactive methods of teaching in the educational process has already been formed by the moment, however, in our opinion, the issue of using interactive training technologies for teaching academic subjects in higher educational institutions needs further research and development. (Bodnar, S., Mirkovich, I., Koval, V., 2019).

In the general meaning, training is a method of active learning aimed at developing knowledge, skills and abilities as well as social attitudes.

In order to develop practical skills and competences of bachelors of the tourism speciality of full-time and correspondence forms of study for developing an advertising campaign for a tourism company, the authors have developed a training "8 steps to creating an advertising campaign for a tourism company". The training is interdisciplinary and takes into account the professional competences in the disciplines "Management", "Marketing", "Economics of an enterprise".

The following tasks are solved during the training:

- analysis of the external environment of enterprises of the tourism industry;

- determination of the target segment of the tourism services market based on the basis of the analysis of the main consumers and dealers of tourism product;
- formulation of the objectives and main tasks of the prospective advertising campaign;
- development of the advertising campaign strategy, its concept, corporate image, slogan, substantiation of the uniqueness of the trade offer;
- consideration of the nature of the prospective advertising campaign defining its main directions in the B2B sector (highlighting the main consumers, establishing direct contacts, participating in exhibitions, fairs, meetings with business representatives) and the tourism services market (the terms of carrying out, territorial, demographic and age coverage, intensity);
- estimation of the costs of advertising activities and evaluating their likely effectiveness.

The training involves the use of such interactive learning methods as active game forms, problem solving exercises and business cases, group discussions, brainstorming, imitation modelling and presentation of the group work results.

The use of the abovementioned interactive methods during the training allows enhancing the students' cognitive activity, develop critical thinking skills, analysis of situations, increase the motivation to study the discipline, stimulates the development of skills on searching and using relevant information, develops the ability to use information and communication technologies, improves communication skills and creates a supportive working environment in the workgroup.

RESULTS

Educational institutions distinguish between traditional teaching methods and interactive ones. It is well known that teaching methods are a joint activity of a lecturer and the students, aimed at mastering their knowledge, skills and abilities.

As a rule, traditional teaching methods include: lectures (introductory, preparatory, overview, lectures-presentations, mini-lectures, etc.), conversations, explanations, consultations, quizzes, demonstrations (demonstrations of the methods, real objects, slides, posters, videos etc.), exercises (oral, written, calculatory), practical exercises according to an example, independent work with literature and others.

The essence of interactive teaching is revealed through the interpretation of the term “interact” which generally defines the ability to mutual activity.

The interactive model views teaching as a special form of cognitive activity organization that has a specific, intended purpose – to create comfortable learning conditions under which each student feels his / her success and intellectual ability and acts as a subject of teaching (Akhmedova, 2014).

The use of interactive teaching technologies in the educational process is presented by: problematic lectures, lectures-press-conferences, binary lectures, lectures-shows, group projects, press conferences, round tables, discussions, briefings, guest seminars (when specialists are invited), business and didactic role-playing games, case studies, trainings (corporate, psychological, business training, etc.).

Interactive teaching is:

- teaching based on the student's interaction with the learning environment, the learning space, which serves as an area of mastered experience";
- teaching based on the psychology of human relationships and interactions";
- teaching which is understood as a joint process of cognition, where knowledge is obtained in joint activities through dialogue, polylogue".

The main difference of interactive teaching from traditional one is its orientation to the problem solving, developing the ability to be personally responsible for the decisions made, understanding the motives and interests of other participants. Interactive teaching methods allow to not only study, find out, consolidate theoretical material, but also to form the students' skills to think independently, to act, to conduct scientific debate, to think critically, to be able to adapt to changing environmental conditions, to make decisions and analyse their consequences.

The main objective of interactive teaching is to develop students' ability to apply their knowledge in practice for solving real-world problems. Therefore, the important task of interactive teaching is to give students the opportunity to express their opinions, to demonstrate their individuality, to remain interested in acquiring knowledge in the chosen profession. This does not exclude the lectures, but often lectures are overloaded with terminology, statistics and are difficult to remember. In an era of rapid technological change, the students' passive knowledge acquisition is the cause of boredom and frustration and very often leads to a loss of interest not only in the subject, but also in the professional activity in general. Thus, there is a growing necessity to stimulate students' interest in learning by creating the real life contexts, providing them with diverse and multi-faceted tasks. After all, in order to be ready to adapt to the changes occurring in the workplace and the environment, future professionals must have the appropriate professional skills. Nowadays, specialists of the tourism industry should not only be competent in their field, but also be managers, leaders, foresee the prospects of business development, be able to work with people, understand the peculiarities of the market economy functioning, etc. (Popova et al., 2020)

Interactive teaching involves a constant change of types of educational interaction when a student and a teacher are equal participants. During the training, a teacher can fully use his / her creativity for improvisation within a given topic or imitations of the life and production situations. Improvisation during the training session stimulates students' vigilance and flexibility, and, at the same time, poses some challenges for the teacher, as it is not always possible to predict what students would expect in the process of a problem situation modelling.

Reactive teaching (when the teacher immediately responds to students' questions, comments) is significantly different from the traditional one, when questions and answers are focused only on a clearly stated academic subject, by the additional, unexpected, and immediate attachment to the context, professional or life situation. The atmosphere of this type stimulates formation of the practical skills and

abilities, creates an atmosphere of cooperation, enhances students' motivation to acquire knowledge, promotes the development of creative abilities and communication skills, etc.

It is obvious that successful sale of tourism services and tourism product largely depends on the quality but the potential consumer awareness about these services and products is also of great importance. Therefore, the fame of a tourism company, maintaining its positive image as a reliable business partner is impossible without advertising. Advertising does not only inform the consumer about the products, but also creates a demand, motivates a potential buyer to purchasing.

Advertising is a system of paid activities aimed at bringing specially prepared, expertly processed information about a product (services) and its manufacturer (supplier) to the consumer. Orekhov S.A. (2011) characterizes advertising as any paid form of communication with a potential consumer audience, representing a product or service, forming any images, subconscious associations with the consumer, affecting consumer's final choice.

In the Act of Ukraine "On Advertising" advertising is defined as information about a person or product, distributed in any form and by any means and intended to create or maintain awareness of advertising consumers and their interest concerning these persons or goods. Similar definitions of advertising are presented in the Act of the Republic of Belarus "On Advertising", where advertising is understood as information about the object of advertising, disseminated in any form by any means, intended for an indefinite number of persons (consumers of advertising), aimed at attracting attention to the object of advertising, creating or maintaining interest in it and (or) its market promotion.

Like in any other economic industry, in the tourism industry advertising performs the following functions: 1) first of all, informational – is a statement about existence of a tourism product, company, includes a description of the main quantitative and qualitative parameters and features, as far as the product and services of this industry are both B2B and B2C oriented; 2) stimulating – is the stimulation and development of the client's needs in the tourism product and services; 3) motivational – after realizing the need for tourism product, there is an incentive to action: buying a product or service, receiving information.

An advertising campaign is a complex of interconnected advertising activities developed in accordance with the company's marketing program, covering a certain period of time and aimed at a given target audience in order to provoke a reaction that helps the company solve its strategic or tactical tasks.

The development of an advertising campaign for a tourism company should not be only aimed at increasing sales of the company's product and services, but also at creating a positive image in the society, forming an identity of a reliable business partner. In each area, advertising has certain features, in particular, in the tourism industry the object of advertising is primarily the B2C sector, therefore, in this industry advertising should be, primarily, informative. However, given the wide range and type of products of the tourism industry, which includes tourism services as well, one cannot ignore traditional consumer channels for product promotion.

Print advertising - Information letters, catalogues, leaflets, posters, booklets, brochures, calendars

- budget ways of disseminating information (except catalogues); wide channels of dissemination (mailing, distribution in various places) and high penetration capability
- targeting a specific product; selectivity (does not affect a wide audience)

Press advertising - Advertisements, articles, graphic pictures in newspapers and magazines

- an inexpensive way to attract the target audience due to the media outlet specialization; good local market coverage; illustrative form allows conveying complete information to the consumer of the tourism product; attractive tourism destination and proposal enhances the impact on the consumer; the possibility to receive the feedback to consumers through coupons
- a limited scope of attracting customers; short lifetime of the advertisements; a limited audience of the “secondary” reader

Audiovisual advertising - commercials, audio and video films, slide films, screensavers, on-air ads, advertising in cinemas, hidden advertising (in films and broadcasts)

- wide coverage of all segments of the population; visual and audio contact that arouses emotions; efficiency and relevance of the advertising messages; targeting by time, interests (placing ads in certain programs) and the number of contacts with the target audience; the possibility to quickly modify an advertising message; high repeatability of advertising messages
- high price; transience of an advertising contact; quickness and obtrusiveness of advertising messages; the audience’s growing hostility

Internet advertising - Web sites, banner advertising, emailing, SEO promotion

- audience targeting feedback efficiency; real-time sales opportunity
- the user’s ability to completely block the ad; the need for ongoing support and updates; high cost of an advertising campaign

Outdoor advertising - billboard advertising, point of sale advertising, transport advertising

- wide coverage of the advertising audience; attracting attention and strong influence on consumers due to the visual effects; targeting a specific audience depends on the location, region and direction; cheaper than television and radio advertising
- high cost; short contact time; low memory retention of the advertising message; the complexity of registration and formalisation; is of a complementary character

Direct mail advertising - Leaflets, booklets, letters

- selective, because it is sent to certain individuals; is of a personal character; high degree of exposure; provides feedback
- the message may be lost or ignored, recipients may change addresses; difficulty of consumers targeting; an image of “waste paper”

Specialty advertising - branded souvenirs, serial souvenir products, business gifts, branded packaging materials

- present advertising information in everyday life; low cost, originality and attractiveness; usefulness for the user
- low target audience coverage

Participation in exhibitions - Exhibitions, fairs, presentations

- tourism product presentation; visual demonstration of new products; establishing contacts; analysis of the competitors; attracting intermediaries is time-consuming and expensive

Point-of-sale advertising - posters, stickers, large-format transparencies, etc.

- design of the trading floors and display stands; low cost, visibility and attractiveness
- low target audience coverage

Non-traditional media - Sponsorship, event marketing, “guerrilla” advertising, transit advertising, word of mouth advertising, mass text messaging

- unexpected places for advertising to attract attention; memorability; low costs
- low target audience coverage; episodic effect; negative reviews spread faster than positive

Fig. 1. Advantages and Disadvantages of Different Forms of Advertising in Tourism Industry

Source: compiled by the authors

During the training, the properties, competitive advantages and features of the tourism company's products are determined as they are to be offered for sale during the advertising campaign. Highlighted features of tourism products are the basis for choosing the appropriate channels of market promotion.

The main means of advertising dissemination in the tourism business, as well as their advantages and disadvantages are presented in Fig. 1.

Further, students are invited to develop a detailed plan of the advertising campaign. During the training, the need for an advertising campaign is justified, its objectives and main tasks are determined, the desired results are indicated. The competitive advantages of both the tourism company itself and the tourism product that will be advertised are preliminary evaluated. Depending on this, elements of the corporate identity of the advertising campaign such as a logo, slogan, corporate colours and the like are developed, emphasising uniqueness, the attractiveness criteria and the differences of the advertising proposal.

In addition, the planned costs of the advertising campaign are calculated with the appropriate distribution of funds on the channels for the tourism product promotion and the means of advertising dissemination. Accordingly, the possibilities of using various types of advertising are evaluated, first of all, by the degree of coverage of the target market segment, its costs, intensity, time and frequency of advertisements in the selected advertising media.

In conclusion, a preliminary assessment of the advertising campaign effectiveness for each media and the entire campaign is carried out; the analysis of the degree of the audience coverage is conducted and is also compared with the goals of the advertising campaign. The real increase of the consumer requests is analysed in comparison with the planned sales volumes of the tourism product and services, the increase of the tourism company rating and image improvement are assessed, etc.

Thus, a step-by-step detailed plan of an advertising campaign of the tourism company can be used by the tourism entities as a basis for the implementation of advertising means for the tourism product and services promotion.

CONCLUSION

Thus, organizing and conducting a training for students of the tourism specialities demonstrates the following advantages of the interactive teaching technologies:

- 1) the interactive technologies can be combined with the traditional methods and forms of teaching, following the logic of the educational process;
- 2) the integration of the interactive methods in the process of education increases effectiveness of the traditional teaching by formation the skills which help applying theoretical knowledge in the situations close to real conditions;
- 3) the interactive technologies contribute to the formation of the future specialists' professional competencies as well as communication skills, ability to work in a team, stimulate the development of creativity.

During the training with the use of the interactive technologies, students of the tourism specialities acquire competencies in the analysis of the market environment of the tourism industry enterprises; learn to formulate strategies, objectives, tasks, nature and main activities of a tourism company's advertising campaign, segment the consumers of the tourism product by selected criteria, estimate the costs of the advertising activities, etc.

The structure of the training according to the content blocks, methods of work, as well as its expected results are presented in Fig. 2.

Figure 2. The Content Structure of The Training

Source: compiled by the authors

In addition, the results of the analysis of the means of advertising dissemination in tourism industry are presented in the article.

The authors believe that the interactive training technologies will help the prospective specialists in the field of tourism industry acquire complex understanding of current problems of the tourism industry development, contribute to the skills formation using advanced domestic and foreign experience in the activities of the tourism enterprises.

Conflict of interests

The authors declare no conflict of interest.

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IMPACT OF FINANCIAL RISK ON THE OPERATION OF START-UPS

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ABSTRACT

The aim of this study is to analyse the impact of financial risk on the operation of innovative, high-risk enterprises – start-ups. Through advanced technologies and focusing on individual needs of recipients, such enterprises certainly fit the concept of the fourth industrial revolution. As part of their operational process start-ups are exposed to a broad spectrum of risks, among which the financial risks are particularly disruptive. With a clear objective of identifying financial risks that have the greatest impact on the operation of such enterprises, the study applied a questionnaire that used CAWI and CAPI methods and covered 202 start-ups active in Poland. The results of the questionnaire were subject to a statistical analysis to determine financial risks that influence the activity of start-ups to the greatest extent. The most important risks include the loss of financial liquidity and the lack of funds for continuing the development of an enterprise or a product. Therefore, we should assume that the innovative activity conducted by start-ups not only represents a method of gaining competitive advantage, but it is very often essential for the purpose of surviving on the market. Therefore, identifying operational risks and acting to limit their negative impact form an important aspect of the operation of start-ups.

Keywords: start-up, innovative enterprise, corporate finance, risk, risk management

JEL classification: D24, D81, D90.

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INTRODUCTION

The neoclassical economic model explains the way business entities behave based on several fundamental assumptions as to their features and manner of operation. According to these assumptions, the entities (Solek, 2010):

- are rational,
- act based on full and perfect information and have unlimited means for the processing thereof,
- aim at maximising expected utility (as regards consumers) or maximising profits (as regards companies),
- act in a narrowly understood own interest i.e., without taking account of the utility of other entities,
- have coherent preferences, also in terms of time, consistent with the model of exponentially discounted utility,
- make decisions following the Bayesian rules of inference,

- treat their income and resources interchangeably i.e., as not classified as to their source or target.

Modern enterprises operating in a turbulent market environment, under conditions imposed by the fourth industrial revolution, dynamic development of financial markets as well as increased risk and uncertainty, should consider changes taking place in an approach to financial management (Knight, 1921). This applies not only to a possibility of selecting sources, forms and instruments of capital acquisition and allocation, but also to changes in the concept of operation as part of executed financial strategies aimed at increasing the value of an enterprise and achieving market success. A lot of businesses are looking for innovative ways to improve efficiency and maintain competitive advantage in order to survive (Bacho et al, 2019; Kurmanov et al, 2018; Pukala et al, 2019). Three main areas can be distinguished in the decision-making process applied by contemporary enterprises. They relate to (Lukasik, 2007):

- acquisition of capital and shaping its structure,
- allocation and efficient use of capital, which has impact on, among others, the scope and manner of connecting with other market players and the structure of assets,
- risk management, i.e., the scope of risk, assessment of its undesirable consequences as well as possibility and degree of protection against the volatile nature of basic market parameters, taking account of consequences of broader exposure of an enterprise to risk.

The first theoretical and empirical studies of benefits an enterprise obtains from risk management were based on considering the consequences of using insurance, and later also derivatives, as risk management tools (Willet, 1901). In this perspective, protection against the impact of risk was explained through the risk aversion phenomenon, which stems from the expected utility hypothesis (Lukasik, 2007). It is worth mentioning that the expected utility hypothesis was originated by N. Bernoulli already in the 18th century and was later developed by J. von Neuman and O. Morgenstern in the mid-20th century. The latter scientists assumed that a rational market participant should always make (and thus, it makes) decisions that maximise its utility. Therefore, it is a normative theory of selection, the essence of which lies not in describing an actual behaviour of entities when faced with a choice, but in indicating actions aimed at maximising utility functions. On the grounds of the expected utility hypothesis, a criterion of classifying decision-making alternatives is a certainty equivalent – corresponding to a sum of cash a decision-making entity is ready to accept with zero risk in return for a benefit burdened with risk. Therefore, it constitutes a normative model of making decisions under conditions of risk (Pukala, 2016).

Differences in the level of expected utility are related to the matter of risk aversion. The basic measure of risk aversion is a certainty equivalent. It is expressed as a certain (guaranteed) amount that safeguards the same level of utility as an uncertain (risky) bet. Thus, this is the price a person who exhibits risk aversion is willing to pay for eliminating the risk (Wieczorek-Kosmala, 2017). The risk is also perceived as the maximum loss for a certain period of time, with a certain confidence interval (Radukanov, 2017).

We need to stress that risk aversion is inherently related to the concept of expected risk premium. As indicated by A. Damodaran, the premium (RP) represents a difference between the possible, uncertain result (V) and the equivalent of certainty (V') (Damodaran, 2009):

$$RP = V - V'$$

Based on this assumption, we need to declare that with an increase in the risk aversion level, the risk premium increases as well. It shapes the economic balance of an enterprise, in particular the capital balance. Therefore, a price offer of a producer (start-up) should guarantee the coverage of costs of manufacturing and acquiring additional revenues that allow further development.

In their developmental cycle, start-ups go through stages that are burdened with remarkably high risk, which limits or even prevents the acquisition of outside capital. In such case, hybrid financing instruments become an alternative source of capital acquisition, as an enterprise cannot demonstrate creditworthiness or issuance capacity due to the amount of surplus cash generated from business operations or the innovation level of an undertaking (Lukasik, 2011). In this context we need to examine the question of return on capital, expressed as a level of expectations as regards maximising benefits from investment and based on a correlation:

$$R = \frac{P}{I}$$

where:

R - return on invested capital,

P - expected results,

I - invested amount.

When assessing the expected benefits, consisting of a difference between the present value and the future value of invested capital, one needs to consider the investment risk as well. In such case, the amount of expected return on capital consists of a risk-free rate and a risk premium:

$$E(R) = R_{RF} + RP$$

where:

$E(R)$ – expected return on capital,

R_{RF} – risk-free rate,

RP – risk premium.

The risk-free rate (R_{rf}) is equal to a rate of income of an investor that is achievable when investing capital in the project without any risk (Duliniec, 1998). In a model perspective, the dependence of the rate of return on capital on the risk is presented in Chart 1.

Chart 1. Rate of return on capital versus risk (a model presentation)

Source: M. Wieczorek-Kosmala, *Kapitał ryzyka w przedsiębiorstwie z perspektywy zintegrowanego zarządzania ryzykiem*, CeDeWu, Warszawa 2017, p.29 (in Polish).

where:

R_{RF} – risk-free rate,

β_x, β_y – risk of investor in project X and Y respectively,

R_x, R_y – expected rate of return on investment in project X and Y respectively,

RP_x, RP_y – risk premium for project X and Y respectively.

Through introducing innovative solutions that bring about new products or services to the market, start-ups conduct their business activity under conditions that are difficult to predict and define precisely. Therefore, the enterprise's demand on capital also depends on its exposure to risk, which results from the conducted activity. The capital invested in the enterprise, both own and external, aims at financing net operating assets (Duliniec, 2018). Apart from the operating capital, start-ups should accumulate an additional capital that makes it possible to cover the effects of different types of risks (Pukala, 2019).

Decisions concerning the amount and nature of capital intended for risk coverage result from a risk management method adopted by a given enterprise. In this area two basic methods exist as regards securing an enterprise against the effects of risks that can have an adverse impact on the results of operation and cause the emergence of financial problems (Pukala & Petrova, 2019). The first one is risk retention, at the same time providing sources of financing that are necessary to cover potential losses arising from adverse occurrences.

The other is transferring risk onto other entities, among others, insurers, issuers of derivatives or capital market investors. Both methods require identification of sources and areas exposed to risk.

Taking actions in the field of risk management is an important method of limiting the effects of risk. According to D. Mayers and C.W. Smith, benefits from risk management can be analysed in three main areas (Mayers & Smith, 1982):

- reducing costs of bankruptcy,
- reducing tax burdens,
- positive impact on investments of an enterprise through eliminating the problem of underinvestment.

Financial risk, posing a serious threat to the operation of start-ups, is the one that directly influences financial results of an enterprise. It can be manifested in a situation where a loss of money or valuable assets occurs. In other words, each financial service or transaction is related to an inherent risk of loss (Shafer, 1996). It is also related to changes in the structure of sources of financing the activity of an enterprise, i.e., to changes in a relationship between own capitals and outside capitals that have impact on the financial result of an enterprise; an assessment of such risk can be performed by means of financial leverage (Nowak, 2010). In the case of start-ups, we can apply a definition of financial risk proposed by the Bank for International Settlements, according to which it is related to making financial decisions concerning methods of financing a business activity of an entity.

By making financial decisions, an enterprise also takes risk related to its operation, especially when it concerns investments in its own development. Financial risk management is an important aspect, as it is a set of rules that enable an enterprise to optimise a method of absorbing financial risk. This set of rules should also contain a method of monitoring actions that are burdened with risk as well as implementing and monitoring the risk management process itself.

Methodology and results

The study has covered a group of 202 start-ups conducting business activity in the entire territory of Poland and applied questionnaires as well as CAWI (Computer Assisted Web Interview) and CAPI (Computer Assisted Telephone Interview) methods. Apart from the information about a start-up, all remaining questions were formulated by use of a 5-grade scale, where 1 means the lowest impact/materiality and 5 – the highest impact/materiality. The data obtained through questionnaires have been subject to a statistical analysis, including a multiple regression analysis.

The analysis has used descriptive statistical methods (Dobosz, 2001; Mynarski, 2003), consisting in determining basic statistical measures that allow describing the distribution of results of respondents' answers to subsequent questions in a questionnaire. The measures were as follows:

- location (point of concentration): arithmetic mean ($\bar{x}$),
- dispersion: standard deviation (S_d),

- distribution shape: skewness.

Verification of zero hypotheses has also been performed. In each applied method of verification of hypotheses, a materiality level $\alpha = 0.05$ has been adopted. A decision to reject (or determining the lack of grounds for rejection of) the zero hypothesis was made based on the test probability (p). The zero hypothesis was rejected when the test probability was lower or equal to 0.05.

Based on the conducted analysis, the risks that are closely related to a start-up's financial standing have been classified to a group of financial risks. 10 most important risks that in the view of start-ups can have the greatest impact on the operation of such enterprises have been selected. A list of financial risks adopted for analysis as well as basic statistical measures and results of the analysis of normality of distribution are presented in Table 1.

Table 1. Assessment of exposure to financial risk – basic statistical measures and results of the normality of distribution analysis

Category	Statistical measures			Normality analysis
	$\bar{x}$	S _d	Skewness	p
Loss of financial liquidity	4,03	1,00	-0,81	0,003
Availability of own capital	3,70	0,90	-0,38	0,640
Availability of bank credits	3,43	1,00	-0,35	0,248
Availability of other external sources of financing	3,50	1,00	-0,36	0,061
Operating costs higher than planned	3,85	0,96	-0,51	0,063
Enterprise profitability too low	3,65	0,98	-0,34	0,731
Lack of funds for further development of an enterprise	3,95	0,92	-0,41	0,064
Lack of funds for further development of a product/service	3,87	0,95	-0,40	0,178
Lack of funds for development of a sales network	3,85	0,99	-0,66	0,079
Lack of funds for advertising	3,63	0,96	-0,38	0,565

Source: author's own calculations.

Dynamic changeability of the environment and its unstable conditions should be received by start-ups as a signal of concern as to development directions and sales results, therefore such enterprises should focus on minimising the financial risk in order to eliminate problems with the repayment of liabilities, regardless of what the risks entail.

Calculations performed as part of the study indicate the following:

- arithmetic mean values – between 3.63 and 4.03 – attest to the fact that the respondents perceive the level (impact) of exposure to risk as average or high,

- standard deviation values range between 0.90 and 1.00 (coefficient of variation ranging between 24 and 43%), therefore the diversity of ratings within particular categories is typical for this type of studies,
- skewness modules – between 0.34 and 0.81 – indicate slight asymmetry in the distribution of results of assessment within particular categories; nearly all values indicate left-side asymmetry (negative coefficient values),
- chi-square compliance test allows us to assume that normal distributions ($p > 0.05$) represent the majority of empirical distributions; distribution of results in category 1 ($p < 0.05$) is the sole exception.

The financial risk is an incredibly important element of start-ups' operation, as such enterprises most often have limited opportunities to acquire capital for further development. Therefore, they often face underinvestment, which takes place in a situation where the use of external financing is inefficient due to too high a marginal cost of acquiring additional capital. The reason for increased costs of financing can include, among others, the level of start-up debt, ensuing a higher risk premium and additional transaction costs.

In the case of cash funds deficit, an enterprise misses a chance to engage in investment projects that (assuming the financing through own funds) have a positive present value and could potentially increase the value of an enterprise. An alternative could be the acquisition of external financing or issuance of additional shares; however, the high cost of capital can reduce profitability of a project, leading to lost opportunities as regards external financing or even to the rejection of the project (due to negative NPV). Another aspect that has an adverse impact on the cost of external capital is the fact that most frequently the creditors negatively assess the standing of a start-up because of high susceptibility of its results to external and internal factors related to achieving product scalability.

Innovative activity conducted by start-ups is not only a method of gaining competitive advantage and achieving the leading position, but also, very often, it is a precondition for survival on the market. In this regard, taking actions that limit or eliminate particular risk categories is of remarkable importance. The ranking of risks, according to respondents' indications, is presented in Chart 2.

As indicated by the results of conducted analyses, the following have the greatest impact on the operation of start-ups (arithmetic mean values between 3.85 and 4.03): loss of financial liquidity, lack of funds for further development of an enterprise, lack of funds for further development of a product, costs of activity higher than planned and the lack of funds for the development of sales. Therefore, these risks are of key significance for start-ups, as their emergence may lead to insolvency.

Chart 2. Ranking of financial risks that have impact on the operation of start-ups

Source: author's own calculations. Description of categories as in Table 1.

CONCLUSION

Conducting business activity by start-ups for the purpose of own development and further operation requires the acquisition of sources of financing that correspond to operational and investment needs. To safeguard financial liquidity and continuity of operation, the acquisition of the abovementioned sources is of key importance, both in terms of value and time. All planned outlays should be reflected in the planned proceeds of cash. Each source of financing entails slightly different conditions of acquiring funds and financing costs; consequences of using certain sources can also vary (insolvency risk level, relationships with investors, impact on enterprise value shaping, etc.). Apart from acquiring developmental capital, start-ups should also undertake actions aimed at limiting the effects of various risks, especially the financial risks, through implementing risk management procedures and applying risk financing methods, such as insurance. Such measures will certainly have a positive impact on the development of such enterprises and will help them gain a competitive advantage in a turbulent market environment.

Conflict of interests

The authors declare no conflict of interest.

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COMPREHENSIVE EVALUATION OF LABOUR EFFICIENCY AT MACRO- AND MESOECONOMIC LEVELS IN UKRAINE

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ABSTRACT

The article is devoted to the evaluation of labour efficiency at macro- and mesoeconomic levels in order to form the principles of public administration. Special attention is paid to the development of a complex approach to assessing labour efficiency. It is based on the systematization of 36 indicators by main groups: the state of the use of fixed capital; investment activity; innovative activity; use of working time; composition of the payroll budget; formation and use of personnel. A comprehensive analysis and assessment of labour efficiency at macro- and mesoeconomic levels will make it possible to identify and play a significant role in growing reserves of labour efficiency factors. The results of the research have shown that at macro-, mesoeconomic levels there are significant reserves for labour productivity growth by increasing technical level of production, efficient investment and innovation activities, improving the use of working time with minimizing losses, changes in production, labour and management, material incentives and raising educational and qualification levels. It is proved that in the group of factors "Composition of the payroll budget" the decrease in incentive and compensation payments and additional wages in the payroll budget for led to a decline in labour productivity index at the level of national economy and labour productivity index at the level of Kirovohrad region. It is established that influential factors from the group "Formation and use of personnel" index of the coefficient of advanced training of the average number of full-time employees; index of the coefficient "Trained in new professions in relation to the average number of full-time employees"; index of the share of the employed population with a complete higher education.

Key words: labour, efficiency, productivity, factors, comprehensive, evaluation, capital, investment, personnel.

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INTRODUCTION

Improvement of labour efficiency at the level of national economy of Ukraine is a major criterion of economic growth, steady rise in living standards, growth of social and labour activity. At the regional level, it is a necessary condition for increasing product competitiveness and efficiency of regional enterprises.

Increasing labour efficiency improves the balance among economic, social and political structures of a society and strengthens economic security of a country.

Thus, labour efficiency has a beneficial effect on all sectors of the economy. It is possible to get out of the crisis only on the basis of its improvement.

The analysis of scientific research shows that a comprehensive system of indicators assessing labour efficiency at macro- and mesoeconomic levels has not yet been formed, and there is no systematization and parameterization of this set.

National and foreign economists and scientists Vorobyova, Odintsov (2015), Golovanov (2013), Pogorelova (2016), Potudanskaya (2013), Samoilenko (2011), Semykina (2010), Semiv (2013), Serhiychuk (2011), Suvorova (2011), Turchina (2013), Chernushkina (2013), Yarchuk (2014), Naama (2001), Vazov (2019), Lazarova, Zhelyazkova & Vazov (2015), Petrova et al. (2020), Ocheredco (2020) and others made a significant contribution to the development of approaches, methods and models of labour efficiency evaluation.

Some practical issues related to determining the impact of a group of indicators (the state of use of fixed capital, investment and innovation, use of working time, composition of the payroll budget, formation and use of personnel) on a comprehensive assessment of labour efficiency at macro and mesoeconomic levels remain not yet fully considered.

The purpose of the work

The research task is to develop a comprehensive approach to assessing labour efficiency using already known and developed by us indicators (indices) in order to form the principles of public management of labour efficiency.

RESULTS

Efficiency is a concept that finds use in theory and practice in a number of areas of human activity (Radukanov, 2014). Labour efficiency is a dynamic indicator that changes under the influence of a number of factors. It has been revealed that labour efficiency management should be considered through the system of complex and balanced factors of economic development, industry and the region (Baklanova, Petrova, Koval, 2020). Study of the impact on the dynamics of labour efficiency at macroeconomic and mesoeconomic levels is based on the author's methodological developments, which systematize 36 indicators by major groups: the state of use of fixed capital; investment activity; innovation activity; use of working time; composition of the payroll budget; formation and use of personnel (Semiv, 2013; Potudanskaya, Karkoshkina, 2013).

The results of a comprehensive and systematic study of labour efficiency (productivity) at the level of national economy and at the regional level are given in Tables 1 and Table 2 (Ukraine and separately Kirovohrad region during 2005-2018). Hereinafter, we will use the term "labour productivity" guided by the guidelines for calculating the resource intensity of gross domestic product by main groups of resources, labour productivity, rate of return on fixed assets at the level of national economy, regional level and economic activity (Ministry of Economic Development and Trade of Ukraine, 2019).

According to Tables 1 and 2, labour productivity at the level of national economy of Ukraine for the period of 2005-2018 increased by 919.5%. There is a gradual increase in Ukraine's GDP and reduction in the number of employed people in the economy by 26.4% - from 20.680 million people (2005) to 16.361 million people (2018). In 2014, compared to 2013, the number of employed people in the economy decreased by 11.4% due to leaving abroad of the part of working population (State Statistics Service of Ukraine, 2020). This led to the loss of much of the country's labour potential, as well as due to hostilities in eastern Ukraine and temporary occupation of the Autonomous Republic of Crimea and part of the territories of Donetsk and Luhansk regions.

The study of labour productivity index at the level of national economy (IY) shows that the dynamics of change in this indicator is a wave. It decreased from 1.311 in 2008 to 1.001 in 2009 (by 23.6%), and from 1.201 in 2011 to 1.041 in 2013 (by 13.3%). In general, for the period of 2006-2018, labour productivity index decreased by 4.228%.

Labour productivity in Kirovohrad region in 2005 amounted 15032.0 UAH / person, and in 2018 it was 169346.0 UAH / person (there was an increase of 154314.0 UAH / person). The index of labour productivity in Kirovohrad region (IY) increased by 1.348 % during 2005-2018. The same pattern is observed both at the national and regional levels: the number of employed population in Kirovohrad region decreased during the period of 2005-2018 by 16.8% (from 457.5 to 380.5 thousand people), and the gross regional product of Kirovohrad region increased by 837.0 % (from 6877.0 to 64436.0 million UAH in actual prices) (Main Department of Statistics in Kirovohrad region, 2020; State Statistics Service of Ukraine, 2020).

To make international comparisons of labour productivity among countries, "Gross Domestic Product" (GDP) at purchasing power parity in 2011 in the period (t) can be considered as the most reasonable. The calculation is made in millions of G-K dollars. Thus, labour productivity for international comparisons in 2005 equalled 15892.9 G-K dollars per person, and in 2018 – 32628.3 G-K dollars per person (there was an increase of 105.3%). Labour productivity index for international comparisons for the period of 2006-2018, on the contrary, shows a downward trend of 5.344% (Main Department of Statistics in Kirovohrad region, 2020).

Labour productivity in the industry of Ukraine in 2005 equalled UAH 29460.0 / person and had a tendency to increase. In 2018 it amounted to UAH 308729.0 / person (by 948.0%). This is due to a decrease (by 40.4%) in the number of employed people in the industry from 4072.4 thousand person (2005) to 2426.0 thousand person (2018). At the same time, gross value added in the industry (in actual prices) increased by 524.3%, from 119971.0 million UAH (2005) to 748977.0 million UAH (2018). The index of labour productivity in the industry of national economy of Ukraine during 2006-2018, on the contrary, shows the dynamics of decrease by 5.626%.

Labour productivity in the industry of Kirovohrad region during 2005-2018 increased by 939.5% due to a decrease in the employed population by 23.8% (from 64.6 to 49.2 thousand person) and an increase in gross value added in the industry by 691.7% (from 1360.0 to 10767.0 million UAH in actual prices). Labour

productivity index in the industry of Kirovohrad region, on the contrary, decreased by 3.157% (from 1.267 in 2006 to 1.227 in 2018).

When studying the influence of the group of factors of "State of use of fixed capital" on labour productivity at the level of the national economy of Ukraine for 14 years (2005-2018), the following trends are observed (Fig. 1) regarding the factors:

X_1 - is fixed assets in the economy from 2005 to 2018 that increased by 8333799.0 million UAH, or by 653.0%. Maximum growth of fixed assets was recorded in 2014 and amounted to 13752117.0 million UAH, which in turn led to an increase in the indicator of capital-labour ratio X_3 (in 2005-2018 by 852.0%). Positive changes in the value of fixed assets were influenced by price leaps, adopted depreciation mechanisms and the results of state indexations. Their consequence was the accounting of the same means of production by model, productivity and year of purchase at a significantly different cost.

In 2018, the capital-labour ratio amounted to 587.4 thousand UAH per employee in the economy, and in 2014 this figure reached its maximum value and amounted to 760.9 thousand UAH. This is due to the fact that in 2014 there was a maximum increase in fixed assets and a reduction in the number of employed people in the country.

Fixed assets in the economy of Kirovohrad region for the period of 2005-2018 increased by 182.1% - from 21611.6 to 60974.0 million UAH in actual prices (Fig. 2). There was also an increase in capital-labour ratio by 240.9% - from 47.2 to 160.9 thousand UAH per person employed in the economy.

The experience of developed countries shows that labour productivity increases with the growth of capital-labour ratio (Yankovyi et al., 2019). Technical re-equipment of production, introduction of the newest technologies, equipment, automation of manufacture, updating and replacement of the outdated equipment leads to an increase in cost of fixed assets and workplaces. Modern high-tech equipment provides more efficient use of labour force, replacing live labour with machine, which leads to increased productivity (Semykina, 2010).

The indicator of wear reflects qualitative characteristics of fixed assets, and the renewal indicator shows the dynamics of their reproduction. Effective formation and use of fixed assets is the growth of their value through the commissioning of fixed (new) production assets. Thus, the wear indicator from 2005 to 2018 increased by 11.6 percentage points (from 49.0% to 60.6%). There is a gradual loss of fixed assets of consumer, physical, chemical properties, which leads to lagging behind modern technical, social and economic characteristics. The sharpest growth of this indicator occurred in 2014 (83.5%). That is, on average for the period of 2005-2018 at the level of the national economy fixed assets were depreciated by 64.0%. The coefficient of wear in the economy of Kirovohrad region for the period of 2005-2018 increased by 7.5 percentage points from 49.0% to 56.5%.

X_6 - is the coefficient of renewal of fixed assets which reflects the share of the cost of replaced old means of labour with new more productive, or at the expense of facilities that were in operation.

Table 1. Indicators of Labour Productivity at the Level of National Economy of Ukraine, 2005-2018

Indicator	Unit of Measure	Years														Deviation, 2018/2005*	
		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	absolute +/-	relative%
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Labour productivity at the level of national economy	UAH/ person	21346,8	26249,5	34476,5	45205,8	45233,0	53259,0	63963,3	69011,9	71809,4	87805,8	120935,6	146548,3	184691,9	217627,0	196280,2	919,5
Labour productivity index at the level of national economy		1,000	1,230	1,313	1,311	1,001	1,177	1,201	1,079	1,041	1,223	1,377	1,212	1,260	1,178	-0,052	-4,228
Labour productivity for international comparisons	G-K Dollar/ person	15892,9	17549,6	19227,2	19988,7	17831,8	18662,8	20036,7	20929,3	23836,7	25562,3	26484,8	29226,6	31217,5	32628,3	16735,4	105,3
Labour productivity index for international comparisons		1,000	1,104	1,096	1,040	0,892	1,047	1,074	1,045	1,139	1,072	1,036	1,104	1,068	1,045	-0,059	-5,344
Labour productivity in industry of the national economy	UAH/ person	29460,0	37180,0	49929,0	64026,0	60435,0	74828,0	89024,0	93725,0	92551,0	112222,0	152742,0	202594,0	259316,0	308729,0	279269,0	948,0
Labour productivity index in industry of the national economy		1,000	1,262	1,343	1,282	0,944	1,238	1,190	1,053	0,987	1,213	1,361	1,326	1,280	1,191	-0,071	-5,626

Source: own study based on State Statistics Service of Ukraine (2020)

Table 2. Indicators of Labour Productivity at the Regional Level - Kirovohrad region, 2005-2018

Indicator	Unit of Measure	Years														Deviation, 2018/2005*	
		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	absolute +/-	relative %
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Labour productivity at the regional level - Kirovohrad region	UAH/ person	15032,0	17840,0	21603,0	30409,0	30943,0	36524,0	46273,0	50855,0	58325,0	73531,0	99398,0	122494,0	140740,0	169346,0	154314,0	1026,6
Labour productivity index at the regional level - Kirovohrad region		1,000	1,187	1,211	1,408	1,018	1,180	1,267	1,099	1,147	1,261	1,352	1,232	1,149	1,203	0,016	1,348
Labour productivity in industry - Kirovohrad region	UAH/ person	21053,0	26672,0	35886,0	46952,0	45447,0	62578,0	70200,0	78276,0	82629,0	100172,0	126693,0	173593,0	178344,0	218841,0	197788,0	939,5
Index of labour productivity in industry - Kirovohrad region		1,000	1,267	1,345	1,308	0,968	1,377	1,122	1,115	1,056	1,212	1,265	1,370	1,027	1,227	-0,04	-3,157

Source: own study based on Main Department of Statistics in Kirovohrad region (2020)

Fig. 1. The State of use of Fixed Capital (FC) at the Level of the National Economy During 2005-2018

Source: own study based on State Statistics Service of Ukraine (2020).

Fig. 2. The State of Use of Fixed Capital (FC) at the Level of Kirovohrad Region During 2005-2018

Source: own study based on Main Department of Statistics in Kirovohrad region (2020) and State Statistics Service of Ukraine (2020).

Thus, the coefficient of renewal of fixed assets in the economy of Ukraine in 2010-2018 increased by 1.9 percentage points, and on average for this period was 5.8%.

In 2015, maximum values of the indices of renewal IX_6 (6,670) and labour productivity IY (1,377) were recorded. This indicates the impact of technical and technological upgrades on the quantity and quality of products and services. The use of more productive and reliable means of labour, increasing technical level of production, increasing the use of production capacity; increasing output and improving product quality provides an increase in productivity.

In Kirovohrad region, the renewal coefficient of fixed assets during 2005-2018 decreased by 0.8 percentage points (from 6.5% in 2005 to 5.7% in 2018) (Main Department of Statistics in Kirovohrad region, 2020).

In economically developed countries, the renewal coefficient of fixed assets is 8.4 - 10 %. There is a need to launch into production fundamentally new equipment and materials, advanced technologies, machines and units of greater unit capacity and productivity, completed systems of complex mechanization and automation of production. Without urgent changes, there will no reproduction of fixed assets.

The influence of the following group of factors on labour productivity at the level of the national economy of Ukraine and Kirovohrad region (investment activity) is shown in Fig. 3 and 4. Thus, X_9 - capital investments (investments in tangible and intangible assets) increased from 2005 (111174.0 million UAH) to 2018 (526341.8 million UAH) by 373.4%. At the level of Kirovohrad region, capital investments X_9 increased by 308.3% during 2005-2018 (from 1572.6 million UAH to 6420.9 million UAH). But, despite such growth, the share of fixed capital investment in the total volume at the level of the national economy grew slowly and increased by only 5.7 percentage points over the last 14 years (from 83.7% to 89.4%). In the economy of Kirovohrad region the share of fixed capital investment - X_{10} increased by 14.3 percentage points (from 81.7% in 2005 to 96.0% in 2018).

The reserves of labour productivity growth are negatively affected by the reduction of the share of investments in machinery, equipment and inventory to the total amount (X_{12}) at the national level by 5.2 percentage points (2005 – 38.3% and 2018 – 33.1%). At the level of Kirovohrad region X_{12} has a slight increase from 37.5% (2005) to 47.3% (2018), by 9.8 percentage points. The final results of enterprise operation depend on investing in the material and technical base of production. It is not possible to achieve high productivity on obsolete equipment which constantly needs repair. Thus, index of the share of fixed capital investment at the national level (IX_{10}) for the last 14 years was the lowest in 2009 (0.919), which led to a decline in labour productivity index (IY) in 2009, which was also the lowest for the entire study period and amounted to 1.001.

The share of investments in capital construction to the total volume at the national level (X_{11}) for 2005-2018 tends to decrease by 1.3 percentage points (from 45.5% to 44.2%). In the economy of Kirovohrad region X_{11} also decreased by 13.1 percentage points (from 44.2% to 31.1%).

Fig. 3. Investment Activity at the Level of the National Economy During 2005-2018

Source: own study based on State Statistics Service of Ukraine (2020).

Fig. 4. Investment Activity at the Level of Kirovohrad Region During 2005-2018

Source: own study based on Main Department of Statistics in Kirovohrad region (2020).

We are talking about new capital construction, expansion, reconstruction of existing buildings and structures, carried out by contracts and economical methods.

The share of investments in capital repairs to the total amount (X_{14}) at the level of the national economy in 2005 was 10.4%, and in 2018 (9.7%) it decreased by 0.7 percentage points. In the economy of Kirovohrad region X_{14} also decreased by 4.7 percentage points from 15.8% (2005) to 11.1% (2010), and from 2011-2018 no investment was made in capital repairs. The method of partial reproduction was used, when worn-out equipment was replaced not by new, but by thoroughly repaired equipment.

The reliability indicators largely depend on the technical condition of the equipment and are significantly reduced after major repairs.

Investment intellectualization coefficient into fixed capital (X_{15}) shows the ratio of investments in intangible assets to fixed capital investment, that is the share of costs associated with software, databases; rights to commercial designations, objects of industrial property; copyright and related rights, patents, licenses, concessions, etc. The dynamics of the coefficient of intellectualization of fixed capital investment at the level of the national economy of Ukraine over the past 14 years is positive (Suvorova, Amelina, 2011). For example, in 2005 it was 3.2%, and in 2018 it rose to 7.0%. Thus, there is an increase of 3.8 percentage points. Maximum value of this indicator was 7.0% (in 2015 and 2018). It was during this period of 2015 that the labour productivity index at the level of the national economy (IY) was the highest (1.377) for the last 14 years. This is explained by the fact that one of the powerful reserves for increasing labour productivity is the direction of investment in intangible fixed assets. At the level of Kirovohrad region X_{15} increased by 0.2 percentage points (from 1.0% (2005) to 1.2% (2018)).

The next group of factors influencing labour productivity at the level of the national economy of Ukraine and at the level of Kirovohrad region is the innovative activity of industrial enterprises (Fig. 5 and Fig.6). For the study, we chose the following factors (Golovanov, 2013):

X_{17} is the number of new technological processes (units) introduced into production;

X_{18} is the number of introduced innovative types of products, by names (units);

X_{18_te} is total expenditures on innovation activities (million UAH);

X_{18_rd} is research and development (internal R&D and external R&D) (million UAH);

X_{18_at} is acquisition of new technologies (acquisition of other external knowledge) (million UAH);

X_{18_am} is acquisition of machinery, equipment and software (million UAH).

Among the above-mentioned factors of innovation, the total cost of innovation X_{18_te} is the greatest impact on productivity. At the level of the national economy of Ukraine it increased by 111.8%, and at the level of Kirovohrad region by 348.8%. Thus, in 2005-2018, the largest amount of expenditures on innovative activities of industrial enterprises of the national economy was in 2011 (14333.9 million UAH); in 2015 (13813.7 million UAH); in 2016 (23229.5 million UAH).

Fig. 5. Innovative Activity of Industrial Enterprises at the Level of the National Economy During 2005-2018

Source: own study based on State Statistics Service of Ukraine (2020).

Fig. 6. Innovative Activity of Industrial Enterprises at the Level of Kirovohrad Region During 2005-2018.

Source: own study based on Main Department of Statistics in Kirovohrad region (2020).

The index of total expenditures on innovation of the national economy (X_{18_te}) also reached its maximum in 2011 – 1.782; in 2015 – 1.795, which provided maximum growth of labour productivity index at the level of the national economy (IY) in 2011 – 1.201 and in 2015 – 1.377.

In the economy of Kirovohrad region, the largest amount of expenditures on innovation activities of industrial enterprises (X_{18_te}) for the period 2005-2018 was in 2012 (339.0 million UAH); in 2016 (262.3 million UAH); in 2017 (504.2 million UAH), which affected maximum value of labour productivity index at the level of Kirovohrad region (IY) in 2016 (1.232).

The study of the factor X_{18_at} which is acquisition of new technologies (acquisition of other external knowledge) at the level of the national economy of Ukraine shows that in 2007, 2008, 2011 and 2015 was the largest funding for the acquisition of new technologies (respectively 328.4 million UAH; 421.8 million UAH; 324.7 million UAH; 84.9 million UAH).

The factor X_{18_am} which is the purchase of machinery equipment and software in the national economy also had the highest figures in 2007, 2008, 2011, 2015 and 2016 (respectively, 7441.2 million UAH; 7664.8 million UAH; 10489.1 million UAH; 11141.3 million UAH; 19829.0 million UAH).

The influence of the above-mentioned factors led to maximum values of labour productivity index at the level of the national economy (IY) in the same period, so in 2007 – 1.313; in 2011 – 1.201; in 2015 – 1.377.

Next group of factors "Use of working time" at the levels of the national economy of Ukraine and Kirovohrad region should be considered with the help of indices (Fig. 7 and Fig.8). During the period of 2008-2015 in 2009, labour productivity index at the level of the national economy was the lowest and amounted to $IY = 1.001$, which was influenced by rapid growth of the index of the indicator of losses of working time fund by 207.45% ($IX_{19} - 3.074$). Among the reasons for the increase in loss of working time in 2009 should be noted an increase in time due to absenteeism due to transfer to a reduced working day or week by 238.5% ($IX_{24} - 3.385$) and an increase in time due to absenteeism with the permission of administration by 66.7 % ($IX_{23} - 1.667$). The result of the loss of working time in 2009 was the global financial and economic crisis of 2008-2009.

Among factors influencing the increase in labour productivity index at the level of the national economy in 2011 ($IY - 1.201$); 2014 ($IY - 1.223$) and 2015 ($IY - 1.377$) are the following, where there was a decrease in loss of working time compared to 2008:

- due to annual leave IX_{20} (in 2010 by 1.2%; in 2015 - 2.4%);
- due to temporary disability status IX_{21} (in 2011 by 12.0%; in 2014 - 9.5%);
- due to studies, vacations and other absences IX_{22} (in 2011 by 27.3%; in 2015 - 9.1%);
- due to absences in connection with the transfer to a reduced working day or week IX_{24} (in 2011 by 45.5%; in 2015 - 15.4%).

The influence of the factors "Use of working time" on labour productivity at the level of Kirovohrad region has the same patterns as at the level of the national economy of Ukraine.

Fig. 7. The Use of Working Time at the Level of the National Economy During 2008-2015

Source: own study based on State Statistics Service of Ukraine (2020).

Fig. 8. Use of Working Time at the Level of Kirovohrad Region During 2008-2015

Source: own study based on Main Department of Statistics in Kirovohrad region (2020)

Thus, for the period of 2008-2015 in 2009 the index of labour productivity at the level of Kirovohrad region was the lowest and amounted to $IY = 1.018$.

This was influenced by rapid growth of the index of the coefficient of the loss of working time by 240.0% ($IX_{19} - 3.4$). Among the reasons for the increase in working time losses in 2009 should be noted the increase in time due to absenteeism due to transfer to a reduced working day or week by 166.7% ($IX_{24} - 2.667$) and an increase in time due to absenteeism with the permission of administration by 25.0 % ($IX_{23} - 1.250$).

This year was an exception to identify patterns in connection with the global financial and economic crisis of 2008-2009.

Among factors influencing the increase in labour productivity index at the level of Kirovohrad region in 2011 ($IY - 1.267$); 2014 ($IY - 1.261$) and 2015 ($IY - 1.352$) are the following, where there was a decrease in loss of working time compared to 2008:

- due to annual leave IX_{20} (in 2011 by 1.3%; in 2015 - 1.3%);
- due to temporary disability status IX_{21} (in 2011 by 12.0%, in 2015 - 5.0%);
- due to studies, vacations and other absences IX_{22} (in 2011 by 25.0%; in 2015 - 22.2%);
- due to absences with the permission of administration IX_{23} (in 2013 by 16.7%);
- due to absences in connection with transfer to a reduced working day or week IX_{24} (in 2011 by 26.3%; in 2015 - 20.0%).

Thus, reducing the loss of working time for reasons that do not depend on the workforce, is a reserve to increase production, which does not require additional investment and allows getting a quick return.

The study of the influence of the factors "Composition of the payroll budget" on labour productivity at the levels of the national economy of Ukraine and Kirovohrad region should be considered with the help of indices.

During 2008-2018, labour productivity index at the level of the national economy (IY) had minimal values. So in 2009 it was 1.001 and in 2013 it was 1.041. Accordingly, during this period there was a decrease in incentive and compensation payments (IX_{27}) by 8.6% in 2009 and by 2.0% in 2013; reduction of additional wages in the payroll budget (IX_{26}) by 0.6% in 2009 and basic wages in the payroll budget (IX_{25}) by 1.2% in 2013.

Labour productivity index at the level of Kirovohrad region (IY) in the period of 2008-2018 had the lowest values, in 2009 – 1.018 and in 2012 – 1.099 respectively. Thus, such a decline was also caused by a decrease in incentive and compensation payments (IX_{27}) by 12.9% and additional wages in payroll budget (IX_{26}) by 0.2% in 2009 and by 2.6% in 2012.

There were natural trends in increasing labour productivity at the level of the national economy with the growth of additional wages in payroll budget (IX_{26}) in 2011 by 1.8%; in 2014 – 3.0%; in 2015 – 9.4%; in 2017 – 1.5% and an increase in incentive and compensation payments (IX_{27}) in 2010 by 7.4%; in 2014 – 15.6%; in 2017 – 14.3%. The increase in labour productivity at the level of Kirovohrad region was also

influenced by the growth of additional wages in payroll budget (IX_{26}) in 2011 by 1.0%; in 2014 – 3.0%; in 2015 – 13.1%; in 2018 – 3.9%.

The factor of instability of economic development, both at the levels of the national economy of Ukraine and Kirovohrad region is that the growth rate of the average monthly wage exceeded the growth rate of labour productivity. Thus, labour productivity index at the level of the national economy (IY) in 2009 was 1.001; in 2012 – 1.079; in 2013 – 1.041; in 2016 – 1.212; in 2017 – 1.260 and in 2018 – 1.178. At the same time, the index of the average monthly nominal wage per employee (IX_{29}) in 2009 was 1.055; in 2012 – 1.149; in 2013 – 1.079; in 2016 – 1.236; in 2017 – 1.371 and in 2018 – 1.248. Labour productivity index at the level of Kirovohrad region (IY) in 2009 amounted to 1.018; in 2012 – 1.099; in 2017 – 1.149 and in 2018 – 1.203 and had a reduced difference between the indices of the average monthly nominal wage per employee (IX_{29}), which amounted to 1.076 in 2009; in 2012 – 1.149; in 2017 – 1.457 and in 2018 – 1.242.

Constant excess of wages over productivity, in particular the average monthly wage, leads to a disparity between social and macroeconomic indicators. Under conditions of outpacing growth of labour productivity, certain accumulations are necessary for the development of production and production of competitive products, meeting socio-economic needs of staff (Turchina, 2013).

In the study of the group of factors "Formation and use of personnel" on the growth of labour productivity at the level of the national economy for 2005-2018 (Fig. 9 and Fig. 10), the most influential are the following (Chernushkina, 2013); Yarchuk, Sinyaeva, 2014):

- the index of the coefficient "Advanced training of the average number of full-time employees" (IX_{32}) had a tendency to increase in 2007 by 7.9%, in 2010 – 5.0%, in 2011 – 5.6%;

- the index of the coefficient "Trained to new professions in relation to the average number of full-time employees" (IX_{36}) also had a growth dynamics, so in 2007 by 2.8%, in 2010 – 2.4%, in 2011 – 8.3% (due to the abolition of the Form № 6-PV (annual) "Report on the number of employees, their quality and professional training", The Order of the State Statistics Service №260 dated 30.09.2015, further to study the impact of training and education to new professions in relation to the average number of full-time employees on labour productivity (since 2015 and to date there is no possibility);

- index of the share of the employed population with full higher education (Master's degree or qualification level of Specialist) (IX_{31}) increased in 2006 by 3.7%, in 2007 by 2.9%, in 2010 by 4.5%, in 2014 by 11.8%, in 2015 - 2.4%, in 2017 - 2.3%, which increased labour productivity at the level of the national economy;

- index of the share of the employed population with basic higher education (Bachelor's degree) (IX_{30}) reached its maximum values and increased in 2010 by 23.8%, in 2014 - 19.1%, in 2015 - 9.1%, which also ensured growth of labour productivity.

Fig. 9. Composition of Payroll Budget at the Level of the National Economy During 2008-2018

Source: own study based on State Statistics Service of Ukraine (2020).

Fig. 10. Composition of Payroll Budget at the Level of Kirovohrad Region During 2008-2018.

Source: own study based on Main Department of Statistics in Kirovohrad region (2020).

At the level of Kirovohrad region, factors that ensured the increase in labour productivity during 2005-2018 were the same as at the national level from the group "Formation and use of personnel":

- index of the coefficient of advanced training of the average number of full-time employees (IX_{32}) tended to increase in 2006 by 11.9%, in 2007 – 8.6%, in 2011 – 7.9%, in 2014 – 3.7%;

- index of the coefficient "Trained in new professions in relation to the average number of full-time employees" (IX_{36}) also had a growth dynamics, so in 2008 by 6.0%, in 2011 – 25.5%, in 2013 – 35.0%;

- index of the share of the employed population with a complete higher education (Master's degree or qualification level of Specialist) (IX_{31}) increased in 2007 by 2.9%, in 2008 by 0.6%, in 2010 by 9.5%, in 2014 by 12.7%, in 2015 by 9.9% and in 2018 by 5.0%.

- index of the share of the employed population with basic higher education (Bachelor's degree) (IX_{30}) increased in 2010 by 23.8%, in 2013 – 19.1%, in 2015 – 9.1%, in 2017 – 33.6%, which also ensured the growth of labour productivity.

- index of the share of the employed population with basic higher education (Bachelor's degree) (IX_{30}) increased in 2010 by 23.8%, in 2013 – 19.1%, in 2015 – 9.1%, in 2017 – 33.6%, which also ensured the growth of labour productivity.

At the level of Kirovohrad region, factors that ensured the increase in labour productivity during 2005-2018 were the same as at the national level from the group "Formation and use of personnel" (Fig. 11 and Fig. 12):

- index of the coefficient of advanced training of the average number of full-time employees (IX_{32}) tended to increase in 2006 by 11.9%, in 2007 – 8.6%, in 2011 – 7.9%, in 2014 – 3.7%;

- index of the coefficient "Trained in new professions in relation to the average number of full-time employees" (IX_{36}) also had a growth dynamic, so in 2008 by 6.0%, in 2011 – 25.5%, in 2013 – 35.0%;

- index of the share of the employed population with a complete higher education (Master's degree or qualification level of Specialist) (IX_{31}) increased in 2007 by 2.9%, in 2008 by 0.6%, in 2010 by 9.5%, in 2014 by 12.7%, in 2015 by 9.9% and in 2018 by 5.0%.

Fig. 11. Formation and Use of Personnel at the Level of the National Economy During 2005-2018

Source: own study based on State Statistics Service of Ukraine (2020).

Fig. 12. Formation and Use of Personnel at the Level of Kirovohrad region for 2005-2018

Source: own study based on Main Department of Statistics in Kirovohrad region (2020).

CONCLUSIONS

1. The results of the research have shown that at macro-, mesoeconomic levels there are significant reserves for labour productivity growth by increasing technical level of production, efficient investment and innovation activities, improving the use of working time with minimizing losses, changes in production, labour and management, material incentives and raising educational and qualification levels.

2. It is established that in the group of factors "The state of use of fixed capital (FC)" are those that increase labour productivity. Particularly, "Renewal coefficient of fixed assets in the economy of Ukraine" during 2010-2018 increased by 1.9 percentage points, and the average for this period was 5.8%. In 2015, maximum values of the indices of the coefficient of renewal IX_6 were recorded at 6.670 and labour productivity IY at 1.377, which indicates the impact of technical and technological renewal on the quantity and quality of products and services. The use of more productive and reliable means of labour, increasing technical level of production and the use of production capacity, increasing output and improving product quality provides increase in labour productivity.

3. It is proved that in the group of factors "Investment activity" one of the powerful reserves to increase labour productivity is the direction of investment in intangible assets of fixed capital. Thus, the coefficient of intellectualization of fixed capital investments at the level of the national economy of Ukraine for the last 14 years has a positive impact. For example, in 2005 it was 3.2%, and in 2018 – 7.0%, that is there is an increase of 3.8 percentage points. At the level of Kirovohrad region X_{15} it increased by 0.2 percentage points from 1.0% (2005) to 1.2% (2018).

4. It is established that in the group of factors "Innovative activity" the influence on increase of labour productivity during 2005-2018 has X_{18_te} which is the total volume of expenses for innovative activity that at the level of national economy of Ukraine grew by 111.8%, and at the level of Kirovohrad region – by 348.8%. Namely, the acquisition of new technologies (acquisition of other external knowledge) at the level of the national economy of Ukraine shows that in 2007, 2008, 2011 and 2015 there was the largest funding (respectively 328.4 million UAH; 421.8 million UAH; 324.7 million UAH; 84.9 million UAH). Purchase of machinery, equipment and software in the national economy also had the highest figures in 2007, 2008, 2011, 2015 and 2016, respectively, 7441.2 million UAH; 7664.8 million UAH; 10489.1 million UAH; 11141.3 million UAH; 19829.0 million UAH, which ensured the growth of labour productivity index at the level of the national economy (IY) in 2007 – 1.313; in 2011 – 1.201; in 2015 – 1.377.

5. It is analyzed that among factors of the group "Use of working time" that affect the increase in labour productivity index at the level of the national economy in 2011 (IY - 1.201); 2014 (IY - 1.223) and 2015 (IY - 1.377) and at the level of Kirovohrad region in 2011 (IY - 1.267); 2014 (IY - 1.261) and 2015 (IY - 1.352) are a reduction in the loss of working time due to annual leave; temporary disability; studies, vacations and other absences; absences with the permission of administration; absences in connection with transfer to a reduced working day or week. Thus, reducing loss of working time for reasons that do not depend on the workforce is

a reserve to increase production, which does not require additional investment and allows getting a quick a return.

6. It is proved that in the group of factors "Composition of the payroll budget" the decrease in incentive and compensation payments (IX_{27}) and additional wages in the payroll budget (IX_{26}) for 2008-2018 led to a decline in labour productivity index at the level of national economy (IY) in 2009 – 1.001 and in 2013 – 1.041 and labour productivity index at the level of Kirovohrad region (IY), respectively, in 2009 – 1.018 and in 2012 – 1.099.

7. It is established that influential factors from the group "Formation and use of personnel" on labour productivity growth at the level of the national economy and at the level of Kirovohrad region for 2005-2018 are: index of the coefficient of advanced training of the average number of full-time employees (IX_{32}); index of the coefficient "Trained in new professions in relation to the average number of full-time employees" (IX_{36}); index of the share of the employed population with a complete higher education (Master's degree or qualification level of Specialist) (IX_{31}) and index of the share of the employed population with a basic higher education (Bachelor's degree) (IX_{30}).

Conflict of interests

The authors declare no conflict of interest.

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THE IMPACT OF KNOWLEDGE MANAGEMENT AND HUMAN RESOURCES STRATEGIES ON THE NEPALESE BANKS' EFFICIENCY

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ABSTRACT

The application of strategic relationship between Knowledge Management and Human Resource Strategy in Banking Industry is a key to achieve organizational competence. The main purpose of this study is to find out relationship between KM and HR Strategy for performance implication in Nepalese commercial banks. Therefore, Strategic relationship between KM and HR strategy for banking performance is found to be poor in practice. So, weak implementation hinders in achieving the desired results. Result of this study clearly exposed that Nepalese Commercial Banks need to determine different profiles of their organizational strategy based on the human resource that has the material impact on an organization. Meanwhile, it need to direct the knowledge management strategy resource which may enable Nepalese banks to achieve competitive advantage. Therefore, future efforts by both policy makers and academicians are still unknown to sharpen the theoretical framework and practical validation.

Key words: *Knowledge management, Human Resource, Strategy, performance, skills, banking industry, Nepal*

JEL classification: G21, J54, E50

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INTRODUCTION

Background

Knowledge management (KM), which has become significant for the corporate sector, has undoubtedly become an important area of the study among academicians and practitioners. It is considered as a valuable strategic asset that can provide proper competitive advantage and nimble agility for company's action-oriented activities (Adell, 2008). In an organizational setting, benefits can occur at two levels: individual and organization (Cong & Pandya, 2003). At the individual level, KM provides employee opportunities to enhance skill and experience. The enrichment happens through working together and sharing with each other knowledge, thereby improving overall personal performance, which leads to better career advancement. KM has been implemented and practiced in both public and private sectors and many accruing benefits have been claimed in the literatures.

In the current competitive environment, knowledge management refers to the process of capturing the collective expertise and intelligence in an organization and to their use in facilitating innovations through continued organizational learning (Nonaka, 1991; Davenport and Prusak, 1998). In the past 20 years, KM has led to new technological improvements as well as developments of new concepts. If used properly, KM can help organizations become more flexible as well as better learning places. KM is expected to improve and create competitive advantages for business enterprises. Present day organizations concentrate on adapting to the concept of knowledge sharing between the different departments an adaptation that help to reduce cost and time, and improve their operational efficiency. Such an objective may be achieved by developing a KM strategy to help the organization maintain or re-establish its competitive thrust. In this sense, this approach focuses on the importance of firms' specific competence in their strategy and performance. But despite the strategic role of overlooked in distinct benefits, the knowledge has been overlooked many knowledge managements projects and initiatives, and KM has been considered by many organizations as a "stand alone" project that is planned, initiated and operated in an isolated environment. There are already a large number of KM activities consciously or unconsciously implemented in organization. Many of these implementations are failures due to the lack of the ability to align KM with the organization in terms of human resource strategies in the form of employee competence and technological resources (Zack, 2002; Maier and Remus, 2002; Smith, 2007; Adhikari, 2010). What this means is that knowledge can exist within five primary contexts that influence how KM initiatives impact on organizational performance. These include strategic context, knowledge context, organizational context, human context, and technological context. An effective use of knowledge to derive competitive advantage can be achieved by a holistic approach that covers knowledge management strategy and human resource strategic factors in terms of employees' knowledge and skill.

A fit among HRM practices in terms of skills and competencies (i.e., interpersonal and communication, leadership, and vocational and professional skills) can augment employee performance and enhance company's core competitive advantages (Stowe, 2010). The importance of HR strategy in terms of skill and capability has been noted. The successful implementation of KM is integral to corporate HR strategies in terms of skills and competences which significantly tell upon organizational member's attitudes, beliefs, values, and overall work systems. It plays an important role in facilitating employee absorption, transfer, sharing and creation of knowledge about organizational goals. Therefore, HR skill and competence in terms of interpersonal and communication, skills, leadership skills and vocational and professional skills affect employees' motives and behaviors towards work and performance in participating KM activities in an organization (Chaudhary, 2009). It must be noted that enough exceptions are

attributed to knowledge management and human resource strategies in terms of skills and competencies which are crucial for organizational performance (Adhikari, 2010).

Based on this kind of literature, it is reasonable to assert that in order to facilitate the implementation of KM initiatives and achieve corporate objective, KM strategy must be aligned with HR strategy because managerial skills play a significant role in an organization's effectiveness. Furthermore, it can be also noticed that the knowledge and competence of human resource as valuable assets for firms because of their characteristic of being firm-specific, socially complex and path-dependent (Wright & Snell, 2000). As prior research clearly points out, the ownership type is a key variable affecting strategic alignment practice and organizational performance configurations (Jiang et. al., 2013). Therefore, given these differences, this study assumes different ownership patterns to have different preferences regarding the practice of strategic alignment among KM, and HR strategies to achieve performance.

Moreover, so far as the importance of the application of KM in banking industry is concerned, for last 20 years banks have been actively automating their manual process. This scenario has been changing fast. More efforts and resources are being employed to make automatization, as successful in today's modern banking, information and knowledge are treasured assets. Without proper management information systems, plans, procedures and tools, information has become a very serious and annoying problem in many banks to the extent that most of the time information is regarded as noise. Nonetheless, realizing the important roles they play in the economy, banks are trying to make it a priority to capture and manage their outdated working system and turn it into organizational knowledge or business intelligence (Ali, 2006). The globalization of financial markets has forced bankers to be knowledge-based and be more efficient in managing knowledge in their banking operations. Here it must be mentioned that the application of KM with HR strategic practices in the banking industry does not really differ from those of other industries, but the increasing competition of banking environment makes its implementation quite important (Al-Ammary, 2008; Jyoti et al., 2012; Chalise, 2012; Chaudhary, 2009).

However, so far as Nepalese perspective is concerned, very few studies have been done probe into to strategic alignment perspective between KM and HR strategy for organizational performance in Nepalese settings. This study, which seeks to plug this gap, takes place in the commercial banking sector because of the relevancy of strategic alignment. Therefore, the need of this study turns out to be imperative and it can be highlighted in the Nepalese Commercial banks, the existing real scenario of the current practice and relationship between KM and HR strategies for organizational performance.

Rationale of the study

Knowledge is regarded as a resource to gain competitive advantage. Intense pace of global market competitions, consumers' awareness and technological innovations have made the market place more competitive. So, Nepalese banking organizations need to use and harness their resources not only to sustain themselves in the competitive market but also to achieve competitive advantage and innovation. For this, they require well defined organizational strategy for which they must obtain comprehensive information about how KM strategy is managed and utilized strategically. Only then, they may consolidate strongly their position in the global market. In the era of globalization, a firm's competitiveness depends on its capacity to manage performance through the development of skills and competencies of its employees (Adhikari, 2010).

The literature focusing on the environment of banking industries on the subject of managerial skills in every type of organization is extensive. There is an overwhelming consensus that business-related leadership abilities, interpersonal and communication skills as well as vocational and professional skills and functional abilities remain critically important ingredients for success in managing the banking industry. However, there is strong evidence of concern among practitioners that an exclusive focus on the quantitative analysis, functional specialization and calculative rationality of the "bottom line" may not adequately prepare new managers to be adaptive, collaborative and team builders (Stowe, 2010). It is because every business sector will have to seek, hire and retain highly qualified and professional individuals that have a breadth of knowledge of both business and banking institutions in order to remain competitive. For this purpose, organization must recruit, hire and train individuals that possess a multitude of managerial skills (Hurley & Brewer, 1991).

In the last 100 years, technology has blossomed as never before and as a result, managers often encounter a situation that puts stress and strain on their managerial abilities (Griffiths, 2007). Their inexperience and lack of specific knowledge result into a resounding lack of leadership among organizational professionals. Lack of managerial development and skill often lead to employee frustration, disenfranchisement from the organization, and in some cases retention problem is faced by organization especially in-service sectors like banks. (Weston et al., 2008). An essential determinant of organizational performance is managerial skill relating to leadership, communication, and vocational and professional areas. Furthermore, both knowledge and strategic orientation in organization for an overall performance are influenced by leadership skill, interpersonal skill and communication skill as well as vocational and professional skills. (Shewchuck et al., 2005).

Understanding and implementing KM initiative require the development and nurturance of relationship, awareness and, in general, a common ground amongst organizational members. KM is the systematic and explicit management of knowledge-related activities, practices, programs and policies within enterprises (Wiig, 1999). This approach views knowledge as a process and a complex set of dynamic skills, knowhow, etc. that are constantly changing. This approach tends to view the

"knowledge problem as a management issue. Knowledge management is not simply a matter of managing information, KM is essentially a deeply social process, which must take into account human and social factors" (Clarke & Rollo, 2001; Thomas et al., 2001).

It is clearly noticed that without formal preparation for management and responsibilities as well as lack of skills such as leadership skills, interpersonal and communication skills and vocational and professional skills managers learn by trial and error. This situation results into a frequent mishandling of issues relating to both the employees and the organizations which cause both managers and the employees to become disappointed at the work place, becomes the ultimate casualty organizational performance. The adverse effect has additional bearing on the management of relationship, the clarity of communication, the ability to create working environments and excellence in practices (Stowe, 2010). Literature review on the topic reveals that knowledge management strategies as well as human resource strategy in terms of interpersonal and communication skills, leadership skills and vocational and professional skills are interdependent and they mutually influence on organizational performance (Adhikari, 2010; Stowe, 2010).

Moreover, based on the findings of previous research, there are several examples of strategic alignment practice between KM and HR strategies which have been noted in general and in the banking industry in particular:

- World Bank is one of the important players in KM application. According to World Bank, KM is the latest strategy in increasing organizational competitiveness. An identification of relevant know-how was identified that can then be captured and created into the knowledge base and it is made accessible to all staff. Relevant part of the system is now becoming attainable externally, so that client's partners and stakeholders around the world will be able to have access to the know-how of the organizations. For example, an Indonesian official needed to know the international experience on private sector involvement in vocational training through the help of the human development networks, the relevant task team leader was able to give to the official within a short time frame a comprehensive analysis of the international knowledge and experience (Ali, 2006)
- When Swedish insurance giant, Skandia, expanded its points of sale from 5,000 to 50,000 in less than five years, senior management began looking for a more effective and efficient manner of transferring knowledge and increasing its use throughout its global operations. It has leveraged internal know-how to dramatically reduce start up time for new ventures to seven months, compared to an industry average of seven years (Ali, 2006).
- Bank of Montreal is a leader in customer-centric knowledge-based solution. It is the oldest commercial bank in Canada and in 2019 generated revenues from sales of banking products and

services in the amount of \$25.5 billion¹. This bank wanted to change the status of the traditional knowledge discovery life cycle and capture the potential benefits of improving the efficiency of turning models into production. As a result, during 2000/2001 the Bank of Montreal participated in a multimillion-dollar project that would help make the knowledge discovery process more economical, error-free and faster (Dzinkowski, 2001).

- At the end of 2019, Deutsche Bank is ranked 22nd² in the world in terms of assets - 1450.03 billion and 8th³ in Europe in the same indicator - \$1580.14 billion as of 30.06.2020. It has embraced the strategy of continuous, concentrated corporate learning and intellectual capital branding through its creation of the Deutsche Bank University (DBU). DBU is in initial stage of development, and to a large degree, follows the thinking of what are recognized by industry experts as best practices in developing a corporate university as an umbrella organization for learning (Dzinkowski, 2001).

Tiger Bank, the largest commercial bank in Malaysia, is amenable to the knowledge management. The findings of Ali and Ahmad (2006) suggest that some of the environmental factors that have compelled the bank to go in for knowledge management were: (a) the need to maintain customer knowledge (customer relation management (CRM) (b) competitive intelligence, and (c) service knowledge. Thus, knowledge management initiatives have been found to be important for maintaining the banks' competitive edge as well as their proprietary knowledge.

In Nepal, Nepalese bankers and decision makers are now facing a number of challenges, both national and international. Since 1990, Nepal has been pursuing a number of reform policies. The CRANET survey conducted for the first time in Nepal in 2004 AD in 205 different organizations developments responsibilities indicates some in HR roles and Development of employees' and managers' skills such as interpersonal and communication skills, leadership skill, vocational and professional skills are essential for organizational performance in Nepalese organizations. With the restoration of democracy, the growth of banking sector is much better compared to other sectors. The Government of Nepal has initiated and major reform policy to promote manufacturing and service sectors and their competitive powers. The introduction of liberalization and its reform policy in 1990s and the new industrial policy of 1992 gave an emphasis to deregulation, encouraging competition and placing a reliance on market forces in the allocation of resources.

The government has encouraged domestic and foreign investors through measures such as licensing tax facilities, foreign direct investment (FDI), and other institutional arrangements. The government has also made efforts to encourage private investors to increase investment in the country and to bring in managerial and technical skills, modern technology and foreign capital

¹ <https://www.advratings.com/companies/bank-of-montreal>

² <https://www.advratings.com/banking/top-100-banks>

³ <https://www.advratings.com/banking/top-banks-in-europe>

(Adhikari, 2010). Over the past 20 years, Nepalese banking industries have grown rapidly in terms of business volume and market size (Gautam, 2007). In relation to the service sectors, a recent investigation into the transaction of some public sector banks and private banks shows how these banks have incurred huge losses and face serious challenges due to politically driven, incapable governance, mis-managed workers' union and weak human resource management practice, inadequately skillful workforce and alike (HMG of Nepal, 2000). As far as the productivity of Nepalese banking industries, a bank must be sure of its position in the competitive market and of its HR practices for defending and gaining current market share under complex situation. So, to be effectively sustainable in the market, human resource through knowledge management strategy and its effective application with upgrading capability is required (Chaudhary, 2009). The managers in the Nepalese commercial banks should pay attention to the importance of the different dimensions of knowledge management choices, diverse profiles of knowledge strategy (Chalise, 2012; Chaudhary, 2009). In addition, Nepalese banks, moreover, need to determine different profiles of their organizational strategy based on the human resource that matter the most and then direct the knowledge management strategy resource which may enable Nepalese banks to sustain their competitive advantage.

Therefore, all over the world, banks have realized the crucial role of strategic alignment between KM and HR in gaining an edge in this competitive environment. However, there have been laggards in the adoption of knowledge management usually due to wait and see attitude of what will be the true benefits and pitfalls from early adopters. Keeping these views into consideration, there is a dearth of empirical study in this context Nepal. The Nepalese commercial banks are selected as the more appropriate contexts for the current study. A theoretical model for KM alignment with HR strategy has been built in this study based on the previously published literature on KM strategy (i.e. codification and personalization strategy) perspective and HR strategy in terms of leadership skills, interpersonal and communication skills, professional and vocational skills. Therefore, this study tries to provide new empirical evidence of strategic alignment in the field of KM, the study has a bearing on organizational performance measured in terms of job satisfaction, commitment, individual competence, and market and financial performance.

Survey Output Data

Table 1. The composite table of sample banks, respondents and response rates.

Particulars	Public		Private		Joint Venture		Total
	No.	%	No.	%	No.	%	
Number of Sample Firms	3	14.29	12	57.14	6	28.57	21
Number of Respondents	44	14.62	166	55.15	91	30.23	301
Male Respondents	31	15.58	108	54.27	60	30.15	199
Female Respondents	13	12.75	58	56.86	31	30.39	102
Questionnaire Distributed	64	15.2	242	57.48	115	27.31	421

Number of Questionnaire received	44	14.62	166	55.15	91	30.23	301
Non -Response	20	10.05	76	38.19	24	11.06	199

Source: prepared by the author

The sample banks were selected on stratified basis of on purposive convenience sampling technique rather than just the random sampling. A total of 301 questionnaire was received out of 421. The sample finally incorporated 21 organizations and 301 respondents (44 public, 91 joint venture and 166 private banks. The final sample had a statistical margin of error of ± 5.7 percent with a 95 percent confidence interval. Finally, the sample size of this study included organization as a unit of analysis for collection and analysis of data.

Table 2: Respondents Profile

Number of Banks	Ownership Pattern	Position of Respondents						
		CEO	GM	Dept. Head	Sen. Officer	Officer	Total	%
3	Public	1	2	6	10	25	44	14.62
12	Private Bank	8	10	31	53	64	166	55.15
6	Joint Venture	3	7	15	29	37	91	30.23
	Total	12	19	52	92	126	301	100
	%	3.99	6.31	17.28	30.56	41.86		

Source: prepared by the author

In regard to respondent profile, junior officers followed by senior officers were major participants filling in the questionnaire. Similarly, private non-joint venture banks followed by private joint venture banks were the major participants obtained as sample having 55.15% (private banks) and 30.23% joint venture) banks in Nepal. Therefore, out of the total sample organization 14.62 percent data obtained from public banks, 55.15 from Private Banks. Similarly, 3.99 percent respondents were the CEOs of sample organization. In addition, the views of 6.31 percent of General Managers, 17.28 percent of Department Heads, 30.56 percent of Senior Officers and 41.86 percent of Junior Officers were obtained as potential responses of this study.

Table 3. Internal consistency reliability for the research model scales of knowledge management, business and HR strategies and organizational performance.

Constructs	Reliability (Alpha Value)		Item Deleted
Knowledge Management Strategy	0.865		Q8
Codification Strategy		0.801	Q8
Personalization Strategy		0.857	Q1,2,5
Human Resource Strategy	0.787		Q5, 7,8
Leadership Skills		0.930	-
Interpersonal and Communication Skills		0.757	Q5
Professional and Vocational Skills		0.882	Q6

Organizational Performance	0.78		-
Job Satisfaction		0.738	Q6
Commitment		0.734	Q2,3
Individual Competence		0.841	-
Market and Financial Performance		0.810	-

Source: prepared by the author

RESEARCH METHOD

The research method adopted in the study is a descriptive-cum-exploratory design. A survey-based, selected sample of officer level employee from three categories of Nepalese commercial banks has been used to get answer of the research question and objectives. For this, the research instruments utilized consists of structured questionnaire. Sample organizations and participants have been selected on a purposive convenience sampling technique.

Therefore, based on ownership pattern out of 27 commercial banks, only 21 commercial banks are taken as sample comprising of 3 public banks, 12 private banks and 6 joint venture banks having at least an experience of five years operation. Selected banks have been visited personally for meeting with officers to fill up the questionnaire. Out of 421, only 301 questionnaires have been received and all of them are usable. Therefore, the overall potential response received is 71.49 percent which can be taken as a fair representation of the research population. Furthermore, regarding the tool for testing hypothesis, the questionnaire survey data have been inserted into SPSS version 18, and descriptive statistics include mean and standard deviation t-test and F-test, Spearman rank correlation and multiple regression analysis have been used to analyze and get answer in regard to set research questions. Furthermore, regression analysis D.W.-test and VIF-test were also used.

For each multiple regression analysis, multicollinearity analysis has been examined by computing the variance inflation factors (VIF) for all independent and dependent variables. For five regressions, the highest VIF value is 4.893, which is well below the acceptable cut off value 10. The below of 10 VIF value indicates that multicollinearity does not constitute a problem in regression analysis (Gujrati and Sangeetha, (2010); Jiang, et. al., (2013). Therefore, the decision to proceed with regression analysis in this study is justified.

RESULT AND ANALYSIS

The alignment among business strategy, knowledge management strategy and HR strategy contributes positively ($p < 0.000$, $p < 0.047$ and $p < 0.000$) to overall organizational performance, which explain 57.3% of its total variance (Adjusted $R^2 = 0.573$).

KM strategy, contributes the most to the prediction of job satisfaction. Similarly, the level of employee commitment in Nepalese commercial banks is found at an average level. However, the role of the manager in enhancing their employee's commitment toward job and organization itself requires attention. Moreover, the alignment between KM and HR strategies contribute positively to individual competence for an explanatory

relationship and explain 40.04 of its total variables (Adjusted R² - 0.400). This is a satisfactory level effect. This means the Nepalese banks officers know the benefit of alignment between KM and HR strategies for the development of employees' competencies level: they believe in team work, the delegation of authority, know about different mode of training program and understand about the different approaches of leadership but have less knowledge management practice' about human resource planning and proper way in regard to their business approaches. In respect of market and financial performance, the alignment among Business, KM and HP strategies contributes positively to market and financial performance in Nepalese commercial banks. However, the role of leadership in motivating the subordinates and allocating their necessary resources towards attaining market and financial performance is found to be less attractive. The investment in human capital, IT, infrastructure, R & D program towards product and service quality and innovation require more attention on the part of commercial banks of Nepal.

Table 4. Multiple Regression Analysis, Variable (No - 301) VIF Value - 4 893 < 10

Variable	Models	R ²	Adj. R ²	F-value	P-value	D.W.
DV.YP	$YP = \alpha_0 + \beta_1 X_1 + \beta_2 X_2 + e_1$ $YP = 26.042 + 0.273X_1 + 0.310X_2$ (0.000) (0.000)	0.581	0.578	206.43	0.000	1.803
DV.JS	$YJS = \alpha_0 + \beta_1 X_1 + \beta_2 X_2 + e_1$ $YJS = 2.699 + 0.114X_1 + 0.049X_2$ (0.000) (0.005)	0.353	0.349	81.409	0.000	1.832
DV.YC	$YC = \alpha_0 + \beta_1 X_1 + \beta_2 X_2 + e_1$ $YC = 5.504 + 0.053X_1 + 0.057X_2$ (0.032) (0.000)	0.280	0.275	57.979	0.000	1.687
DV.YIC	$YIC = \alpha_0 + \beta_1 X_1 + \beta_2 X_2 + e_1$ $YIC = 8.352 + 0.067X_1 + 0.100X_2$ (0.044) (0.000)	0.404	0.400	100.85	0.000	1.645
DV.YMFP	$YMFP = \alpha_0 + \beta_1 X_1 + \beta_2 X_2 + e_1$ $YMFP = 12.046 + 0.095X_1 + 0.144X_2$ (0.019) (0.000)	0.421	0.418	108.529	0.000	1.615

Source: prepared by the author

CONCLUSION AND IMPLICATION

Based on the result, the study concludes that KM strategy by itself has been found to be less effective in Nepalese commercial banks. Therefore, the use of KM for increasing market share and financial performance though innovation is still in transition and at a developing stage. Neither the banks have the systematic approach of KM strategy nor do they use appropriate practice for strategic alignment. In addition, Nepalese

banks have policy to improve their employees' capacity to respond to the changing environment and to go for innovation but poor implementation hinders in achieve the desired results. It is clear that the HR professionals do not have the right HRM knowledge and skills required for the job. The alignment between KM and HR strategies for performance is found to be in poor practice in the banking sectors Nepal. Along with the alignment among these predictors, other factors like environmental factors, leadership unions and rewards management are very important ones for attaining higher performance. Job satisfaction among public, joint venture banks employees is not at same level. Joint venture and public employees are found to be more satisfied than their private banks counterparts in Nepal. Apart from salary and benefits, management of private banks provides job security and stability with required autonomy to increase level of satisfaction.

Public banks employees are found to show lower-level commitment towards their job than joint venture and private banks despite being relatively more satisfied. This shows that satisfaction alone does not ensure commitment. Therefore, authorities of Nepalese public banks need to give more attention towards empowering their employees by providing career and job-oriented training efforts, incorporating their feeling expectation, holding regular meeting about their job performance, and alike. The different categories of owners have differential influence on job satisfaction, commitment, individual competence and market and financial performance in Nepal. The result points out that the overall performance depends as a firm's environmental situation, availability of resources, source of innovation, competitive advantage, regulatory procedure, organizational structure, degree of emphasis on R&D, and soon. Managers of Nepalese commercial banks pay less attention towards, empowering their subordinates, meeting their expectation, understanding their internal feelings, regular meetings and proper communication about their job performance. Nepalese commercial banks are highly oriented towards formulation of business strategy and long-term programs to be faced by the bank but less oriented towards designing human resource planning in regard to individual employee competence.

Nepalese Commercial Banks are required to prepare and develop their managerial skills, so that these banks are able to compete with others in competence and productivity. Therefore,

- a long-term policy is required for managing people's knowledge, skills and experience that must be integrated with business objective;
- the officer level staff should be sent to attend competency development programs (CDPs) and workshops so that they have clear idea about their managerial roles in responding future opportunities and challenges;
- the competencies of the Nepalese Banks managers can be strengthened when they are involved by the banks in the decision-making process. Likewise, individual competence can be further enhanced through knowledge sharing culture, training, workshop and CDPs program so that they can easily assess the knowledge and skills as per the needs.

The Nepalese commercial banks should conduct training and seminars on a regular basis to familiarize the employees with the specific objectives of the banks and involve the managers in strategy formulation

process so that they will be able to design proper staffing plans and can take right decisions related to HR issues and practices. Thus, this study provides clear understanding of KM strategy alignment with HR strategy in Nepalese commercial banks and helps to rethink their ideas and methods of managing their tangible and intangible assets. So, the findings of this research provide new vistas for policy makers and academicians to know how important strategic alignment is in the field of knowledge management.

Therefore, future efforts are still required to strengthen the theoretical framework and assess it by empirical validation. Furthermore, this study motivates to all the involved and interested people to understand the importance of human competencies. Therefore, this is considered as a new contribution.

Conflict of interests

The authors declare no conflict of interest.

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INNOVATION CAPABILITY OF WOMEN AND MEN MANAGERS: EVIDENCE FROM KAZAKHSTAN

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ABSTRACT

The relationship between gender and managers' innovation capability is not thoroughly investigated, and the innovator's contribution and men and women's impact on innovation management is not clearly stated in the research literature. Although recent studies have shown a positive impact of gender on organizational innovations, women managers are still considered less innovative compared to their male counterparts. The paper examines an under-researched role of innovators and their genders in managing innovations in organizations and aims at identifying women and men managers' innovation capability in the context of newly emerging economy of Central Asia. The quantitative research method (a multivariate closed questionnaire) was utilized among 224 respondents from Kazakhstani private organizations functioning in extraction, construction, production, energy, service, trade, and education industries. Subordinates assessed their supervisors' (first-line, middle-level, and top managers) innovation capability: stance on innovations, support of subordinates for innovative ideas and activity, and adopting innovations. Linear regression analysis was used for the hypotheses testing and further data assaying. The findings define that women and men managers demonstrate an equally positive attitude towards innovations in organizations but the former outperform the latter in adopting innovations and encouraging employees to innovate. The work lays the ground for further research in the region of Central Asia and emerging countries with dynamic but unstable economic development. The involvement of more women managers in innovations will further a long-term impact on subordinates' satisfaction, dedication to organization and performance. The social implication of the present work lies in increasing executives and senior officials' awareness of the positive effect of gender diversity on organization innovative capability.

Key words: Innovation, Innovation management; Innovation capability, Gender, Women, Men

JEL Classifications: O32; J16; J24; M3; L9.

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INTRODUCTION

Along with enhancing competition and search for sustainable competitive advantage in organizations (Adams et al., 2016), studies on gender and innovation management are significantly growing for the last 15 years (TM & Joseph, 2020). Innovation management is the main contributor to creating sustainable competitive advantage at enterprise (Kassenova et al, 2020) and assumes "the development and implementation of a new idea, including new technology, products, processes, or arrangements" (Na & Shin, 2019: 3). Human capital provides enterprises with new insights leading to different kinds of innovations (TM & Joseph, 2020).

Innovation management relates to manager's behavior and characteristics engendered by a whole range of personal, individual and organizational factors (Arvanitis & Stucki, 2012). The innovation capability of managers is pivotal, as they are responsible for working environments that further creativity, initiative, ideas creation and organizational change. Leaders need to treat their subordinates in a way contributing to a friendly and collaborative atmosphere, teamwork, openness to new experience and readiness to express independent and innovative thoughts (Kariv, 2010).

Notwithstanding recent research has proved a positive effect of gender on an organization's innovativeness (Díaz-García et al., 2013; Colovica & Williams, 2020), women managers are still considered as less innovative compared to men (Nahlinder et al., 2015). Relations between gender and managers' innovative capability are insufficiently studied (TM & Joseph, 2020) and the role of innovators and women and men managers as contributors to innovations are under-researched (Alsos et al., 2013).

Emerging economies attract researcher's attention as an opportunity to gain knowledge on gender and innovations under conditions of an unstable but dynamically growing economy in opposition to the developed economy with low and stable economic growth (Na & Shin, 2019). However, Central Asia is still an underestimated geographical region for gaining new insights in the field (TM & Joseph, 2020).

This paper aims at studying women and men managers' innovation capability in the newly emerging economy with dynamic growth and raw-materials focus. Three elements of innovation capability are scrutinized: managers' attitude to innovations, encouragement of subordinates to innovate, and adopting innovations; relations between managers' genders and their innovation capability are identified.

Literature review

Innovation capability

Innovation performance of an enterprise is influenced by individual resources and capabilities of its managers (Arvanitis & Stucki, 2012; Ruiz-Jimenez et al., 2016a; Kurmanov, Petrova, Suleimenova, 2019; Kurmanov & Petrova, 2019; Kurmanov et al, 2018; Maralov & Petrova, 2019; Petrova & Akhmedyarov, 2019). Manager's innovation capability is a part of general management capability (Ruiz-Jimenez et al., 2016b) and embraces a leader's education, background, knowledge, skills and abilities, and attitude to innovations (Arvanitis & Stucki, 2012).

Creating favorable conditions for innovative thinking and acting and encouragement of subordinates by managers to innovate presents a considerable part of innovation capability (Kariv, 2010). Supportive leadership and encouragement to creativity facilitate innovations in an organization (Peçanha & Godoy, 2014). Women and men inspiring their employees, expressing individual attention to their ideas and supporting their initiatives trigger subordinates' innovative performance (Reuvers et al., 2008). The study among Israeli and Canadian entrepreneurs demonstrates the substantive importance of encouragement for innovations and business performance (Kariv, 2010). Kariv defines no relationship between gender and innovation

management and no correlation between age and managing innovations. Women motivate subordinates for innovative behavior and are characterized as creative, cooperative and communicative (Özmutafa et al., 2015). Females contribute to creating an auspicious atmosphere for innovative environments through effective knowledge management, information processing, and communications (Xie et al., 2020).

An ability to adopt innovations is a consistent element of innovation capability management (Arvanitis & Stucki, 2012) and requires different resources, knowledge and competences from managers. In the process of adopting innovations, managers utilize various strategies including participative leadership (Carvalho & Williams, 2014), innovation leadership (Lazarova, Zhelyazkova & Vazov, 2015), transformational leadership (Reuvers et al., 2008; Zapalska et al., 2015) and networking (Lindberg et al., 2016).

To date, the various female and male social characteristics and social roles existing in different societies have been researched. Some aspects of gender similarities and differences have also been studied in Latvia, in the branches of family, legal, judicial psychology and management. (Badjanova, Ilisko & Petrova, 2018).

The case study of women in Portugal defined female managers used participative leadership style and prior knowledge to adjust to environmental changes (Carvalho & Williams, 2014). The research of Polish women managers uncovered their attachment to transformational leadership style with individual consideration of their subordinates and positive impact of it on employee innovative behavior (Zapalska et al., 2015). The transformational leadership concept includes such elements contributing most to managers' innovation capability as idealized influence and individual consideration (Reuvers et al., 2008). Nonetheless, women are evaluated higher in overall transformational leadership (Saint-Michel, 2018), men managers' transformational behavior has a more significant impact on their followers' innovative performance than the same deeds demonstrated by women managers (Reuvers et al., 2008).

Female managers are open to innovations and new creative ideas (Özmutafa et al., 2015), express a positive attitude to change and facilitate innovations at enterprises (Peçanha & Godoy, 2014). Both female and male managers exhibit an openness to innovations, innovative thinking and creative ideas (Millward & Freeman, 2002). The Malaysian study (Idris, 2009) reports women entrepreneurs to possess good innovative capability reflected in an openness to new insights compared to men and adopt their leadership styles for meeting innovative challenges. Santos et al. (2019) argue female leaders are inclined to new experience via fresh ideas, people and networks that have a positive impact on their business innovations.

The majority of the above-mentioned qualitative studies report in favor of women's better innovation capability or equal to men qualities in this dimension. Hence, studies grounded in quantitative methods have more contradictory findings as they claim both presence and absence of impact of managers' genders on their innovative capabilities (TM et al., 2019).

Strohmeyer et al. (2017) revealed males practice innovations more extensive in breadth and depth compared to female counterparts with the exclusion of lower-innovation industries where both demonstrate the same level of innovative contribution. Link and Hasselt (2019) also reveal men better in innovations compared to

women, particularly, women-owned enterprises are worse in patenting compared to their male counterparts. Presence of a female founder negatively impacts both innovation input and output, and vice-versa exclusively male founders contribute to innovations in organizations better (Protogerou et al., 2017). In innovative industries, male enterprises and businesses are more successful in surviving (Boyer & Blazy, 2014) and gender factor negatively influences correlation between innovation and enterprise's size (Mas-Tur & Ribeiro Soriano, 2014).

On the contrary, Farooq et al. (2019) and TM et al. (2019) elucidate women entrepreneurs positively affect innovations in organizations. Women practice informal competition for raising innovations at their enterprises. Moreover, diversity of research and development teams has a positive effect on the intensity of innovations (Xie et al, 2020).

It must be underlined that differences in women and men's capability to innovations could be caused by gender structuring and construction. Millward and Freeman (2002) identified role expectations about women as actors of adaptation and men as innovators negatively constrain females organizational behaviors (their readiness to take risks and express innovative ideas on public), whereas men's innovative thoughts are more likely to be accepted in organizations. Women managers have less inclination to behave innovatively because of a higher risk to be criticized (Millward & Freeman, 2002). Despite the above-mentioned characteristics (particularly, encouragement of employees and openness to new knowledge and experience) is often associated with women, they are undervalued as innovators in organizations (Peçanha & Godoy, 2014).

Gender and innovations management in emerging economies

Studies on gender and innovations in emerging markets are constantly growing, particularly with a focus on India and China (Kurt & Kurt, 2015; TM et al, 2020). Kazakhstan presents an interesting case of manager's gender and innovation capability being an emerging country with dynamic economic development and raw-materials economics. The Kazakhstani government initiates numerous large-scale state programs to boost innovation in the country and support entrepreneurial innovative projects with training, consulting and finance (Radošević & Myrzakhmet, 2009). However, the country is still characterized as a state at its industrial stage of development, while most developed countries have moved to the innovation stage of their development.

The comparative study of 47 emerging countries including Kazakhstan (Ayyagari et al., 2011) concludes the younger and larger firms with the more access to internal or external finance, led by highly educated, middle-level managers are more innovative. Thus, women enterprises a priori have fewer chances to be innovative because of the majority of female enterprises in Kazakhstan present individual entrepreneurship and small enterprises with rather limited finance and investment opportunities (RK Committee on Statistics, 2020).

The recent cross-cultural study of 30 emerging economies embracing Kazakhstan testifies representation of women among owners has a positive effect on individual innovation, on the contrary, process and composite

innovation does not demonstrate a relationship with females (Na & Shin, 2019). Analysis of the existing research, large cross-cultural studies and papers reviews on gender and innovations has allowed us to conclude on the research gaps:

1. Insufficient studies of gender factor as a key variable in innovations management (Alsos et al., 2013; TM & Joseph, 2020).
2. Notwithstanding a growing number of research on gender and innovation management in emerging markets, there are a few studies focused on Central Asia (Na & Shin, 2019).
3. The deficit of research on women and men managers' innovative capabilities (TM & Joseph, 2020).

As a result of previous studies analysis, three hypotheses have been elaborated to test for gaining knowledge about the relationship between managers' genders and their innovative capabilities:

H1 Women managers are better in encouraging subordinates to innovate.

H2 Women managers are better than men in adopting innovations.

H3 Both men and women managers have a positive attitude towards innovations.

METHODOLOGY

We chose an organizational type of study due to the applied character of management through which managers' innovation capability could be favorably examined (Powell, 2019). A special closed multivariate questionnaire consisting of 40 questions was designed by the authors. The questions were elaborated as a result of the literature review on the topic, special tests proved the validity and reliability of the designed tool (test results are given in the next section). The questionnaire expelled any comparisons between females and males to reduce the possible effect of gender bias in the assessment of managers (Hoyt & Burnette, 2013).

The respondent pool was formed randomly; to decrease managers' pressure on their subordinated staff's answers, we passed questionnaires directly to subordinates working at Kazakhstani private enterprises. The questionnaires were passed to respondents both in a hard copy and by electronic mail (35% and 65% respectively).

Overall 224 respondents from large, medium and small companies located in big Kazakhstani cities (Almaty, Nur-Sultan, and Karagandy) answered about their supervisors. The mean age of respondents constituted 37.1 (from 20 to 70), women represented 53% out of all participants. 224 managers (57% men) from extraction, construction and production, energy, service, trade, and education industries were assessed by their direct subordinates to embrace neutral (trade), female-intensive (education, service) and male-intensive (energy, extraction, construction, production) industries (RK Committee on Statistics, 2020). Inclusion of industries different in level of innovativeness and particularly female intensive sectors aims at closing a gap in the research as the majority of studies in innovation management concentrate in high-technology sectors (Alsos et al., 2013).

The distribution of assessed managers along the age continuum was uneven due to the retirement age 60 for females and 63 for males and limited career progress at an early age: 15 supervisors were at the age of 20-30, 56 - at the age of 31-40, 113 - at the age of 41-50, 28 - at the age of 51-60, and 12 supervisors - at the age of 61-70. The majority of assessed managers (47%) are middle managers, 33% are top managers, and 20% - first-line.

Linear regression analysis was used to evaluate the relation between the dependent variable and independent variables via SPSS. We chose this method of data analysis because our study is based on forecasting and research of related relationships. Innovation capability was measured through three key components: a positive attitude towards innovations, encouragement of employees to innovations, and adopting innovations. Gender (women and men) represented an independent variable.

RESULTS

The normality of the data was verified using the statistical package for social sciences SPSS software version 23.0. The strength of the measurement model was ensured by considering the load factor and internal reliability of the structure. Today, as a rule, the Cronbach's alpha coefficient is widely used in research to verify the reliability of measurements, due to its reliability, low cost, practicality, especially in the field of social sciences (Ostrom et al., 2015).

The measurements of the study variables were adapted from previous literature. In the present research, we consider relations of three elements of managers' innovation capability: encouragement of subordinates (ENC), adopting innovations (ADO), and women and men managers' attitude towards innovations (ATT) with the managers' gender (MGen). The report on conducted observations is displayed below in Table 1.

Table 1. Observation Summary Report

Observations	N	%
Valid	224	100,0
Excluded	0	0,0
Total	224	100,0

Source: compiled by the authors

Convergent validity of the instrument is confirmed based on the mean deviation values highlighted by AVE. The discriminant confidence estimation with the extraction of the mean-variance (AVE) was calculated in Excel to which the data from SPSS were uploaded. The values of each measurement, respectively, constituted for the variable ENC 0.706, ADO 0.612, and ATT 0.623. The square root of AVE of all constructions was bigger than its correlation with other constructions, which indicates discriminant confidence.

All questions were tested for Cronbach's alpha and correlations between elements (Table 2).

Table 2. Reliability Statistics

Cronbach's alpha	Cronbach's alpha based on standardized points	Item number
.886	.911	44

Source: Compiled by the authors

In accordance with Table 2, the coefficient of value for this scale is 0.886 with a minimum required level of 0.70; therefore, the internal reliability of the design was proven. Upon verification of the quality of the questionnaire data, we conducted a linear regression analysis of the variables using the ANOVA method for further data analysis and hypothesis testing. First, we analyzed a relation between ENC и MGen (Table 3).

Table 3. ANOVA

Model	Sum of squares	df	Middle square	F	p-value
Regression	29.011	40	.568	1.86	.036 ^b
Remainder	58.984	183	.439		
Total	93.996	223			

Source: Compiled by the authors

In accordance with Table 3, F criterion equals to 1.86, p-value constitutes 0.036 < 0.05, and the determination coefficient (r^2) is 0.957. Therefore, *H1 Women managers are better in encouraging subordinates to innovate* demonstrates has a positive and significant impact and is attested. For the ENC-MGen model, Chi-Square is equal to 29.011, ($p < 0.001$), $df=40$, RMSEA= 0.084, which proves an acceptable model fit. The above-mentioned indicates that the method's system error is not observed in our data.

Further, *H2 Women managers are better than men in adopting innovations* was tested (Table 4).

Table 4. ANOVA

Model	Sum of squares	df	Middle square	F	p-value
Regression	32.826	40	.736	1.94	.074 ^b
Remainder	67.013	183	.403		
Total	104.839	223			

Source: Compiled by the authors

Following Table 4, the relationship between the dependent variable ADO and independent variable MGen has an F-criterion 1.94, p-value 0.074 < 0.05 and the coefficient of determination (r^2) is 0.607. The analysis has testified the *H2* stating *Women managers are better in adopting innovations*. The results of the direct impact analysis show a good fit of the model, all elements were loaded on a single factor. Regression analysis with one factor represents the worst fit for the ADO-MGen model, Chi square= 32.826 ($p < 0.001$), $df=40$,

RMSEA= 0.084, which indicates an acceptable fit for the model. The calculations justify the method's system error does not occur in our data.

Table 5 below represent the relationship between the independent variable ATT and MGen, for which the coefficient of determination r^2 is equal to 0.311. This explains that men and women can relate to innovation by 31.1 % for the dependent variable. F-criterion is 2.06, and p-value constitutes $0.001 < 0.05$ that justifies that the method's system error is not observable in our data.

Table 5. ANOVA

Model	Sum of squares	df	Middle square	F	p-value
Regression	35.164	40	.879	2.060	.001 ^b
Remainder	78.081	183	.427		
Total	113.246	223			

Source: Compiled by the authors

As can be seen in Table 5, Chi-Square equals to 35.164 ($p < 0.001$), $df=40$, RMSEA= 0.073, that proves the model meets the requirements. *H3 Both men and women managers have a positive attitude towards innovations* has been attested. Thus, the findings confirm all three hypotheses initially formulated by us and indicate men and women managers' positive attitude towards innovations and women better motivation of subordinates for innovating along with adopting innovations.

DISCUSSION AND CONCLUSIONS

The topic of gender and innovations demonstrating an increasing research interest driven by a business search for effective human capital utilization will grow in the next decades. In their turn, emerging economies, particularly, scantily investigated regions of Central Asia characterized mostly by low-tech industries and growing service sectors could be an area of promising discoveries. Hence, a researchers' repetitive call to appeal their eyes on examining gender in low-tech industries might be realised in the context of Central Asian states (TM & Joseph, 2020; Alsos et al., 2013).

The present study supports the idea of women managers' better-adopting innovations compared to men managers that complies with the early research (Reuvers et al., 2008; Carvalho & Williams, 2014; Zapalska et al., 2015; Lindberg et al., 2016). The findings of the present study show women and men have an equally positive attitude towards innovations that is in line with previous research of Millward and Freeman (2002) but in contradiction with a range of existing studies (Idris, 2009; Peçanha & Godoy, 2014; Santos et al., 2019). This discrepancy can be caused by the different research methods applied as we utilized a quantitative research method of comparative study between women and men, while the mentioned-above studies were qualitative with a primary focus on females.

The findings of women managers' better engagement of subordinates to innovate testify the previous research conducted by Özmütfa et al. (2015) and Xie et al. (2020) but disagree with Kariv (2010). This disparity can be explained by TM & Joseph's (2020) observation in their review of research papers: studies of gender and innovations in emerging economies, as a rule, demonstrate a positive relationship between manager's gender and innovations compared with the same findings in Anglo-Saxon countries and the US. This specific observation was not covered in the present research and requires further examination in the future.

Additionally, the nature of an industry may also cause the identified disparity: the inclusion of different industries in our study, many of which are low-tech ones might facilitate women's better assessment. As Strohmeyer et al. (2017) revealed males were better in high-tech sectors of the economy, whereas there was no difference between females and males' innovative contribution in lower-innovation industries.

This paper lays an initial ground to gender and innovation studies in Central Asia, as Anglo-Saxon and US research is solely unable to fully explain gender and innovations in Asia (Kemppainen, 2019) and the results gained in the latter countries must not be directly extrapolated to the other geographic regions. However, the present study has several limitations. First, only three elements of managers' innovation capability are engaged. Second, the possible influence of socio-cultural aspects such as gender stereotypes and gender bias were not covered by the study. Third, the study is aimed at searching differences/ similarities between men and women. Examining differences/similarities between genders, we are aware of possible gender-biased discourse of femininity and masculinity. For reducing this research bias, we emphasize the possible influence of gendered organizational policies and environments and "gendered construction of innovations" on our respondents' answers (Alsos et al., 2013: 241). Gender stereotypes and gender bias create obstacles for adequate assessment of women and men managers in organizations (Nahlinder et al., 2015; Lipovka & Buzady, 2020) and gendered labour market and innovativeness of industries influences females and males' capabilities to innovate (Strohmeyer et al., 2017).

The social implication of this study lies in raising awareness of governors and decision-makers of the gender composition in management teams' influence on the innovative capability of the whole organization. Notwithstanding an equally positive attitude towards innovations by men and women, the latter could build work environments rather motivating their subordinates' innovative performance. Gender diversity of managers in organizations will have a double positive effect as women prefer to build ties with women, while men are inclined to cooperate with men (Mendoza-Silva, 2021) and female subordinates perform better in innovations under female managers' supervision (Bednar et al., 2019). Thus, the involvement of women in innovation management will provide a long-term impact on employees' motivation, commitment and performance at enterprises.

Conflict of Interest:

The authors declare that there is no conflict of interest.

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THEORETICAL AND APPLIED ASPECTS OF BASIC R&D DURING THE PERIOD OF TRANSITION TO POST-INDUSTRIAL KNOWLEDGE ECONOMY

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ABSTRACT

The subject of the study are theoretical and applied aspects of the implementation of fundamental R&D (FR&D), the essence of which is the constant expansion of resources of social consumption and the formation of high-risk sources of increasing the level of collective well-being; promoting consolidated and sustainable development; management of the design and structure of a complex of unprocessed assets of national wealth, produced by real sector of national economy goods / services provided by social sector of national economy, material and intangible values with a high potential of value added production; formation of high-tech services based on the use of basic concepts and satisfaction of consumer expectations in them; development of logically justified format of fundamental science theory, renewal and use of fundamental science knowledge, concepts and sensual-figurative models of the world's science picture with opportunities for further use in public practice; increasing the level of trust and reciprocity, improving the physical and psychological well-being of members of network communities by setting up relations of understanding and mutual support of carriers of values of social and scientific capital – participants in the processes of forming the intellectual potential of local social networks of institutional agents of the post-industrial knowledge economy.

The research method is to summarize the theoretical and applied aspects of the modern stage of FR&D's implementation in cognitive society, which is associated with a critical analysis of the results of theoretical research in the field of gnoseology, as well as the study of features of the implementation of applied theories of changing the scientific paradigms of leading scientists of our time.

The result of the study is the formation of an integrated approach to the implementation FR&D in the context of a direct transition to the post-industrial knowledge economy.

The definition of the need for the implementation of FR&D as an emotional state capable of creative social group of research scientists and society as a whole is formulated, which expresses dependence on the objective content of conditions of existence and development and acts as a source of various forms of activity in the public interest. The potential of FR&D's implementation is defined as the ability to intensify the processes of purposeful, costly, long-term nonlinear, multi-stage and cumulative learning, which leads to interactive, technologically specialized and culturally determined constant innovation activities of research universities with the subsequent receipt of market advantages.

Key words: *fundamental R&D, cognitive society, need for the implementation of FR&D, potential of FR&D's implementation*

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INTRODUCTION.

Fundamental scientific research (FR&D) – primary surveys, experimental or theoretical works carried out by curiosity driven research in order to obtain new knowledge about the fundamental properties of phenomena

and observed facts without any specific purpose of application, which are regarded as pure public good (Oslo manual, 2005).

Rapid and irreversible transformation of traditional industrial society into a globalized post-industrial, accelerated and emphasized saturation with high-tech elements of dominant technological processes, further improvement of the level and quality of collective and personal well-being of stakeholders clustered innovatively oriented ecosystems objectively associated with the transformation FR&D from a kind of peripheral elitist activity to the main focus of the development of postmodern cognitive society.

The ancient period of FR&D instinct is associated with the introduction of the practice of critical discussion of conditions for obtaining true knowledge with the central problem of passive relation between compulsory, stable, objective knowledge (in compulsory unity with its subject) and problematic knowledge, including correct, as well as illusory, false, unreliable, truth and delusion. The absence of a fundamental logical contrast between the subject and the object of cognitive activity is associated with the fact that the theory of cognition (ToC) exists for ancient thinkers only in connection with the task of constructing a picture of space. Development of the theory of cognition in the New Time, which was associated with the search for absolutely reliable knowledge, updating the paradigm of the FR&D during the XVII-XVIII centuries. explained by the fact that at this time the first roles are the need to limit the substantiation of the entire set of accumulated knowledge, their assessment according to the degree of truth. Analysis of problems of cognition theory in the philosophy of the twentieth century is characterized by a number of features. Marxist-Leninist current of philosophy one of its sources declared classical German. The fundamental difference between dialectical materialism (Marx-Engels line) and gnoseological idealism (Kant-Hegel line) in matters of development of the theory of cognition, which is directly related to the organization of the FR&D, is observed in the following elements:

- the material world is recognizable, the objective reality exists outside and regardless of consciousness, in general the world is gnostic;
- dialectic materialism considers ontological and gnoseological aspects of philosophical problems in their unity – dialectics, logic and theory of cognition are the only ones;
- the essence and nature of cognition are social in nature and cannot be understood in isolation from subject-practical activities;
- the confrontation to idealistic and metaphysically interpreted sensationalism is declared, the irredience of real cognition to simple summation or mechanistic transformation of sensational data is emphasized;
- empirical data operated by science are formed in the process of using theoretical provisions to describe the content of sensory experience and involves a number of theoretical idealizations that should simultaneously be understood as a moment of active practical sensual and subjective activity;
- theoretical thinking is guided by the reproduction of the object of cognition by ascent techniques from abstract to specific, inextricably linked with the principles of unity of logical and historical, analysis and synthesis;

- categories and laws of materialistic dialectics are not only forming of reflection of objective reality, but also methodological principles of scientific and theoretical activity;
- cognitive process is considered not so much in the form in which the individual is carried out in the head, so much in the form of a socio-historical process of knowledge development;
- the use of the dialectical-materialistic principle of Historicism is combined with the recognition of the specific historical nature of the basics of knowledge, is a means of overcoming Gnoseological relativism, the development of the doctrine of the dialectic of absolute and relative truth;
- social practice acts as the basis, the purpose of knowledge, the criterion of truth;
- theory of cognition $\neq$ the theory of reflection, the process of cognition proceeds not in the form of passive monitoring from the outside of these objects, but in the form of a number of ideal actions organized into the system, operations that form some ideal objects that serve as a means for cognitive assimilation, reflection of the objective world;
- the process of human reflection is inextricably linked with the processes of material and ideal creativity;
- theory of cognition is not methane science, theoretical and cognitive interpreting of science begins where theoretical structures are interpreted in terms of correspondence of reality, truth, ability to grant the status of existence to used abstract objects, to evaluate as analytical or synthetic statements of this scientific sphere;
- gnoseological interpreting of specific scientific theories acts, on the one hand, as the application of general principles of cognition theory to the analysis of specific cases, on the other – as a kind of assimilation of new scientific results for clarification, sometimes viewing some common gnoseological postulates. Development may require a new gnoseological interpretation of scientific theories (Marx & Engels, 1969; Engels, 1985; Engels, 2013).

METHODOLOGY.

The research methodology focuses on the generalization of theoretical and applied aspects of the modern stage of formation of the basics of FR&D implementation and is associated with a critical analysis of the results of theoretical research in the field of Neocantian "pure gnoseology" identifying philosophy with the theory of cognition (Bogomolov, 1969); their critics from the camp of transcendental ontologists (Husserl, 1994), empiric psychologists (Frank, 2007); representatives of the conglomerate of idealistic empiricism and ontology – empirical critics, English neo-realists, "sensibulists", American neo-realists (James & Russel, 2000; Bogomolov, 1962); linguistic analysts (Gryaznova, 1993); followers of the line: positivism (Narsky, 1961) – neopositivism of scientific logical positivism (Ayer, 1959; Achinstein & Barker, 1969) – linguistic philosophy (Charlesworth, 1959) – the logical pragmatism of the change of truth (instrumentalism, fallibilism, anti-realism, radical empirism, verificationism) (James & Russel, 2000; Dewey, 2001) – post-positivism (Panin, 1981; Carnap, 1971), as well as the implementation of applied theories of changing scientific paradigms and proliferators Karl Raimund Popper, Imre Lakatos, Thomas Samuel Kuhn, Paul Karl Feyerabend.

RESULTS AND DISCUSSION.

Logical positivist, verifier, developer of the theory of probabilistic logic Karl Raimund Popper, on the development of scientific views of which was significantly influenced by the development of Alfred Tarski methodology of deductive sciences (Tarsky, 1948), saw strategic prospects for the development of the field of production of the FR&D (in terms of demarcation of scientific knowledge from unscientific, as well as induction – the advancing of inductive judgments from experience) in the direction and discourse of research of the peculiarities of the development of scientific knowledge (Popper, 2005) in universities as key specific forms of social organization of the process of production of knowledge resources of post-industrial society. According to the author's concept, according to which the existence of a special philosophical method of fundamental science theory (FST) analysis was denied, this recognized the method of any “critical rational discussion”, which provided for a clear problem set and analysis of various proposed solutions.

Applying in practice the post-positivist principle of fallibilis (from lat. *fallibilis* – prone to mistakes, errors) Charles Sanders Peirce, arguing that truth is objective, and knowledge is the nature of assumptions, the scientist simultaneously and, to a certain extent, inconsistently, criticized the concepts that consider universal laws and theory as rules, erect instructions for the withdrawal of single expressions opposed the concepts by which science adequately describes the essence of things (Popper, 1983), while recognizing the ability to make real discoveries through science's research of objective (transsubbiatic) phenomena of reality (Popper, 1956).

An applied result of the practical application of the Popper concept in the field of FR&D implementation can be considered probiliistic (from Lat. *probabilis* – probabilis) style of scientific cognition, the principle of verifying the intermediate interpretation of the truth, belonging of statements about it to empirical science and denial of the suitability of the application of the deterministic method of scientific thinking, the logic of Por Royal (Rene Descartes and Blaise Pascal), metaphysics, psychoanalysis and individual psychology Alfred Adler to substantiate the partial and acceptable value of scientific theories as points in the continuum of inaccuracy and uncertainty (line Hume/Berkeley vs. Bacon/Newton).

Overcoming uncertainty and inauthenticity is possible on the way to adhere to the four-step scientific method Popper, which is obliged to adhere to the developer of FST:

- stage of nomination of the theoretical hypothesis (by intuitive formulation or scientific rethinking of metaphysical idea), which is designed to contribute to solving the problematic situation; stage of preliminary assessment of the courage of the hypothesis, which the researcher drew attention to (has proved its mettle), for further work with it on the basis of falsification criteria, which is directly proportional to the degree of risk; derive from the theoretical hypothesis the consequences that can be checked empirically;
- election among the consequences of those that have a fundamentally new character; conducting experiments on their verification; making a decision on the results of the inspection; comparison of the test results with the consequences of the theory that are being tested;

– deciding on the further use of the hypothesis, the possibility of assigning it the status of an "explanatory theory" on the basis of the principle of "modus tollens" – refusal to identify the context of checking the theory with the context of justification, adopting the theory not because it received a positive experience justification, but because it has not been refuted until now. That is, this theory has not yet been confirmed by the facts, but is temporarily supported (corroborated).

In general, Popper rejects the interpretation of the Francis Bacon method as a set of rules, techniques for obtaining true knowledge, justification of the reliability of the theory.

The method ceases to be a path to truth and is defined only as "our manner of dealing with scientific statements", the convention on scientific research, "the rules of the game in empirical science" (Popper, 2005). At the same time, the following restrictions are imposed on the path of adherence to the meta-corrected formulation of scientific theory as "rules of the highest type of warning against the inadmissibility of falsification", the following restrictions are imposed on "convention strategists":

firstly, the introduction of additional hypotheses is allowed only when they lead not to a reduction in the level of falsification / checking of the theoretical system, but to increase it;

secondly, changes in the definition of concepts are permissible in the case of their usefulness, but they should be considered as reformulation of the theory.

The specifics of the concept of objectivity, desubialization of scientific knowledge, its logical determinism, ability to intersubjective verification, independence from the knowing subject, popper is considered in relation to three pluralistic types of reality – the physical world (the world of physical states); world of states of consciousness (psychological world); world of fundamental science knowledge (FSK) ("world of objective states of thinking") as a set of theoretical systems, problems and problematic situations, critical arguments, the content of magazines, books and libraries.

The idea of his "Structure of Scientific Revolutions" Thomas Samuel Kuhn (2001) simultaneously directed against the theoretical and philosophical position of antihistorism neo-oppositionists and falsification of critical rationalists (line Popper (2002) – Agassi (1968) – methodological postulate on "strong-willed basis" (Willenshintergrund) adoption of the original principles of science H. Albert (Albert, 1987) – pan (general) critical rationalism Bartley (1964) – Schpinner (1978).

The process of paradigm shift, as Kuhn describes, is the goal and content of the cyclical development of science, and the logical sequence of scientific revolutions involves the sequential passage of the stages of formation of the FR&D.

Methodological and practical aspects of the theory of cyclical development of "normal science" T. Kuhn (Kuhn, 2001) have a significant impact on the formation of effective models of organizational and economic mechanism of FR&D regulation, the content of which is envisaged for detailed consideration in the following sections of researches.

The concept of sophisticated falsificationism by critical conventionist Imre Lakatos (Lacatos, 2008), author of the concept of "mature" science as a "methodology of research programs" (MRP), was formed in the critical

development of the post-positivism variant of K. Popper under the influence of another researcher of his creative achievement Agassi (1955).

Overcoming the problem of determining the "quasi-empirical basis" of assessing the capacity of methodological doctrines, I. Lakatos explores the phenomenon of striking stability of non-disparate scientific theories in the usual sense of the word, and the RP to empirical anomalies, proposes to comprehensively consider the facts of the history of science, which demonstrate the constant simultaneous presence of contradictory RP to explain the same set of phenomena. A competitive RP is a series of basic ideas and principles (consisting of four main elements) of theories that evolutionarily change each other.

The first and main element, the core of the program, evidence of the "maturity of science", the main unit of the FSK's translational development, are conventionally agreed and adapted by the professional community of specific scientific and ontological fundamental assumptions that are invariably preserved in the process of further development and implementation of the RP.

The safety belt (the second element) consists of a set of auxiliary hypotheses surrounding the nucleus and taking on the blows of attempts at experience refutations of the RP core. In the process of development of the SE, the protective belt may change, even completely, and the changes themselves are caused by the rules of heuristics of the program.

Negative heuristics (the third element) consists in the implementation of a methodological solution not to assume empirical refutation of the core of the program, the introduction of programs and rules that allow this solution to be implemented. In other words, negative heuristics are designed to reject empirical refutations that "run" on the basis of the "modus tollens" principle from the core of the program to the safety belt. To do this, hypotheses are created in order to explain anomalies, and "modus tollens" is directed at them.

Positive heuristics (the fourth element) consist of a set of rules contributing to the positive development of the RP, as well as "a partially developed set of proposals or hints that indicate how to change, develop debunked program options, modify, refine the debunked protective belt". An important function of positive heuristics is the ability to conduct "planned" studies, to predict possible empirical "anomalies" in advance, to develop refutation processing strategies, to develop/improve hypotheses. The real development of RP is due to the absorption of anomalies according to the rules of positive heuristics.

If conventionalism is assumed in the case of the adoption of the core of the program and both heuristics, then theories are directly conditioned by the nucleus and the rules of the positive. The involvement of these arguments explains the high anti-empirical stability of the theory – arbitrary counterproductive, at least for a certain time, is considered as an anomaly, a possible denial of the theory, and not its final refutation (Bantash, Koval, Bashynska, Kozlovitseva, 2020). That is, the MRP concept allows us to consider the amendments introduced to the theory in accordance with the canons of positive heuristics as its continuous development. A consistent series of theories – stages of development of the same RP.

The search for the criterion of success of the RP, its heuristic value makes it possible to distinguish two fundamentally possible stages of its development. Progressive, in which the main role is played by positive

heuristics, is characterized by an increase in the empirical content of the protective field of auxiliary hypotheses, while theoretical growth, the ability to successfully predict new facts with obvious success, is ahead of the empirical. Regressive, characteristic of which is the focus of efforts not on the development of hypotheses, but on late protection against accidentally open / open with the use of competing RP counterexamples with the help of negative heuristics, has as a result of saturation of the protective belt hypotheses that are weakly related to the hard core. As a result, at the point of such "saturation" of the RP, the protective belt disintegrates, and an alternative one comes to replace it. Unfortunately, and this is recognized by the author himself, the item "saturation" of the RP can be determined only retrospectively. It is fundamentally important to have competing /competing RPs, because only under such conditions the experience begins to act as a decisive factor in their assessment.

The elegance of falsification of the old scientific theory with the advent of a new one is manifested if it meets the following requirements: first, the new one has additional empirical content, provides for new facts that are incredible from the point of view of the old one; secondly, the new theory simultaneously explains all the postulates of the previous one; thirdly, some of the additional content of the new theory is confirmed.

The epistemological approach to describing the structure of the FSK Paul Feyerabend (Feyerabend, 2020) was most fully manifested in the refusal to use his antithesis "empirical – theoretical". The essence of the approach is a creative combination of the provisions of critical rationalism, the scientific position of the late Ludwig Wittgenstein (Wittgenstein, 1969), "scientific materialism" and the ideology of counterculture. In contrast to the hypothetical-deductive model of science and gnoseological cumulativeism (the line of uncritical generalization of the practice of descriptive natural science and the ideal of deductive discretion, simple accumulation of knowledge, adding new to the existing, relatively uniform growth), in the discourse post of positivist criticism of neopositivism, all knowledge, both domestic and scientific, is declared completely dependent on the assimilated philosophical-theoretical setup, moreover, on the worldview and psychological orientation of the subject of knowledge. For these reasons, the evaluation of theoretical knowledge, based solely on its experience verification, is declared unconvinced, and, from the point of view of consistently conducted principles of empiricism itself. "Theoretical realism" blames the experience on excessive "theoretical overload", bias.

Versions of the growth of knowledge by increasing its empirical content (the theory of verification of the reliability of scientific theories based on the coincidence of inductive generalizations William Whewell – I. Lakatos and a rationalistic version of the NonKantians and neopositivist, which interprets the development of knowledge as such a sequence of abstract principles and theoretical explanations, each subsequent element of which includes the previous one, contrasts with the thesis of the inconsistency of Wittgenstein's theories, radical conventionism of Ajdukiewicz K., as well as the dialectical concept of knowledge development.

According to the principle of non-proportionality in the empirical sense (incommensurability of theories), the avtaric FST is not associated with logical relations, use different concepts, methods and means of vision of the world, are not logically comparable, and the choice between them is carried out only on the basis of

worldview and socio-psychological preferences. The history of science is a discrete process that is devoid of continuity, and the scientific community is a disparate group of individuals, attracted to their own theory and not understanding opponents. As a result, logic cannot be the basis of scientific rationality, so it should necessarily include social and psychological dimensions. The methodology of science, which does not have clear criteria for the choice of theory, loses its normative character, is closed with sociology and the history of scientific knowledge.

"Anarchist theory of cognition" is opposed not only to the non-opposition philosophy of science, but also to the theory of K. Popper. As for refuting the latter's approach, since experience cannot testify to "for" or "against" the theory, the concepts of "anomaly" and "counter-contraindation" lose their meaning. According to the author of the concept of "anarchic theory" "... cognition is not a process that approaches some ideal. It is manifested in this case by an ocean of alternatives, the number of which is constantly increasing; each of which encourages others to clarify their points of view, and together they contribute – through the process of competition – to the development of the power of our thinking" (Feyerabend, 1969). Epistematic anarchism also differs from consonant ideas of skepticism and political anarchism.

If the credibility of the experience is redundant, and the procedures of empirical verification of theories are absolutely reliable, after the theory has been verified or fully confirmed, and the experience can no longer threaten it, it is prone to turning into metaphysical dogma. Theoretical and methodological pluralist Feyerabend declares: there are a large number of equal types of knowledge, this circumstance contributes to the growth of knowledge and personality development. The absence of a neutral observation language, in which experience is recorded, is manifested in its dogmatization, "theoretical overload", on the one hand, makes it impossible to form single "metastandards" that allow comparing the ideas about science themselves. Sociological interpretation of cognition, rejection of the concept of truth and objectivity of knowledge, relativity of the criteria of rationality in cognition and activity allows to formulate the basic principles of "anarchist epistemology", which is based on the denial of the universal method of cognition, its incompatibility with creative thinking (Petrova et al., 2020). A good empirist is willing to work with many alternative theories, not just one point of view and "experience" (Feyerabend, 1978).

The means of resisting the stagnation of paradigms, dogmatism (monism) on the way to the development of the FR&D is the introduction of the principle of proliferation. The implementation of the principle is seen in the recognition of the fact of spontaneous development of the process of cognition, chaotic intertletization of all forms of consciousness and activity. The only universal principle of cognition is "anything goes", the essence of which is as follows: (a) a scientist has the right to use any convenient methods and approaches in the process of inventing new theories and methods, since none of them is decisive and unmistakable (the principle of proliferation); (b) it is impossible to succeed unless paradigms are recognized from time to time, despite being incomplete (principle of perseverance).

Denying the traditional principles of verification and falsification, the author emphasizes the importance of psychological conviction, political interference in science as a means of ensuring the progress of knowledge.

Each FST represents a closed world of a group of scientists, so its criticism and refutation are not enough exclusively scientific means. "Irrationality" causes the need to equalize science in rights with other types of human activity (myth-making, occupation of magic) and thereby put an obstacle to scientism (non-critical confidence in the ability of science to solve all social problems, approach to it as a "pure", value-neutral "great science") – in the form of technocratic concepts of the "revolution of scientists" John Kenneth Galbraith (Galbraith, 1985), the concept of "deideologization" of industrial society Daniel Bell (Bell, 1973), neopositivism – as a separate ideology.

The unconditional achievements of Feyerabend's creative work are the idea of theoretical pluralism, "liberal pragmatism", the idea of empirical knowledge dependence on theoretical, the problem of historical conditionality of ideas about science. In relation to pluralism, two of its types differ – theoretical and methodological. If the first is to state the possibility of simultaneous existence of various theoretical systems, then methodological, which is formed on the basis of theoretical, requires the nomination of incomparable theoretical structures in order to develop scientific knowledge, which has characteristic features of the highest quality due to criticality, constant progress, as well as the implementation of normative methodological rules. The comparison is able to provide the choice of the best theory only if a "strict alternative" is formula, even if the sequence of knowledge development is disturbed. "Strict alternative" must meet the requirements: (1) proliferation, which is able to provide knowledge of another species, the creation of an incomparable theory, and not just a cumulative effect, obtaining more complete knowledge within the previous paradigm; (2) to implement the specific anti-instrumentalism of the FST (reality exists regardless of knowledge about it, knowledge is only an image of reality), the ability of the theory to act only as a means of prediction, which in no way reflects reality, while denying its dependence on empirical facts, because it is only a means of personality development, and not a reflection of reality; (3) not based on empirical reproductionism (not to reduce theoretical knowledge to empirical), but rather to reduce empirical knowledge to theory. Knowledge is best studied by analyzing scientific knowledge; since science is completely rational, it is possible a methodology that gives an adequate, independent of external factors, a description of the structure and development of knowledge; delusions in science and methodology should be overcome by special scientific and methodological means.

In general, the characteristic features of the methodological approach in question are: pluralism and cumulativeism in the understanding of knowledge development; realism in interpreting the attitude of knowledge to reality; anti-reductionism in assessing the mutual relationship of empirical and theoretical knowledge.

Although the late Feyerabend's antisecitism and epistemologic radicalism are not compatible with academic philosophy, his ideas are deeply rooted in the modern methodology of science (the absolute negativity of representatives of the Frankfurt School – Horkheimer M., Wiesengrund-Adorno T., Fromm E., Marcuse G., Habermas J, existential dialectics Husserl E., Heidegger M., Gadamer H.), sociology of scientific knowledge (replacing the sociological paradigm of Merton R. (Merton, 1973) "strong sociology paradigm of

knowledge" Barnes B. (Barnes, 1974; Barnes & Shapin, 1979); program "anthropology of knowledge" Yehuda Elkana (Elkana, 1981). Elkana's program "anthropology of knowledge", abandoning logic and methodological models, prefers cultural, hermetic and anthropological methods of knowledge analysis.

The latter proclaims science as a subsystem of culture and recognizes behind it the plurality of incarnations, which are determined by sociocultural and national contexts of origin and development. The author explains the pluralism of science by the influence of three factors: first, the connection of the process of cognition with different systems of scientific metaphysics; secondly, the coexistence of different "social images of science", caused by historical and intercultural differences; thirdly, the direct influence of socio-economic factors, which are different for different countries and epochs, on the nature of scientific institutions and the structure of the scientific community.

CONCLUSION.

FR&D in the context of a direct transition to the post-industrial knowledge economy should be considered as pure social good, characterized by a number of features: (a) the benefit acts as a social, indivisible, total and non-exclusive, indiscriminate, indiscriminate in consumption, noncompetitive, localized to use by the elite scientific community; (b) the benefit is related to mutually agreed advance financing, temporarily uncertain economic effect of use, but potentially capable of its unlimited oculation, expected high potential of value added; (c) the benefit is accompanied by a social effect in the event of use; (d) the benefit is characterized by relatively low costs of restricting access to it for consumers; (e) effective provision and dissemination of benefits occurs with the mixed participation of innovative institutional agents of the national economy; (f) the benefit of using FR&D in the event of publication is indivisively divided across society regardless of whether or not individual representatives want to acquire it.

The need for the implementation of FR&D is an emotional state capable of creative social group of research scientists and society as a whole, which expresses dependence on the objective content of conditions of existence and development and acts as a source of various forms of activity in the public interest. The potential of FR&D implementation is the ability to intensify the processes of purposeful, costly, long-term nonlinear, multi-stage and cumulative learning, which leads to interactive, technologically specialized and culturally determined constant innovation activities of universities with the subsequent receipt of market advantages.

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Conflict of interests

The authors declare no conflict of interest

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LET THERE BE LIGHT ON HER SOUL!

In Memoriam of prof. Milena Tepavicharova

On January 1, 2021, Prof. Dr. Milena Tepavicharova, a lecturer in management and human resources at the Higher School of Security and Economics -Plovdiv (HSSE), suddenly left the world.

Our editorial board lost a dedicated and unique colleague and friend - Prof. Dr. Milena Tepavicharova.

Prof. Dr. Tepavicharova did not spare herself in favor of the cause, impartial in her professional assessments and responsive to colleagues and friends.

We bow before her fighting spirit, courage and kindness!

Prof. Milena Tepavicharova was a wonderful person with a good heart and a smiling soul!

Colleagues and students about her:

It is said that everyone writes the book of his life, and Professor Milena Tepavicharova with her high morals, powerful intellect and great professionalism not only forged her book, but also gave us a crystal example of honor and dignity, nobility and grace, strength, inspiration and beauty.

She drew her strength from faith, hope, and love and gave them to all of us. She was like a mirror for our actions and an open window to the idea of how to embrace the future with pure thoughts!

When we remember the moments with her, we realize what a treasure it was to be our friend and how blessed we are - to be even a small part of her life!

We love you! The stars do not stop shining, and you, like them, remain in our hearts and souls and you will continue to illuminate them forever with your dazzling brilliance!

Let there be light on her soul!

A deep bow!

Prof. DSc. Mariana Petrova

Editor-in-Chief

ACCESS: Access to science, business, innovation in digital economy

THE SONG IS ENDED BUT THE MELODY LINGERS ON¹

Biographical-Item of prof. Dr. Milena Tepavicharova

Our friend and colleague suddenly left us - Prof. Dr. Milena Tepavicharova - progressive thinking and actively contributing to the implementation of educational innovations in the field of education.

In 1997 she completed a master's degree in Music Pedagogy at Plovdiv University "Paisii Hilendarski", and in 2004 she obtained a master's degree in Public Finance at the University of National and World Economy in Sofia.

In 2011 he defended his dissertation on "Human Resources Management in the Agricultural Sector" at the Department of Administration and Management of the Agricultural University - Plovdiv, published the same year.

Since 2009 he has been a lecturer in macro- and microeconomics and human resources management at the HSSE - Plovdiv and actively participates in the construction of the new curricula in the field of economics.

In 2015 she was elected to the academic position "Associate professor" in the scientific specialty "Organization and Management of Production", then she was elected as a Dean of the Scientific and Research Center "Economics and Management" of HSSE-Plovdiv. In 2017 she was elected to the academic position "Professor" of HSSE -Plovdiv, in the field 3. Social, economic and legal sciences, professional field 3.7. "Administration and Management".

Prof. Tepavicharova is the author of 4 monographs, 15 studies, 150 articles and study materials and books, developing basic principles of the organization and strategic management of human resources with a view to their effective improvement. A significant part of her research is in the field of benchmarking, as a tool for increasing the efficiency and competitiveness of business organizations, social entrepreneurship, communication policies, management of the public sector.

Prof. Tepavicharova shares her scientific potential and professionalism with many scientists, both from Bulgaria and Russia, Latvia and Poland. Her publications are available to scientists and are indexed in global scientometric databases, journals with the highest scientific level in Scopus and the Web of science.(6 articles in Scopus, H = 4, 44 citation). She is an author and reviewer in journals with impact factor / rank, including those in the top 10% of those indexed with Q1.

¹ *Irving Berlin*

She works wholeheartedly and diligently with his students, and sincerely rejoices in their successes. It was the students who were until recently the thoughts and deeds of Prof. Milena Tepavicharova.

The Bulgarian scientific circles suffered a heavy loss of one such spiritually rich person with a serious contribution to the development of the science of human resource management, in the popularization of its phenomena and in the transmission of classical management in our time.

A bow to her bright memory!

Prof. PhD. Valentina Nikolova-Alexieva,

Dean of the Faculty of Economics

University of Food Technologies-Plovdiv, Plovdiv, Bulgaria

GUIDELINES FOR AUTHORS

The submission template must be used in a mandatory manner. This journal register in the submission metadata the ORCID iD from authors.

There is no charge of any amount, either in the submission or publication of articles. Editorial team don't receive any fee. In order to maintain this collaborative activity free of charge, we place the target 120 days from the time between the reception and the publication of the articles. For this we adopted the system of continuous flow of publishing with closing of the editions in the months of May, September and January.

Contribution to definition of authorship

The recognition of authorship is based on a substantial contribution, related to the following aspects: (i) designing and delineating the study, analysis and interpretation of the data; (ii) writing or critical review relevant to the intellectual content of the manuscript; (iii) final approval of the version to be published; and (iv) responsibility for all aspects of the work, including ensuring its accuracy and integrity. All those designated as authors must meet the four criteria for authorship, and all those who meet the four criteria should be identified as authors.

At the submission checklist, is required that everyone's participation in the preparation of the manuscript and publicly assume responsibility for its content. At the end of the text of the manuscript, a paragraph should be included with the information on the contribution of each author to its elaboration.

Throughout the text, the international system of units (IS) should be used to indicate measures. The article should have the following structure:

- a) Introduction;**
- b) Materials and Methods;**
- c) Results and Discussion;**
- d) Conclusion or Final Considerations;**
- e) References.**

Other sections and subsections are accepted, such as the Bibliographic Review, however, the above sections are mandatory. The availability of a template for submission aims to standardize the submission format text of the journal, reducing the publishing period, and making possible the scheduled periodicity. The list of references should be presented at the end of the text, in a specific section. Do not use footnotes!

General requirements for submission formatting

The language of the article: English.

The article should be prepared and submitted of the journal in word processing program Microsoft Office Word 2003, in ".doc" format, with tables and figures included in the body of the text.

Section headings should be set in bold.

METADATA

- the author's name, surname (it is obligatory to give the author's name and surname in English according to passport data or any other IDs);
- the author's information (place of work or study, city);
- the title of the article;
- the abstract;
- key words (should not duplicate words from the title of the article);

- [JEL Classification](#);
- e-mail;
- [Identifier ORCID](#);
- references.

REQUIREMENTS FOR THE TEXT FORMATTING

Requirements for the structure of the article (elements with text highlighting):

- general problem statement and its connection with main scientific and practical tasks (Introduction);
- analysis of recent researches and publications, which contain background for solution of the given problem and which the author relies on (Analysis of recent researches and publications);
- highlighting of previously unsettled problem constituent that is a part of the main problem, which the article is dedicated to (Previously unsettled problem constituent);
- formulation of the purpose of the article (Main purpose of the article);
- presentation of the main research material with full argumentation of received scientific results (Results and discussions);
- conclusions of the given research and perspectives for further researches in the given direction (Conclusions and further researches directions);
- References;

Requirements for the article formatting:

- the length of the article is from 10 to 15 pages (8000 words including spaces, but excluding an abstract and references)*;
- page format – A4 format (210 x 297 mm) page;
- page guidelines: top – 25 mm, bottom – 25 mm, left and right – 20 mm.
- Alignment Justify, Line Spacing Single, Paragraph Before 0 pt, After 0 pt, Indentation Right/Left 0 pt.
- Do not use the numbering of pages.
- the article font guidelines: font size – 11-point, font type - Times New Roman, 1,5 line spacing.

Requirements for formatting of the article structural elements:

- JEL Classification (without paragraph indent, semi-bold, centered-alignment): font size – 10-point, font type – Times New Roman;
- the author's name and surname (one line space, without paragraph indent, semi-bold, centered-alignment): font size – 12-point, font type – Times New Roman;
- job of author (without paragraph indent, in italics, centered-alignment): font size – 10-point, font type – Times New Roman, line spacing – 1,5;
- e-mail (without paragraph indent, in italics, centered-alignment): font size – 10-point, font type – Times New Roman;
- the title of the article (one line space, capital letters, without paragraph indent, semi-bold, centered-alignment): font size – 14-point, font type – Times New Roman, line spacing - 1;
- the abstract and key words (one line space, in italics, justified-alignment): font size – 10-point, font type – Times New Roman, line spacing - 1, paragraph indent – 1 cm;
- the text of the article (one line space, justified-alignment): font size – 11-point, font type – Times New Roman, line spacing – 1,5;

* Exceptionally, a smaller volume is allowed for doctoral students, but at least 8 pages

- references: font size – 10-point, font type – Times New Roman, line spacing - 1; Paragraph spacing: before 5pt, after 5 pt;
- identifier ORCID – end of paper (in about the authors), without paragraph indent, left-alignment: font size – 10-point, font type – Times New Roman;
- Author Photo – end of paper (JPG/JPEG format with resolution not less than 300 dpi)

Requirements for formatting the abstract and the author's resume in English (Abstract):

Abstract should be not less than 250 words (not less than 2500 characters), arranged in one column 10 pt, font type – Times New Roman; line spacing - 1.

Background of the research should be explained in few sentences.

Objectives: Objectives of the paper should be clearly stated in 1-2 sentences.

Methods/Approach: Methods used in the paper should be explained in 1-2 sentences.

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- REFERENCES are formatting according to international bibliographical standard APA-2010 style in accordance with the specimen and requirements set on the website of the Journal.
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- The reference be listed alphabetically and names of all authors should be given. Do NOT use "et al." in the list of references!
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