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SYNERGETIC EFFECT FROM INTERDEPENDENCE OF SCIENTIFIC AND EDUCATIONAL ACTIVITIES IN THE FIELD OF ACCOUNTING

A *The issue of Ukrainian education and science in the accounting area is quite popular among a certain circle of experienced local scientists-accountants. However, there is no written article considering the interdependence between the education in accounting and science, which in terms of reforming both of the components of educational and research areas of accounting in Ukraine should be considered as unsatisfactory.*

K *Accounting, standards of education, scientific and research activity.*

СИНЕРГІЙНИЙ ЕФЕКТ ВЗАЄМОЗАЛЕЖНОСТІ НАУКОВОЇ ТА ОСВІТНЬОЇ ДІЯЛЬНОСТІ У СФЕРІ БУХГАЛТЕРСЬКОГО ОБЛІКУ

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A *Питання української освіти і науки у сфері бухгалтерського обліку досить популярні серед певного кола досвідчених вітчизняних вчених-обліковців. Утім, розгляду взаємозалежності облікової освіти і науки не присвячено жодної статті, що в умовах реформування як першої, так і другої складової освітньо-наукової сфери бухгалтерського обліку в Україні слід визнати незадовільним.*

K *Бухгалтерський облік, стандарти освіти, науково-дослідна діяльність.*

СИНЕРГИЧЕСКИЙ ЭФФЕКТ ВЗАИМОЗАВИСИМОСТИ НАУЧНОЙ И ОБРАЗОВАТЕЛЬНОЙ ДЕЯТЕЛЬНОСТИ В СФЕРЕ БУХГАЛТЕРСКОГО УЧЕТА

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A *Вопросы украинского образования и науки в сфере бухгалтерского учета довольно популярны среди определенного круга опытных отечественных ученых-учетчиков. Впрочем, рассмотрению взаимозависимости учетного образования и науки не посвящена ни одна статья, что в условиях реформирования как первой, так и второй составляющей образовательно-научной сферы бухгалтерского учета в Украине следует признать неудовлетворительным.*

K *Бухгалтерский учет, стандарты образования, научно-исследовательская деятельность.*

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Introduction

Both scientific and educational activities of any state in the field of accounting are based on the historical roots (scientific and educational schools), the national mentality and the outlook system of practitioners in accounting. Educational activity has undergone many changes over the past 20 years in Ukraine, mostly for the better. Science is not being behind education, but together they are not ahead of issues and questions of practice. If accountants-practitioners have problems, they need a solution right away – no one can stop daily records and periodic reporting. They need answers right away.

In Ukraine there were many changes in recent years, there were a lot of innovations. New objects of accounting appeared, statements were reformed. In many ways, they refused using systems and models constructed and implemented in the USSR. Sometimes it happened that we refused using the "old" without offering the "new". And sometimes the "new" ones contradicted very strongly the understanding of practitioners and national historical traditions. The most striking example, which is about all accountants of the world at different times – is the application of computer technology in accounting. Virtually all had strong suspicion that one computer will replace 5 or 10 accountants, and they would be fired. However, the practice showed quite different.

Interaction of science and education has to take place to solve practical issues and problems of accounting and reporting. And where do these questions and problems come from? They come from practice. Where do we take the stage for the research? We take from practice. Who is the consumer of our research proposals? Practitioners are. What do we teach students for? For practical activities, as well as scientific. That's a vicious cycle. This article focuses on some issues of interaction between science and education to the needs of practice.

Part 1.

Recently, many researchers in accounting and finance provided definition and interpretation of different notions, including what is an accounting system and its elements. Sometimes they use an expression "national accounting system", reveal its composition and determine the tasks and functions. And some of them get it mixed up with "national system of accounts". Some of them include the regulatory support in accounting system: laws, standards, orders, chart of accounts, instructions, and guidelines. Is this justified, legitimate and has a common sense? That's what governs the organization and performing the accounting from the "top", at the state level, and then it can not affect the very nature of accounting. And how does it relate to the methodology of accounting? If there is no country where there is no law on accounting and financial reporting or the chart of accounts? There is. Do they have no accounting system? Maybe some authors write about the system of organization and regulation of accounting and only in Ukraine, which includes everything they know?

In such a situation, there is a need for scientific justification of the concept of "accounting system", which would compile the prior scientific researches, would help eliminate the possibility of different interpretations and use of inappropriate terms to define this concept.

The issue of determining the nature of the accounting system, method, structure and functions of the accounting system are studied by such scholars as Butynets F.F., Kireytsev G.G., Chumatchenko M.G., Sopko V.V., Holov S.F., Sokolov Y.V. and others.

Any country, where the double entry is used as the basis for the current accounting and plus there is an object (it has to be), methods, techniques, forms, performing technology etc. (the latter three can be different in each country, or even in one), has a system of accounting.

Let's explore the question of the nature of the accounting system as such and its components. The first thing, what is the system? To this end, we give some definitions as reference:

1. The set of objects together with relationships between objects – parts or components of the system – and between their attributes – properties of objects [9].
2. Set of interacting elements that are in relationships and interactions with each other and form a holistic structure [5].
3. The order caused by the regular arrangement of parts, straight series, connected unit or a set of principles underlying a particular doctrine [30].

Of course you can name a lot of quotes, but let's stop since the general understanding is already there. Let's recall only that literally from the Greek a system is a whole, formed from parts. Then, it is logical to assume that in the absence of at least one part (compulsory component) of the whole, it is not a system. And there should be no verbiage: not a complete system, not united system, etc., and even more – the national system.

In practical accounting we are not any different or special then others, just as always, its historical traditions (eg, mandatory availability for use of chart of accounts) and the national currency.

It is necessary to determine simple and clear: absence of one mandatory element (component) means that it is not a system. So let's try to define the elements of the accounting system, without which it is not the system. It should not be confused with the "systematic accounting", which is not the same.

For example, let's consider several reference definitions for "accounting system":

1. The set of elements of the method of accounting that are connected with each other and merging, and provide information on the status and movement of assets, liabilities and obligations of the company, the nature and performance in the same units of measurement [9].
2. Complex of registers on the chosen form of accounting, clustering the analytical accounting registers on primary documents [5]. Here are further definitions of the systems of accounting: single, double, mechanized.

As you can see, there is a lack of uniformity in definitions.

So imagine that currently there is no system of accounting. Let's build it, gradually "stringing" the knowledge and scientific achievements. To do this, imagine the existence of an abstract entity that performs simple financial and business transactions: purchase of raw materials, production, and sale of goods.

If we are the owners of this company, what do we prefer to know about this company and its activities? How much material is left and spent, and how much product is produced as sold and not sold? All the data we need for a specific period of time, relatively month. Data is required in monetary and physical values.

From which system of knowledge we can get this information? We know that from accounting. But what and how the accounting is to "do"? Thanks to the inherent techniques, the required data will be delivered to the owner.

Here we should go from the practical aspects of accounting to accounting as a science that will really help us with further definition of the system.

It is well known that science is a theoretical systematization of objective knowledge of reality. It is known that, at least, the fundamental part of any science is to have the explicit object and method.

Summing up the experience of generations of scientists in accounting, we can assume that the subjects of accounting are: economic resources instruments and transactions in the entity. Some scientists believe that it is necessary to include the source of economic resources.

The components of the subject of accounting are objects (from Latin – matter). In general, it is assumed that the concept of "object" and "matter" are equivalent, but the object of accounting, as a concept, is the part of the matter, its specification. They are divided into three groups: economic resources, their sources, and economic processes.

Method (from the Greek – the way of research, a way of knowing) of accounting is all that allows you to learn the subject of accounting. But what is it more specifically?

Yet is was not possible to provide a single whole, not controversial definition in one sentence on what is the method or methods of accounting, without referring to a set of interrelated research ways and means of knowledge (the current elements of the method).

For several decades, there was always a scientific debate about the definition of a method of accounting. There are even two courses in the approaches to determine the method.

The first course argued that accounting uses the general methodology and exclude the existence of its own unique methodology. There were concepts that reduced all the accounting methodology to modeling.

These statements make sense, since learning a matter in accounting is done mainly through this method to study phenomena and processes, which makes it possible to replace a specific subject (object) of the study with other similar to it, that is due modeling (from French – sculpt, shape). Professor Sokolov cited example of the application of modeling: several people have seen the Earth, but everybody have seen the globe.

Indeed, the models (from Greek – measure) in accounting are created to study and explain the various kinds of phenomena and processes. Let's recall at least with regard to accounting the working capital, the model of B.F. Barrem – in 1721, I.S. Quinet – in 1814, A. Guilbeaux – in 1865, A.P. Rudanovskyi – in 1912.

By the way, way back in the VI century BC in a place what is now called Libya in the ancient city of Magna Leptus on the market square there was a special stone – measure – with several different volume holes carved through in the middle. At each hole there was a schematic representation of a particular product. The holes were filled with different products (wheat, tea, rice, coffee, spices, etc.). Thus traders determined the exchange ratio of the products.

But despite the fact that the simulation is actually widely used in accounting, along with economic and mathematical methods, they are not specific methods

or techniques of accounting method, and serve only as means to describe, interpret schematic images or provide mathematical representation.

That is due to the modeling of accounting, we are able to explore the economic resources and business operations not directly at the enterprise, but being indoors at the accounting office, by building models of economic resources and operations. We do not see the financial and economic activities of the entity, but we see registers with the necessary data about the business objects and transactions, that is precisely what allows us to see the subject of accounting.

But the main task of modeling in accounting, based on the objectives of the study subject, is the most significant display of object's properties or operations that are modeled. This task (the most significant display of object's properties or operations) is achieved using the accounting methods, both static and dynamic. For example, the inventorying – is a dynamic process, inventory description – is a static document, the element of documentation.

Other scholars have argued that the method of accounting is a set of specific techniques and methods (elements of method) to display the objects of accounting. But these latter had a lot of controversial issues on the list of techniques, methods or elements. Some believed that the means (elements) of method are:

- Summarizing the turnover of the objects of accounting in the balance – M.V. Dembinskyi;
- Double entry, accounts, balance – V. Mezencev;
- Basic means (documentation, accounts, double entry, balance) and others (inventory, assessment, calculation and reporting) – P.M. Vasylenko;
- Documentation, inventory, accounts, double entry, evaluation, calculation, balance reporting, modeling – D.I. Pilmenshteyn;
- Documentation, inventory, system of accounts, double entry of processes, balance – P.P. Nimchynov.

Some of them simply denied the methodological role of assessing in accounting. Some believed that if a calculation is a separate discipline, it should not be put on a par with the methods of accounting.

Considering the scientific and theoretical (methodological) aspects of accounting, such an integral element (component) as instructional techniques (induction, deduction, analysis, synthesis, comparison, etc.) should be considered. These instructional techniques of local action are used in the study of objects for more information about the economic resources and the facts, transactions and processes.

Summarizing the above, we can assume that the current accounting as a science has the following:

- Matter: economic resources and operations that take place in the entity;
- Methodology (the same as the basis or theory): the study on methods of learning;
- Method: set of eight elements of method;
- Elements of method: documentation, inventory, assessment, calculation, accounts, double entry, balance, reporting;
- Instructional techniques: induction, deduction, analysis, synthesis, comparison, etc.;
- Method: specification of methods' application.

There is a serious question on what do we call the method? Methodology of accounting, as the study of its methods is the elements of the method, is the instructional techniques, is the techniques, but is there any method or methods in fact?

Perhaps these above, the so called elements of method, are the method of accounting? Who can suggest something else? Perhaps it makes sense to have scientific debate on this issue.

As an alternative, we suggest the following definition: "a method of accounting is a consistent application of the four pairs of methods: documentation and inventory, valuation and costing, accounts and double entry, balance sheet and statements by modeling the object to display the information about it".

If the method is a way to study and the way to learn, the documentation and inventory, assessment and costing, accounts and double entry, balance and accounting – are exactly the ones. There is a clearly defined way (sequence of pairs of methods – structural and logical row) and the very methods of learning identified clearly and specifically. Methodological unity in accounting provides the same display of homogeneous phenomena and processes in the records of accounting.

Another thing is the "double entry". It is not only as a part of the method for us, but something much grander, as an axiom, a principle. Perhaps we should reconsider its classical, scientific and theoretical value. Although, if you consider it to be a principle, the question on existence and use of off-balance sheet accounts will arise. But this is not the most difficult question of the basis of accounting.

Let's return to the accounting system.

Yet among the Ukrainian references the best definition is given by F.F. Butynets [1], "accounting system is a set of elements of the method of accounting, which are connected with each other and..." (see above). This is the real truth, because it is impossible to remove even one component (element) of the system, even theoretically. But, we consider this definition

to be incomplete, so that it does not explain all the components of the system.

Method of accounting as a set of interrelated individual methods involves the use of special methodical and technical tools, needs of a particular technology and accounting. All items of accounting are implemented (manifested) in a particular form – the form of accounting.

The essence of accounting is reflected in its form, which in turn depends on the method of accounting. No matter how the accounting is implemented, manually or by computer, financial and economic activity is displayed by applying the same accounting methods, but in a different form. Accordingly, the results are the same.

Accounting, as a body of knowledge, examines and shows the financial and economic activity, as a system of disparate but related objects (getting income from the sale, repayment of credit, purchase of materials, paying salaries). So accounting, as a system, has an ability to monitor and display a set of disparate objects and relationships between them in a single system of interconnected elements, commensurate with each other.

Thus, we define the elements that must be included in the accounting system:

Methods – documentation, inventorying, assessment, calculation, accounts, double entry, balance, statements.

Technique is a specification of methods' application.

Form – a set of algorithms to process the raw data and obtain effective accounting information using the given technology (definition of form is taken from the textbook of V.F. Palyy and Y.V. Sokolov as the clearest and most comprehensive).

Thus, we can give the following definition: accounting system is methods and the techniques to use them, the form in which it is implemented.

You can also argue the following: the place, where accounting takes place – in public enterprises or in business, in industry, in the banks or in the public organizations – is not important, its nature and principles do not change. The accounting system is the same for all entities, to all types of activities, for all types of ownership.

Part 2.

The processes of globalization and internationalization of the economy interfere the educational activity as well. The latest information technology, the rapid development of distance education made national borders completely transparent to the provision of educational services.

Problems of quality of knowledge and skills of specialists in different areas and sectors of activity are the subject of professional debate. Today, the state is considering education as an important national priority. So, the educational reform creates preconditions for the state and national economy in the twenty-first century.

Changing patterns of higher education due to new requirements of professional competencies are the criteria which determine the employer and the market. Currently, the need for highly skilled professionals with adequate theoretical and practical training substantially increases. International Education Standards (IFAC) 5 "Requirements for experience" determines the competence of professional accountants based on integrating general education, professional education and practical experience. Moreover, in determining the level of professional skills and competencies in International Education Standards (IFAC) 6 "Assessment of professional skills and competence" much attention is devoted to the presence of deep theoretical knowledge and skills to integrate knowledge for different purposes: solving specific or complex tasks, defining options of alternative solutions, distinguish between relevant and irrelevant information.

Strengthening scientific and professional orientation of education requires the implementation of a new paradigm in the current system of financial education. Indeed, the expression "Science without practice is mute, practice without science is blind" is a compelling and irrefutable.

This approach puts the result of training at the first place and involves the preparation of graduates for whom the rule will be the principle of life-long education, which is integrated into professional education. Therefore, the main component of the educational standards of the new generation is educational expertise of graduates who are based not only on the acquired knowledge and skills but their application to specific case studies, based on the research findings.

Today there are many critics of the process of training in accounting and auditing in higher education in Ukraine on economic trends of its quality and compliance with practice [8].

Therefore, the main aim of the educational process at universities in Ukraine in recent years is defined competitive specialist training in accounting for working in the global capital markets and developing career. And the learning process should include a system of knowledge regarding the recognition, measurement, identification of economic and legal, social, labor, environmental and economic relations and systems through the formation of information resources for study and decision-making.

The basis of educational and vocational programs to provide experts in accounting and audit is also put into educational IFAC standards (Fig. 1):

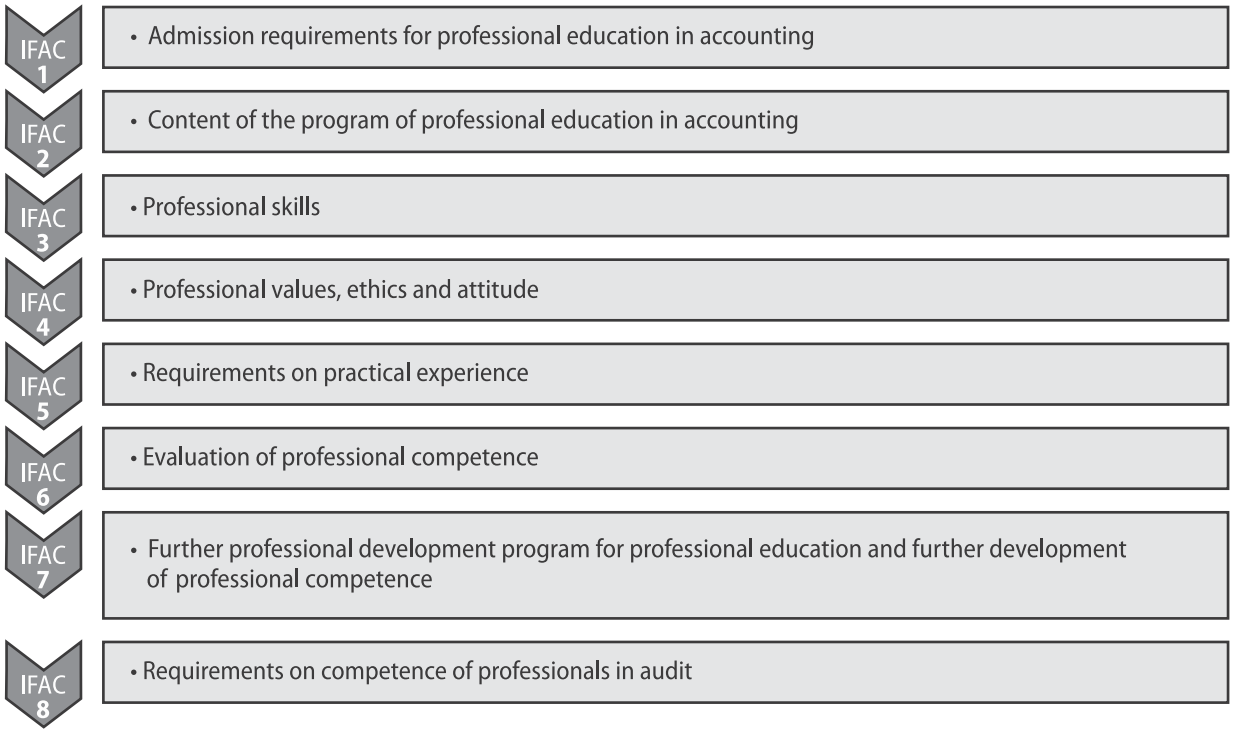

Figure 1. IFAC Education Standards, which are the basis of educational and professional programs to create experts in accounting and audit

Education in higher education institution should include the following elements (Fig. 2):

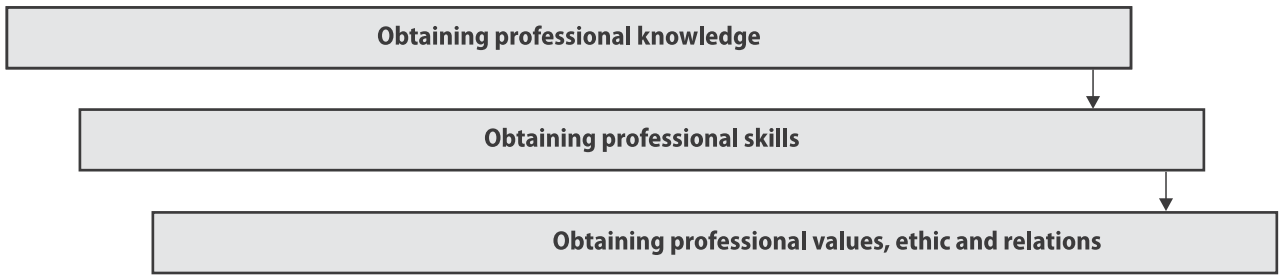

Figure 2. Key elements of the educational process in university

Increased attention of the employer to the individual qualities of graduates in the economy has caused the need to change the model in Ukraine to train specialists in accounting and audit with competency in the qualification [7] (Bondar, 2010).

Definition of professional qualification for graduate student and typical problems of the professional activity in the labor market is a prerequisite for the development of higher education to ensure a minimum level of training and diploma recognition throughout the country.

Competence approach is a way of quality training at the university that does not provide a simple construction of predetermined combinations of information and skills, and is focused on solving the real problems of accounting practice.

However, the development of higher education is possible with the appropriate professional titles of works in the National Classification of occupations for which is determined by the graduate professional qualification, competence and qualifications available at different educational levels (junior specialist, bachelor, specialist, master). The reasons for the development of standards based on education professional competence are provided in Fig. 3.

Development of higher education standards provides a systematic approach to the list of subjects and their content, while stressing the variable components to enable in-depth study of specific to certain industries, the scope of activities of economic agents. Variable component of Master's degree is determined by Master's degree program.

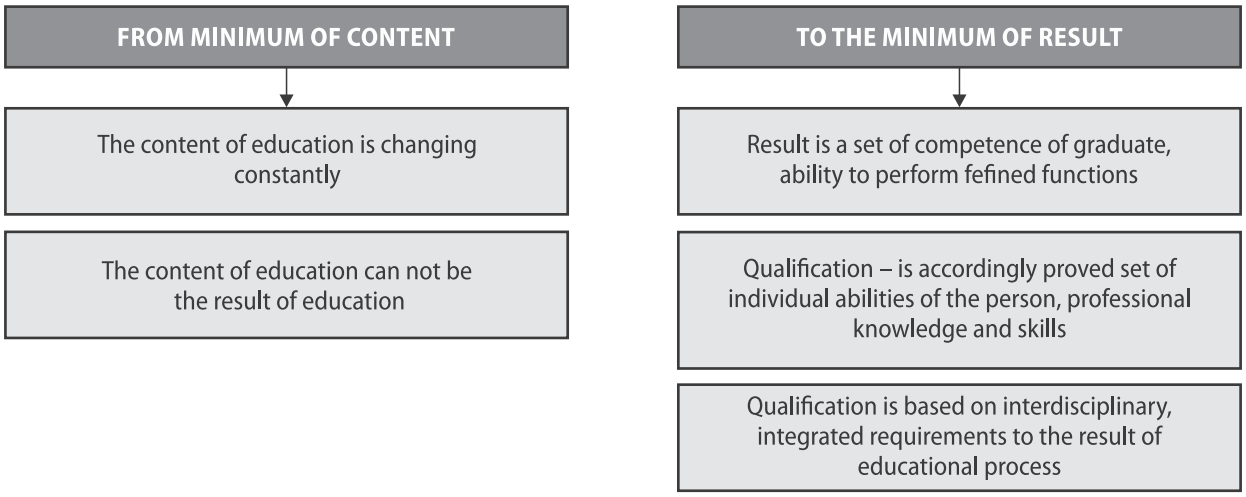

Figure 3. Prerequisites for recognition of professional competence as the basis of educational standards

Strengthening scientific and professional orientation of education requires the implementation of a new paradigm in accounting education. This approach puts the result of training at the first place and involves preparation of graduates for whom the rule will be the principle of life-long education. Therefore, the main component of the educational standards of the new generation is educational expertise of graduates that is based not only on the acquired knowledge and skills but application to specific case studies based on scientific research.

The need to find a new approach to determine the content and organization of the training of accounting and audit in higher education is caused by the following factors:

First, currently a rethinking is required on the current nature of accounting and the recognition of its significant practical importance in business.

Secondly, there is a need to introduce new criteria for training future professionals in accounting and audit, acquiring necessary practical skills for professional activity.

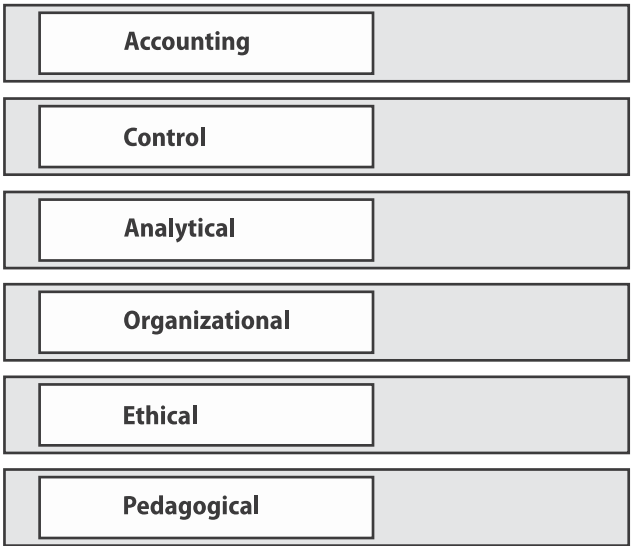

Figure 4. Classes of professional tasks for the formation of a specialist in accounting and audit

In this regard, there is a number of unresolved issues regarding the content and order of teaching core subjects, the result of this instruction is to meet employers' needs. For this purpose, it is advisable to strengthen individual approaches to expand the training of future professionals in accounting and audit, that it can be developed on the best learning technologies and the organization of educational activities. Personalization of student learning in economic university must be considered not only as a purely didactic principle which makes it necessary in learning to see each student as well as the organization of learning activities in which students' individual differences, the level of their learning abilities, involvement in research projects, encouraging progress are taken into account. For this purpose there is a need to strengthen individual approach to training: teaching is not all and everyone. To do this, a teacher must combine scientific work and teaching practice, students interested in non-standard academic tasks that encourage students to their own research.

One of the problems of higher education of different educational levels (junior specialist, bachelor, specialist, master) in accounting and auditing, in cases where enterprises in Ukraine are using national regulations (Accounting Standards (R(S)A) and international Financial Reporting Standards (IFRS). Given the level of professional competence the defined approach to building curriculum, provided that the Bachelor is based on R(S)A and IFRS served them as additional information in the study of basic legal and selective introduction of professional disciplines (eg accounting in foreign countries). Training for master degree is already in compliance with the requirements of IFRS, which are the basis of the study subjects and methods of accounting, financial reporting and audit.

In preparing the Master's degree in Accounting and Audit in a series of professional disciplines for all master's programs, there are four compulsory subjects (Fig. 5) for all master's programs in the specialty.

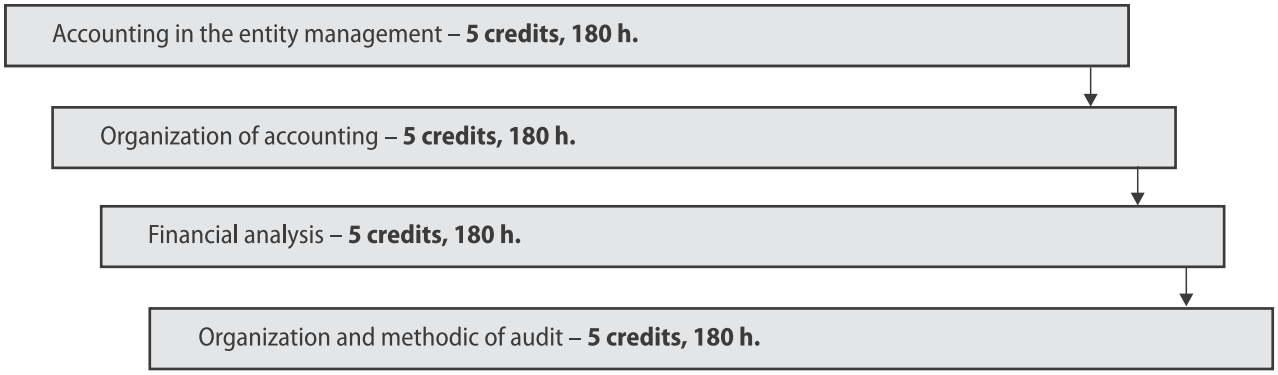

Figure 5. Required professional courses for educational qualification of Master's degree in accounting and audit

Given the increasing gap between the features of accounting and audit in the business structures of various activities, banking institutions and general government sector, it is evident that the master's program must meet the following characteristics. When choosing a master's program student is advised to determine the scope of future operations for in-depth study of the specificity of accounting and audit. This approach provides an improvement of the quality of training, without prejudice to professional competence, retaining the ability to use a unified approach to the formation of the regulatory component of the curriculum.

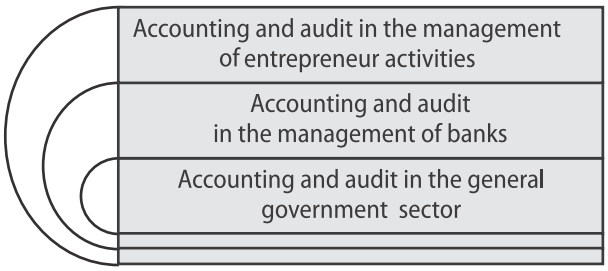

Figure 6. Main Master's degree programs recommended for developing the curriculum in accounting and audit

Today there are no identified approaches to differentiation of tasks of higher education and vocational education, no clear co-operation, which is comprehensively aimed at improving the quality of professionals.

While agreeing with the need for improving the quality of higher education in the field of accounting and audit, it is worth noting the lack of transparency and direction of vocational education. It is because there is no envisaged definition in the improvement of job descriptions, lack of a developed in advance checklist of questions for self check of own competencies and determining the need for further training.

Approaches to the implementation of various professional certifications (CAP, CIPA, ACCA, etc.) are ambiguous. Thus, there is a confusion between low-quality and high-quality in higher education. This is determined by the fact that there are no defined professional competencies that differentiate specialists with higher education and a professional accountant or an auditor. There is no single approach to the requirements of the process of improving the existing skills and vocational training. To this end, there should be national requirements as to higher education and to vocational training, taking into account international experience and the specific economic development.

Let's return again to mutual combination of science and practice, it should be noted the impossibility of separating these concepts, given that education is not only to maintain the existing practical needs, but also to focus on passing through scientific research. To this end, it is appropriate to involve students in educational process together with scientists, practitioners in contractual topics, which results not only in bringing science to practice but also improving the efficiency of collaboration for all participants of the process.

Therefore, enhancing the quality level of training is possible only through a combination of scientific and educational requirements and professional guidance. Strengthening the scientific component of the learning process will enable constructive approach to develop appropriate training in accounting and audit. The combination of these requirements is based on the fact that education should work proactively and practices should coordinate directions of current research.

Part 3.

New searches of humanity in terms of building the information society as a certain stage of industrial society require further intellectualization of economy and recognition of information within the data as a key resource, services, products, sources of added value and employment [36]. Such requirements stipulate

further increasing the role of accounting as an economic activity, the product of which is the traditional basis of information support of all sectors of the economy at the mega-, macro-, meso- and micro-levels. When specified chain mechanism of economic life gain special significance, it clearly contributes the development of its other areas, primarily in the plane of scientific and educational activities [20]. Indeed, today there is a need not only in applying creative innovative approaches to train highly qualified professionals in accounting with the qualifications and skills competencies that meet the needs of practical economic activity, taking into account the above development trends, but also in fundamental scientific reinforcement of multilateral accounting which will become a tool of dynamic equilibrium in the way of verification of heterogeneous scientific ideas in the process of innovation for the world economy [11; 29]. Obviously, this increase in social interaction-activity component of accounting science and education with modern sphere of social production shall contribute the harmonious development of the accounting in all its forms of manifestations [3; 21].

An integrated approach to the study of all accounting shows their immutable causal objective relationships. Although a link between accounting education and science is taken for granted, in terms of distribution, promotion and adoption of an active society ideas of sustainable development, the institutional approach is to recognize the need for further study of synergistic interdependence, since the integration processes between science and general education as a social institution in modern society give rise to a new level of interaction between them [17].

In Ukraine, students who study at the bachelor's and master's degree level, majoring in Accounting, have a wide range of opportunities in learning scientific component selected for future accounting profession. First of all, within the motivation for this learning process for each of the courses the student has the opportunity to improve the effectiveness of his current success through participation in scientific seminars, conferences, competitions, research papers and other areas of academic activities. However, the active involvement of students in research activities is not only encouraging factor to good results in the learning process, but also the key to actually stimulate research activities among students in order to develop training young scientists and accountants, who will continue their scientific experiments in postgraduate and doctoral studies. It is necessary to point out that the problem of the ability of an adult to continuous development of new knowledge that is acute in the process of formation and development of the information society is not only extremely stimulated research in andragogics and continuing education, but also made it possible to form a true approach to postgraduate and doctoral institutions as certain level of education of working individual [4; 10; 12]. Traditionally scientific work with students and post-graduates is the prerogative of the departments of higher education institutions within which teachers of the latter, in accordance with international examples of effective combination of teaching and research activities, are organizing guest lectures with fellow scientists using special video lectures and presentations that demonstrate the scientific view of the problem in question in class, develop special packages of academic tasks for students, graduate students, doctoral students, involve them in research work in groups, workshops, clubs, etc. [2]. It should be noted that these measures are not in compilation because, particularly in the field of accounting, basics of integrating education and research components were established by scientific and pedagogical schools, whose founders and leaders at different times were such famous scientists and renown accountants as Doctors of Economics, Professors Nimchinov P.P., Chumatchenko M.G., Kuzminskyi A.M., Samborskyi V.I., Sopko V.V., Linnik V.H., Kuzhelnyi M.V. [32]. However, in terms of implementation of European integration processes in higher education in order to enhance the research activities the domestic institutions of higher education began upgrading their own research activities.

It should be noted that over the past 100 years in Ukraine, the National Academy of Sciences of Ukraine (including the network of research facilities within its boundaries) had been the focus of scientific thought. However, recently in fact, particularly in the economic field, the situation is changing in favor of public higher educational institutions that for centuries of existing of the institution of higher education firmly rooted in the scientific basis around the world (for example, these are is the most prestigious universities in the world – Harvard, Stanford, Berkeley, Massachusetts and California technological, Cambridge, Oxford and others – which are the largest research centers) [33]. This situation reflects and at the same time is the result of objective processes taking place in the Ukrainian higher education to implement the government's program of European integration in education. It should be noted that despite the existence of the structure of the National Academy of Sciences of Ukraine in branches of the economy, none of the research facilities of the network are solely concerned with issues of accounting. Under these conditions, there is a natural emphasis on scientific attention on the pressing issues of accounting most scholars of public higher education in Ukraine. Bearing

NUMBER OF DEFENDED THESES IN ACCOUNTING, CONTROL AND BUSINESS ANALYSIS IN UKRAINE (1991–2012) Table 1[1]

1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
3	3	9	3	15	18	24	24	32	32	42
2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
58	36	38	60	88	38	78	77	80	78	72

further development of science in accounting, scientific and educational schools in the leading state higher educational institutions established research institute in this area during the last decade. The first of these was registered by the State Institute of higher educational institution "Kyiv National Economic University named after V. Hetman", which was founded by the decision of the Academic Council from 30.09.2010 for the purpose of implementation of the Program of innovative development of the university and implementing major tasks envisaged with "provision of a research university", approved by the Cabinet of Ministers of Ukraine from 17.02.2010 №163, and the Resolution of the Cabinet of Ministers of Ukraine from 03.02.2010 №76 "Some aspects of the provision of higher education institutions with the status of self-governing (autonomous) national research university" [13; 24].

The fact that such a rule in this area is quite natural, SHEE "Kyiv National Economic University named after V. Hetman" (hereinafter – SHEE "KNEU named after V. Hetman") traditionally holds the leading position in research in all economic fields in general (which are now defined by the Order of the Ministry of Education, Youth and Sports of Ukraine from 14.09.2011, №1057 "On Approval of the list of scientific specialties"), and particularly in specialty 08.00.09 – Accounting, analysis and audit (Table 1, 2) [19; 27].

The aim of Scientific-Research Institute of Accounting at SHEE "KNEU named after V. Hetman" is to develop the scientific direction – accounting, analysis and control of business entities – in a segment of economics, development of recommendations to address the pressing problems of providing accounting, analytical and financial control for management of business entities, assistance by conducting their own research results and training activities and the preparation of scientific personnel at SHEE "KNEU named after V. Hetman". The main activities of the Institute include:

- conducting applied and basic research on accounting, analysis and control of economic activities, including interdisciplinary that meet world standards in scientific research;
- create on the domestic and international level competitive applied research and technology in the field of accounting, analysis and control of economic activity;
- implementation of technology transfer within the scientific, technical, industrial and economic cooperation and cooperation with companies, organizations and institutions on accounting, analysis and control of economic activity;
- forming innovative environment research in the field of accounting, analysis and control of economic activities based on international practice of scientific research;
- supporting and strengthening teaching and research activities at SHEE "KNEU named after V. Hetman";

PROPORTION OF DEFENDED THESES ON SPECIALTY 08.00.09 – ACCOUNTING, ANALYSIS AND AUDIT IN THE CONTEXT OF HEI AND SEE (1991–2012) Table 2

NAME OF ESTABLISHMENT	%
SHEE "Kyiv National Economic University named after V. Hetman"	28
Ternopil National Economic University	12
National Scientific Center "Institute of Agrarian Economics"	12
Kyiv National University of Trade and Economics	10
National Academy of Statistics, Accounting and Audit	7
National University of Life and Environmental Sciences of Ukraine	7
Lviv Academy of Commerce	5
Kharkiv State University of Food Technology and Trade	5
Taras Shevchenko National University of Kyiv	4
Zhytomyr State Technological University	4
Vladimir Dal Eastern National University	3
Odessa State Economic University	2
Other HEE and SEE	1

[1] Developed on the basis of statistical data obtained during processing the dissertation abstracts database of V.I. Vernadskyi National Library.

- using human resources of the Institute to address the pressing problems of the national economy;
- preparing scientific and methodological basis for training scientific and pedagogical staff in accounting, analysis and control of economic activity;
- organizing and conducting research, scientific conferences, symposia, seminars, round tables, as well as preparation of guidance materials for their publication in specialized professional journals;
- consulting the services of executive agencies and entities in Ukraine on the practical applications research results and practical recommendations of the Institute;
- integration of the research activities of the Institute with research activities of other academic research institutions and activities of enterprises, organizations and institutions of Ukraine;
- international scientific and technical cooperation with universities, research institutions, corporations, companies, foundations;
- other activities of the Institute in Ukraine within the law to achieve its goal.

Implementation of these measures is carried out directly with students, graduates, doctoral students, which in turn not only provides versatility of the Institute of accounting, but also significantly enhances the educational training as the actual subjects of the object field of the education process, and hence their scientific research.

It should be noted that in Ukraine the process of preparing graduate students and doctoral students has a unified organizational and methodical approach, the general provisions of which are set out in the Resolution of the Cabinet of Ministers of Ukraine from 24.07.13 № 567 "On approval of the awarding of degrees and the academic rank of Senior Scientist" and in Order of the Ministry of Education and Science, Youth and Sports of Ukraine from 17.10.2012 № 1112 "On publication of results of theses for the degree of doctor of sciences and doctor of philosophy". However, despite its fairly clear character, analysis of the practice of scientific research by young scientists, accountants indicates that the quality of the final results depends on the possession of the most advanced approaches and methods of research, particularly in specialty 08.00.09 – Accounting, analysis and audit (by sectors). To spread this experience, leading experts of the Institute of accounting developed the lecture course, which is offered to graduate students and applicants for the PhD scientific degree of first year (Table 3). The course consists of 6 lectures, each series is presented every month by a specialist of Institute of Accounting – Professor – in the form of lectures – discussions.

Quiz with postgraduate students which is conducted at the final lecture, confirming their undoubted interest in taking this course and the study of their scientific work shows a significant improvement of the quality and effectiveness.

TOPICS OF LECTURES FOR THE COURSE METHODOLOGY AND ORGANIZATION OF RESEARCH IN SPECIALTY 08.00.09 – ACCOUNTING, ANALYSIS AND AUDIT (BY SECTORS) **Table 3**

№	NAME OF THE SUBJECT	CONTENT OF THE LECTURE
1	Primary organization and preparing the dissertations	Legal provisions for the preparation of theses, the basic requirements for writing dissertations, the choice of research topics, the definition of an information base of scientific research
2	Formation of the primary elements of scientific research	justification of urgency, determination of goals, objectives, object and subject of research, establishing research methods
3	Elaboration of theoretical positions for thesis	defining the essence of theoretical component of the thesis, purpose of the theoretical component of the research, the establishment of limits, order of processing theoretical and practical information from different sources of origin, the term "compilation", "rip-off", provided guidance and acceptable norms on borrowed text in thesis work
4	Forming and testing structural component of research	identifying problematic issues on the topic of dissertation, setting goals for their solution, methods of forming structural component (the primary elements of scientific innovation) of research, testing the basic elements of scientific innovation
5	Final formatting and writing the abstract for thesis	technical formatting the thesis, clarifying goals, objectives, object, subject and finite formulation of scientific innovation elements, the requirements for writing and structure of abstract
6	Organization of protection of scientific research	preparing reports and illustrative material to accompany the previous defense at the department and defense at the Academic Council, working with reviewers and opponents, working on their comments, order of processing and movement of supporting documents to the thesis

An important tool for general regulatory assigned organizational and methodological preparation for post-graduate students, which, incidentally, shows its logical multi-variations, (according to the number of scientific disciplines, which are 480 in Ukraine), is a passport of specialty [26; 27]. Passport of specialty is the document that establishes the area of research for which you may be awarded a PhD degree or Doctor in the relevant specialty; valid passports for scientific specialties in Ukraine requires a specialty formulas within each passport of specialty, identifying areas of research and science, in which the academic degree is awarded [26]. Valid passport of the specialty 08.00.09 – Accounting, Analysis and Audit (by sectors) came into action in 2007 (table 4), its use in practice has revealed a number of problems that lead to disruption of the correct coordination of search and hinder optimize the choice of object and subject of research by applicants on degrees.

Thus, systemic monitoring of given edition of passport of specialty by leading experts of research institute of accounting at SHEE "KNEU named after V. Hetman" revealed the following incompliance with modern requirements – the formation of which is influenced by the rapid development of society and the economy in particular – the gaps and omissions [19]:

1. First of all, the name of the specialty requires substantial changes concerning preventing the formulation of non-logically justified, irrelevant details in terms of areas of economic activity. Let's note that to date, according to the Resolution of the State Committee of Ukraine for Technical Regulation and Consumer Policy from 11.10.2010 №457 "On approval and cancellation of national qualifiers" 21 types of economic activity (sectors) are established, within which 16 subsections, 88 sections, 272 groups, 615 classes are allocated. Adopting this approach as a basis for identifying areas of research at specialty 08.00.09 leads to the imposition of the level of scientific problems rather meager tasks of different types of purely practical direction. At the same time, according to the prevailing domestic theoretical and practical positions, the national accounting system includes four components – accounting in enterprises and organizations, accounting in banks, accounting in budgetary institutions and accounting in the State Treasury – according to which there shall be defined major research areas.

An important issue within defining the name of scientific specialty 08.00.09 is to consider the proposals of local scientists and economists as to use the term "accounting", according to the need to expand the scope of the accounting system at the levels of operational and strategic management.

VALID PASSPORT OF THE SPECIALTY 08.00.09 – ACCOUNTING, ANALYSIS AND AUDIT (BY SECTORS) **Table 4**

FORMULA OF THE SPECIALTY
The scientific profession, the content of which is to study the methodology, methods and organization of accounting, analysis, revision and audit of financial and economic activity.
AREAS OF RESEARCH
1. The general theory of accounting. 2. Methodology and organization of financial and management accounting at enterprises of different ownership. 3. Results of economic activity and the cost of goods (works and services) of enterprises: methodology and organization of identification, accounting and control. 4. Building a system of accounting information in accordance with international standards. 5. The development of national standards for accounting and audit standards. 6. Unification of accounting, economic analysis, operational control, revision and auditing in different countries. 7. Enterprise's reporting: sources and methods of developing (data verification, processing and publication). 8. Theory and methodology of economic analysis. 9. Methodology, methods and organization of business analysis at different enterprises. 10. Methodology, methods and organization of control of financial and economic activity. 11. Standards and norms of revision and audit. 12. Organization of the audit activity: specific formation and functioning of audit services. 13. Methodology and organization of external and internal audits at enterprises: specific sectors of the economy, customers, users, facilities inspections, planning and organization of implementing, the cost of services, efficiency. 14. Financial statements of issuers of securities. 15. Accounting, analysis and control of formation and use of assets, equity and liabilities. 16. Accounting, analysis and control of production costs. 17. Accounting and analytical operations, their standardization and unification.
THE BRANCH OF SCIENCE, IN WHICH THE DEGREES ARE AWARDED
Economics

2. Formula of specialty is quite general nature in applied focus and sometimes resembles the well-known text of the Law of Ukraine "On Accounting and Financial Reporting in Ukraine" [19; 25].

3. Areas of study are subject to confirmation on the subject of detailed theoretical and methodological, methodical and organizational positions of accounting, monitoring and analysis, conceptual definition of research areas and optimize the overall structure. Also there is a need for clear definition of all the elements of an aspect of scientific research in the fields of accounting, audit and analysis, such as: theoretical and methodological, methodical, organizational, historical and structural.

To address the mentioned issues, to support higher levels of research within the specialty 08.00.09, scientists, accountants, PhDs, professors of Scientific Research Institute of Accounting at SHEE "KNEU named after V. Hetman" with advisory participation of leading national academic economists, formulated the draft of the passport of specialty 08.00.09 – Accounting, Analysis and Audit (table 5).

PROJECT PASSPORT SPECIALTY 08.00.09 – ACCOUNTING, ANALYSIS AND AUDIT **Table 5**

FORMULA OF THE SPECIALTY
Accounting, analysis and audit – is a scientific specialty that develops discipline on the recognition, measurement, evaluation and identification of socio-economic relations and systems by creating information resources of business entities that provide ordering, communicative and efficiency of social and economic environments (micro-, meso- and macro-level).
AREAS OF STUDY
1. theory, methodology, methods and organization of accounting, analysis, monitoring/audit of assets, equity, liabilities, costs/expenditures, revenues, financial results; 2. processes, technologies, tools and procedures of accounting, analysis, monitoring/audit; 3. the history and prospects of development of the theory and methodology of accounting, analysis, monitoring/audit (prerequisites, stages, trends, paradigms, concepts, hypotheses, postulates, principles, standards, categories, conceptual apparatus); 4. compiling and reporting data for accounting, analysis, monitoring/audit; 5. application and improvement of international and national standards (regulations) of accounting and control/audit in Ukraine and in the world, their harmonization, integration, adaptation and transformation; 6. standardization of accounting, reporting, analysis, monitoring/audit (principles, standards, regulations, rules, technologies, tools and processes) in different countries; 7. registration, monitoring, analytical support for process to control economic activity of enterprises, institutions and organizations at the macro and micro levels (design, development, regulation, structure, composition, amount, frequency, document management, regulation, accounting policies, reporting); 8. modeling of objects and processes in accounting, analysis and control/audit (identification, justification, recognition, evaluation, structure, principles, methods, position); 9. history, current state and prospects of development of the profession and the professional ethics of accountants, auditors, inspector, controller, analyst; 10. organization of professional accounting and analysis and control/audit activity, the specificity of formation and functioning to regulate accounting, analysis and control/audit as public institutions; 11. information technology in accounting, analysis, monitoring/audit; 12. interdisciplinary communication of accounting, analysis, control/audit in the system of modern sciences.
THE FIELD OF SCIENCE, ON WHICH DEGREES ARE AWARDED
ECONOMICS
ASPECTS OF THE STUDY
• structural – scientific study of the problems of accounting (accounting (financial management (internal/controlling), operational and strategic reporting), monitoring/audit (internal control, independent and internal audits, inspections (audits) of state financial control/audit, forensic accounting expertise), analysis (operational, financial, investment, social, economic, perspective/strategic) of business enterprises, institutions and organizations; • theoretical – development of conceptual and categorical apparatus, paradigms, hypotheses, concepts, developing the theory of accounting, analysis, monitoring/audit, modeling, standardization, unifying accounting, control and analysis systems; • methodology – development of methods for the study of accounting and control and analytical systems, methods, techniques, procedures, algorithms and data collection, processing and use of information, methods of accounting, analysis, monitoring/audit; • organizing – organization of accounting, analysis, monitoring/audit, organization of the work of accounting and control and analytical personnel, organization of providing information to various users, organization of integrated accounting and control and analytical systems using computer technology; • history – identification and assessment of trends, assumptions, hypotheses, concepts, paradigms, ideas and logic of accounting, analysis, monitoring/audit, summarizing the results of activity of scientific schools and trends, directions and scientists; • interdisciplinary – definition of interaction of information systems at business entities regarding accounting, analysis, monitoring/audit with economic theory, management, marketing, finance, economic cybernetics, informatics, legal theory, statistics, public administration, economic modeling and other sciences.

Content of the present draft of the passport of specialty 08.00.09 – Accounting, analysis and audit indicates rejection of obsolete constant circuit of fragmented narrow specialized research and creating a modern open model of thorough an integrated approach to the study object and the subject of the experiment [19; 35]. It should be noted that the project of document was officially handed over to the Ministry of Education and Science of Ukraine for the elaboration and adoption of the basis for the formation of a new passport in the economic are in the specialty 08.00.09.

To continue the work started in order to raise awareness of students and doctoral students, as well as better targeting of supervisors concerning possibility to identify vectors within the research project specified in the passport of the specialty areas, leading scientists, accountants, accounting experts of the Institute established priority research directions, defining the scope of research activities of the Institute of accounting [16] (Table 6).

In terms of developing the information society against the backdrop of globalization, rapid update of the information environment and integration efforts of educators and scholars around the world in order to create a high level of intellectual and professional development of the person of the XXI century, the search for innovative methods, techniques and tools to ensure the above objectives are very important and necessary. One form of intensification of scientific research of young scientists all over the world for some time are the so-called doctoral colloquia, which take place at all known universities in the world. It should be noted that the mechanism of doctoral colloquiums in a relatively short time became so popular that it is used by other non-educational institutions. Thus, in the framework of the International Congress of the European Accounting Association they conducted doctoral colloquium during several days, where they discussed the issues of improving the accounting methodology; interesting is that in the study of all other matters (issues in the theory and practice of accounting and audit, including the problems of: audit and accounting practices, education of accountants and auditors, financial analysis, financial reporting, collaboration between accountants and managers of organizations, IT technology in accounting, management accounting, internal control, accounting, public sector accounting in the social sphere, accounting the environmental issues, taxation and other issues) in the traditional mode of presentations and discussions were given time only in the last days of the Congress [28]. Thus, the effectiveness of such measures is beyond doubt.

Despite the different approaches, in general, doctoral colloquium is a scientific meeting, the purpose of which is to hear and discuss the report, which claims to be an independent study. The work of colloquium involves two parties: the well-known scientists – doctors, professors, which operate within the educational, social and other institutions, whose research is fairly publicized in the world, and young scholars, scientists, who although decided with the direction of their research (with the prevailing theme of the thesis), but need practical advice of wise senior fellow teachers and willing to engage in discussion and listen to the comments of colleagues – young scientists. Typically, doctoral colloquium organizers are free to choose the purpose of study and research, as well as provide it in their own format and regulations of specified event.

To increase research on specialty 08.00.09 – Accounting, analysis and audit, to implement tasks generated today by the Ministry of Education and Science of Ukraine to be resolved by domestic scientists, the Institute of Accounting at SHEE "KNEU named after V. Hetman" and practical science edition "Independent auditor" for the first time in Ukraine in 2013 has launched a nationwide doctoral colloquium with leading scientists and researchers at SHEE "KNEU named after V. Hetman" (Doctoral colloquium, 2013). The event will take place at certain time periods according to the composition of the present leaders of doctoral colloquiums, their research interests, within which potential participants (students, graduate students, and doctoral students) should prepare and present during colloquium short, informal presentations of their research. Structure sections are correlated with the composition of the existing scientific sectors of the Accounting Institute at SHEE "KNEU named after V. Hetman" and include a section "Budget accounting", section "Strategies of business analysis", section "Accounting for banks", section "Accounting in innovation economy", section "Strategic and operational accounting and control", section "Strategies of audit and state financial control in Ukraine". Despite the absence of first results under conditions of absolute free of charge, openness, scientific tolerance of specified workshop, we can expect its great effectiveness in the process of implementation of the tasks and achieving the objectives of the Institute of Accounting at SHEE "KNEU named after V. Hetman" in general, and in the course of individual research of young scientists and accountants in particular.

In general, it should be noted that some of the results obtained by the Institute of Accounting at SHEE "KNEU named after V. Hetman" indicate that despite some crisis in education and research area in general, which are both global and local, achieving

PRIORITY RESEARCH AREAS OF RESEARCH FOR SCIENTISTS OF THE INSTITUTE OF ACCOUNTING AT SHEE "KNEU NAMED AFTER V. HETMAN" **Table 6**

IN THE AREA OF ACCOUNTING
• basic paradigms, concepts, basic principles, rules and tenets of accounting; • chart of accounts for businesses in terms of harmonization of international accounting systems; • documentation of acts of economic activity in terms of unification of carriers of accounting information and standardization of accounting; • cost accounting and costing products in business entities in the subsystem of management accounting; • evaluation of accounting objects: approaches, position and future orientations; • methodology of formation of accounts figures in entities; • history of methodology and theory of accounting; • regulation and control of the national accounting system; • standardization of accounting rules in the formation of accounting figures; • adaptation of components of the national accounting system to the requirements of the economic environment, social and political trends; • methods and organization of accounting in terms of the use of information technology; • transformation of the financial statements of domestic firms to IFRS (IAS, IPSAS); • control in terms of expanding the functions and tasks of the accounting system; • consolidated financial statements of entities and macroeconomic indicators by type of activity; • role of accounting in the aftermath of the global financial crisis; • accounting in enhancing the investment attractiveness of entities; • tax accounting in enhancing economic stability of the state and entities; • modernization of the national accounting system as part of the combat against fraud in the economic area of Ukraine; • education and ethics trends in training and formation of specialists in accounting.
IN AREAS OF BUSINESS ANALYSIS
• paradigm, basic concepts, basic principles, postulates and rules of business analysis; • theoretical and methodological foundations and guidelines for targeted business analysis; • development of methodology for assessing, analyzing, and forecasting economic activities; • history of methodology, theory and analysis of economic activity; • regulations or provisions for methodical analysis of business entities. • analysis of logistics costs, costs related to the movement of trade, information and financial flows; • investment analysis and evaluation of the effectiveness of investments; • economic analysis and evaluation of business activities; • analysis of the secondary resources industry (cross-industry complex); • theory and methodology of financial, managerial, strategic, operational, technical and economic analysis; • analysis of assets and capital of entities; • analysis and forecasting the financial position of an entity; • analysis and studying the programs of financial recovery; • analysis of the entity's financial statements in prevention of fraud and economic crime; • methods and organization of business analysis in terms of the use of information and communication technologies; • educational and ethics trends in training and formation of specialists in business analysis.
IN THE AREA OF MONITORING THE ECONOMIC ACTIVITY
• paradigm, basic concepts, basic principles, postulates of control of the business entities; • theoretical and methodological bases and specific instructions of audit, control and inspection; • methods and organization of development of audit program and inspection plan; • audit and control and statistical testing of internal control systems; • methodological approaches to control business entities in the integration of Ukraine into the global economic community; • methodology and basic principles of forensic accounting; • history of methodology, theory and control of business entities; • regulation and standardization of the rules of audit, monitoring and inspection; • development of complex methods of audit, control and inspection; • adaptation of national systems of audit and compliance with international standards; • features of the formation of audit reports by industry, territories and other segments of business; • the use of modern information and communication technologies in the field of audit, control and inspection; • modernization of national control over economic activities as a tool for combating fraud in the economic area of Ukraine; • educational and ethical approaches in preparing and shaping specialists to monitor economic activity.

emergent activities in education and research system in the field of accounting includes the following possible conditions: the formation and development of accounting research and teaching schools (which is characterized by the presence of: leaders, voluntarily established group, creative collaboration and unified scientific and pedagogical approaches recognized by the scientific and educational community, significant results, continuity) on the basis of the relevant research institutions and accounting departments of higher education institutions, whose activities are listed above to provide a basis of the sub-additive effect in the specified system, further democratization of relationships of its subjects (and especially between supervisors and their students) on the basis of scientific ethics that allow creative freedom and the rise of the scientific activity of young scientists, accountants and development of effective motivational bases of activity of scientific and educational area of accounting orientation, which under not so high welfare of employees of these sectors on the one hand, and the natural reaction to this fact by future potential of its employees – undergraduate, postgraduate and doctoral students – will promote the interest of both groups of participants of specified educational and research activities in its implementation [1; 6; 15; 34]. By implementing the specified conditions, we can not only overcome the so-called synergy in crisis of science and education, as a general phenomenon in its particular segment inherent and perspective, and receiving systemic effect of upgrading the educational and research activities in the field of accounting, which will contribute to the formation of new knowledge and competence as a strategic resource for global business leadership in international economic relations [1; 22].

Conclusions

In our opinion it can be argued as follows: no matter where accounting takes place – in state enterprises or in business, in industry, in the banks or in the public organizations – its (accounting) nature and its principles do not change. The accounting system is the same for all entities for all types of activities for all types of property. Then we can provide the following definition: accounting system includes: methods and methodic of their use, the form in which it is conducted.

On the basis of this research we should acknowledge the gap in shaping approaches to the challenges of higher and vocational education and training activities, as the level of professional accounting and audit employers is mainly about the practical skills. However, considering mutual complementing the science and practice, we should note the impossibility of separating these concepts, given that education is not only to provide the existing practical needs, but also to focus on passing through scientific research. Therefore, one of the main objectives of the educational process should be a scientific component, which would provide an opportunity for young professionals to work proactively, consequently increasing their performance. Given that there is a need to reform the higher education system in terms of approaching the activities of educational institutions to scientific and research activities by fields of activity. This approach will make it possible to improve the level of teaching staff, the ability to attract students to perform the research topics together with researchers, practitioners that shall not only bring science to practice, but also provide an opportunity to advance science. For this purpose it is necessary to reform the higher education system and bring the leading institutions of higher education to fulfill academic topics of fundamental and applied areas.

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