The use of digital technologies in the preparation of accountants in agricultural universities

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Abstract. All interested parties, including universities, employers' organizations, their officials associated with the management of the organization, accounting or financial departments and recruiting young specialists in the field of accounting, as well as professional associations, should take part in the formation of "digital" competencies for students and beginner accountants. As part of the study, the regulatory framework for the use of digital technologies in higher education will be studied; materials from Russian and world studies on the practice of introducing and using digital technologies in the training of domestic accountants will be summarized. A significant part of the study is focused on summarizing the concrete experience of training accountants in agricultural universities, leading the ranking of universities "National Vocation", compiled annually within the framework of the project "Univer-Expert and Academic Critic".

1 Introduction

In modern conditions, the impact of digital transformation affects an increasing number of aspects of the economic life of society. In addition to their extensive use to improve the automation of production and management processes in various sectors of the economy, including its agricultural sector, digital technologies have found the widest application in education and, in particular, in the practice of training new specialists in the field of accounting. The digital economy in the field of accounting makes new demands on employees at different levels and on the conditions for building an accounting service [1, 2, 3] This process is, apparently, global. Foreign scientists note that under the influence of technological progress and digital technologies, tasks in the field of accounting have shifted from the organization of individual transactions to the use of large amounts of data generated in the course of the use of digital technologies, which could not but affect the requirements for the skills of future accountants [4, 5]. The use of professional accounting

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information systems [6] and educational information systems [7] in the educational process in the preparation of accountants is increasingly used in foreign countries. At the same time, there is a direct correlation between the competitiveness of the national economy and the degree of development of digitalization of the accounting and financial profession at the national level [8].

Today, there is an understanding that all interested parties, including universities, employer organizations, their officials associated with the management of the organization, accounting or financial departments and recruiting young specialists in the field of accounting, as well as professional associations [9]. At the same time, the impact of the development of the digital economy on various business processes of organizations, in particular, accounting and the formation of financial statements [10] is difficult to overestimate. In this regard, the current demand [11] of the market for a revision in the digital economy of the content of training accountants in the field of information technology in terms of formalizing the requirements for graduates of educational organizations to possess competencies in the field of digital culture and the use of specific digital technologies used in professional sphere.

In Russia, in accordance with the Decree of the President of the Russian Federation of May 7, 2018 No. 204 "On the national goals and strategic objectives of the development of the Russian Federation for the period until 2024", Decree of the President of the Russian Federation of May 9, 2017 No. 203 "On the Strategy for the Development of Information society in the Russian Federation for 2017 - 2030", the National Program "Digital Economy of the Russian Federation" and the Strategy for Digital Transformation of Science and Higher Education, all educational institutions of higher education approved their own Digital Transformation Strategies [12].

At the same time, the areas of digital transformation of science and higher education include the development of unified integrated approaches to its implementation, based on the development of a methodology for assessing the digital maturity of educational organizations of higher education, implemented in the form of guidelines for the formation of digital transformation strategies for specific educational organizations, the development of digital services of educational organizations in the field of administration, infrastructure, as well as the implementation of scientific and educational activities, the formation of an effective digital data management system necessary for making administrative decisions, modernizing the digital infrastructure of educational institutions of higher education, as well as the formation of digital competencies of their employees [15].

At the same time, researchers of the problem of introducing digital technologies into the education system highlight a number of areas. These include:

– study of professional computer programs used in the activities of an accountant and related fields;

– study of various aspects of the transformation of financial relations of economic entities under the influence of digital transformation;

– convergence of digital technologies used within the educational system and economic practice;

– study of fundamentally new accounting objects, the emergence and development of which is directly related to the digital transformation of society;

– introduction of new digital teaching methods, including distance learning methods;

- the formation of the so-called. "open education" through digital methods of distribution of educational content [16, 17].

2 Materials and methods

In accordance with the goals and objectives of this study, its structure involves a combination of the abstract method in the part that directly relates to the characteristics of various aspects of the use of digital technologies in the preparation of accountants for the needs of the agricultural sector of the economy. Within the framework of this part of the study, the regulatory framework for the use of digital technologies in higher education will be studied, the materials of Russian and world studies regarding the practice of introducing and using digital technologies in the training of domestic accountants will be summarized.

A significant part of the study is focused on summarizing the specific experience of training accountants in agricultural universities. The basis of the study in this context was information about specific educational programs implemented by the leading agricultural universities of the Russian Federation. The main research tool in this case is the study of the construction of curricula for the currently implemented basic professional educational programs (hereinafter referred to as the BEP), which have state accreditation in the areas of undergraduate training 38.03.01 Economics and magistracy 38.04. Degree related to accounting. It should be noted that the conditions for the implementation of the FSES HE 3++ allow educational organizations to form a different set of disciplines (modules) for individual profiles within the same area of training, which makes the study even more relevant [18].

In this regard, the target orientation of the training of future accountants was studied in relation to educational institutions that head the existing list of the best agricultural universities, built as part of the National Vocation university ranking, compiled annually as part of the Univer-Expert and Academic Critic project. In 2022, the best agricultural universities were recognized (in descending order of rating) [19]:

1) Stavropol State Agrarian University;
2) FGBOU VO RGAU-MSHA named after K.A. Timiryazev;
3) Kuban State Agrarian University;
4) Saratov State Agrarian University;
5) Bashkir State Agrarian University;
6) Voronezh State Agrarian University;
7) FGBOU VO Donskoy State Agrarian University;
8) Ulyanovsk State Agrarian University;
9) FGBOU VO SPbGAU.

For the purposes of this study, therefore, the following undergraduate OPEP in the field of study 38.03.01, approved in 2021 and 2022, were considered.

1) Stavropol State Agrarian University, profile "Accounting, analysis and audit";
2) FGBOU VO RGAU-MSHA named after K.A. Timiryazev, profile "Financial and management accounting and audit in the digital economy";
3) Federal State Budgetary Educational Institution of Higher Education Kuban State Agrarian University, profile "Accounting, analysis and audit";
4) FGBOU VO Saratov State Agrarian University, profile "Economics, accounting and finance of agricultural enterprises";
5) Voronezh State Agrarian University, profile "Economics of enterprises and organizations of the agro-industrial complex";
6) FGBOU VO Bashkir State Agrarian University, profile "Accounting, analysis and audit";
7) Federal State Budgetary Educational Institution of Higher Education Donskoy State Agrarian University, profile "Accounting, analysis and audit (taking into account the specifics of agriculture)";

8) Federal State Budgetary Educational Institution of Higher Education Ulyanovsk State Agrarian University, profile "Accounting, analysis and audit";

9) FSBEI HE SPbGAU, profile "Agrarian Economics".

The following OPOP master's programs in the direction of preparation 38.04.01, approved in 2021 and 2022, were also considered:

1) FSBEI HE Stavropol State Agrarian University, specialization "Audit and financial consulting";

2) FSBEI HE Stavropol State Agrarian University, specialization "Accounting and tax consulting";

3) FGBOU VO RGAU-MSHA named after K.A. Timiryazev, specialization "Corporate accounting and taxation in the digital economy";

4) Federal State Budgetary Educational Institution of Higher Education Kuban State Agrarian University, specialization "Analysis and audit of business";

5) Federal State Budgetary Educational Institution of Higher Education Kuban State Agrarian University, specialization "Accounting, analysis and audit";

6) Saratov State Agrarian University, profile "Accounting, analysis and audit in commercial organizations";

7) FSBEI HE Voronezh State Agrarian University, specialization "Accounting and control";

8) FGBOU VO Voronezh State Agrarian University, specialization "Accounting and analytical support for business";

9) FSBEI HE Bashkir State Agrarian University, specialization "Accounting, analysis and audit";

10) Donskoy State Agrarian University, specialization "Accounting, analysis and audit (taking into account the specifics of agriculture)";

11) FSBEI HE SPbGAU, specialization "Accounting. Analysis. Audit".

The source of information for the analysis of the listed educational programs is the curricula and work programs of disciplines posted on the websites of the relevant educational organizations for currently implemented training programs; based on the objectives of this study, first of all, programs were considered, the focus (profile) of which is related to accounting. At the same time, in the Stavropol State Agrarian University and the Kuban State Agrarian University, in the preparation of undergraduates, two such BEPs are implemented; in the Voronezh State Agrarian University and St. Petersburg State Agrarian University, bachelors are trained in the field of study 38.03.01 Economics is conducted according to programs related to the agricultural sector, however, their structure includes academic disciplines related to accounting issues.

The study of the structure of curricula is implemented in two aspects - in terms of the number of disciplines related to the subject under consideration and in terms of the amount of time allotted for the study of this discipline in credit units. The calculation for disciplines belonging to the group of disciplines of choice is made taking into account the disciplines actually implemented within the framework of the OPOP (main professional educational program) data.

3 Results

On fig. 1 and 2 present data on the availability of disciplines in the considered OPOP undergraduate studies related to the study of various aspects of the work of an accountant, including both disciplines directly related to financial and management accounting issues, as well as tax accounting, auditing, management analysis, financial reporting analysis and various aspects of the implementation of the work of specialists in the field of accounting, including the organization of workflow and digital information systems used in practice, as

well as disciplines related to various aspects of the use of digital technologies, including the study of various aspects of informatics and informatization, digital, information and intellectual technologies, as well as the use of specialized professional support in the fields of activity related to the profession of graduates.
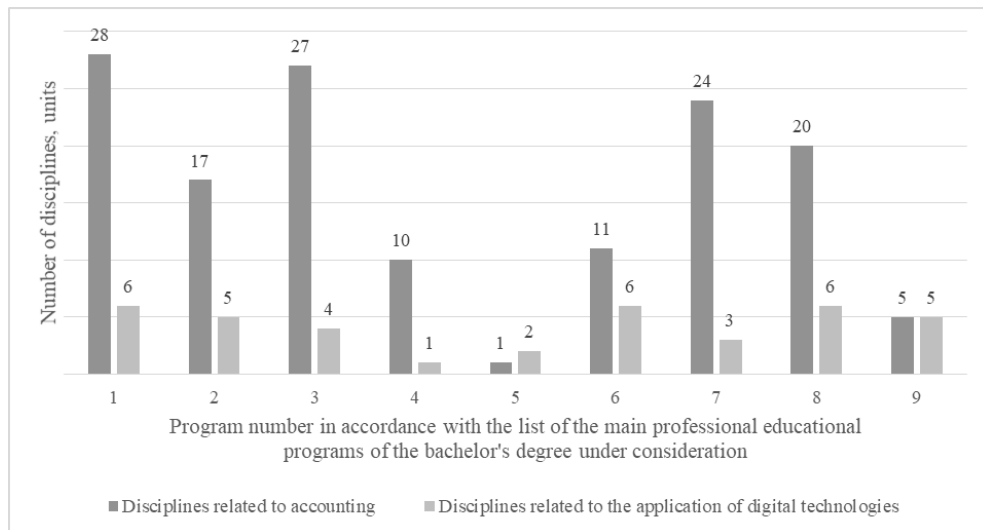

Fig. 1. The number of academic disciplines provided for in the BEP for the preparation of bachelors in the field of study 38.03.01 Economics

Source: compiled by the authors based on data from official websites of leading agricultural universities

As the presented data show, the main factor determining the number of specific disciplines related to accounting is the focus (profile) of the BRI. This explains the relatively low share of such disciplines in undergraduate programs implemented by Voronezh State Agrarian University and, to some extent, St. Petersburg State Agrarian University. An important factor determining the increase in the share of specific "digital" disciplines in programs implemented in 2021-2022 and 2022-2023. Compared to previous periods is the execution of the lists of instructions of the President of the Russian Federation dated December 31, 2020 No. Pr-2242 and the Deputy Government of the Russian Federation D.N. Chernyshenko dated March 17, 2021 No. DCH-P8-3270, pursuant to which it was established the requirement to supplement educational programs of higher education in all specialties and areas of training with sections on the study of artificial intelligence technologies in order to teach the use of such technologies in various fields of activity; Order of the Ministry of Education and Science of Russia No. 1456 dated November 26, 2020 "On Amendments to the Federal State Educational Standards of Higher Education" amended the federal state educational standards of higher education, including the inclusion of digital competencies in them. In addition, by letters of the Ministry of Education and Science of Russia dated July 2, 2021 No. MN-5/2657 and dated July 12, 2021 No. MN-5/4611, the modules "Information Technology and Programming", "Introduction to Information Technology" were sent to educational organizations, "Systems of artificial intelligence" for use in the implementation of educational programs [12].
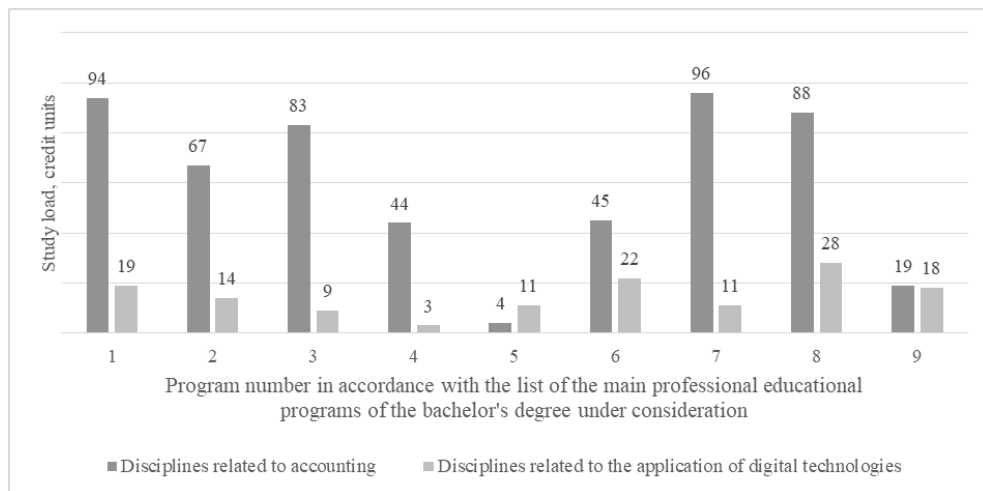
Fig. 2. The volume of the teaching load in the disciplines provided for by the OPOP for the preparation of bachelors in the direction of preparation 38.03.01 Economics

Source: compiled by the authors based on data from official websites of leading agricultural universities

In this regard, it becomes clear the relative share of the teaching load in "digital" disciplines, which in the OPOP in the direction of study 38.03.01 Economics, not specialized in accounting, is comparable to or exceeds that load in "accounting" disciplines.

At the same time, we can state a significant change in the situation in recent years compared to the data of previous periods, when researchers noted that the requirements for the quality of preparation of master's programs in accounting do not contain criteria for assessing the presence of digital technologies [13, 14], and in educational programs even leading educational institutions of higher education, there were no special disciplines related to digital technologies in the accounting field [3].

On fig. 1 and 2 present similar data for master's programs. In the conditions of specialization of undergraduate training programs and significantly less time allotted for their passage by students, the gap between "accounting" and "digital" disciplines is more obvious. At the same time, it must be emphasized that certain competencies related to information and digital technologies can be considered as part of the study of other disciplines of the curriculum. In addition, the study of the number and composition of "digital" disciplines makes it possible to determine the "leaders" (among the agricultural universities under consideration, these include the Federal State Budgetary Educational Institution of Higher Education RGAU-MSHA named after K.A. Timiryazev) and "lagging behind" (FGBOU HE Voronezh State Agrarian University, focus " Accounting and Analytical Support for Business") in the organization of training, taking into account the requirements imposed in the context of the digital transformation of the economy.
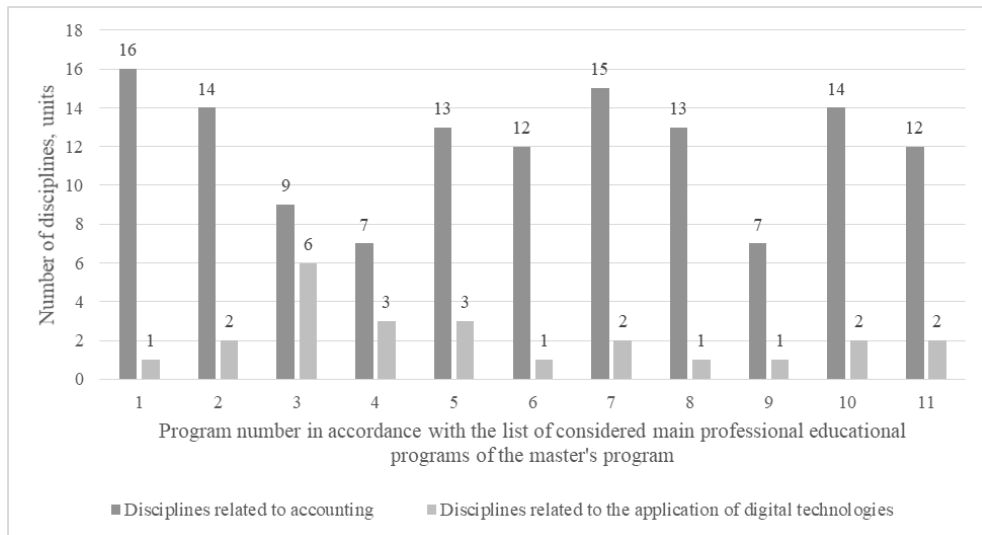
Fig. 3. The number of academic disciplines provided for in the OPOP for the preparation of masters in the field of study 38.04.01 Economics

Source: compiled by the authors based on data from official websites of leading agricultural universities
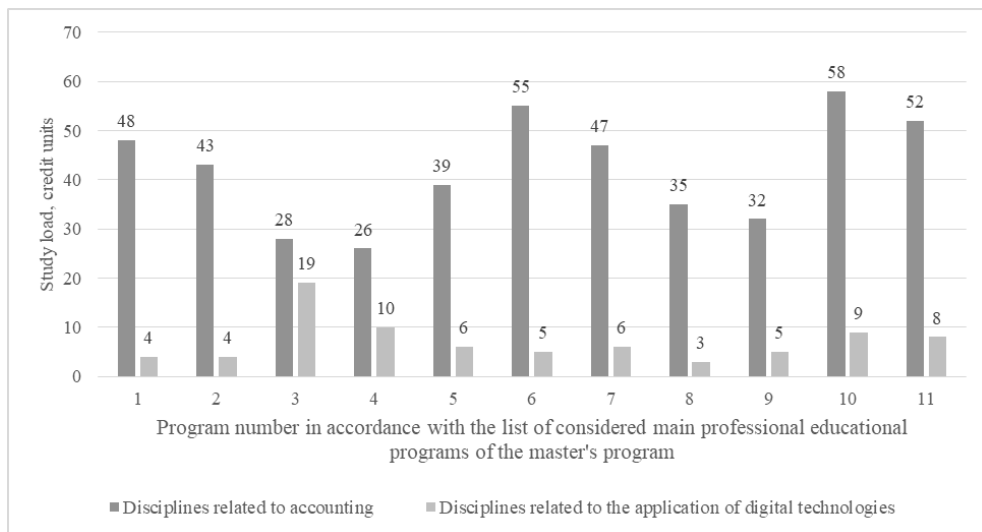

Fig. 4. The volume of the teaching load in the disciplines provided for by the OPOP for the preparation of masters in the direction of preparation 38.04.01 Economics

Source: compiled by the authors based on data from official websites of leading agricultural universities

However, in order to state the effectiveness of the formation of "digital" skills among students, information on the time spent on training is not enough. It should be assessed how complete and comprehensive the coverage by the disciplines under consideration of various aspects of digital transformation in the professional activities of accountants, as well as the compliance of the applied training technologies with the modern level, is.

In table. 1 and 2 provide information on the compliance of various academic disciplines of leading agricultural universities with the main aspects of digitalization in the field of

accounting. As you can see, different areas of digitalization are represented by these academic disciplines unevenly. The greatest attention is rightly paid to the study of professional software used in the accounting profession. This trend is fully consistent with the notion that the main task of modern accounting education is to prepare students for practical activities using relevant digital means of its implementation. In addition, in the context of updating educational programs as part of the introduction of state educational standards for higher professional education 3 ++, the role of employers is noticeably increasing, because they develop professional standards [20], which undoubtedly has an impact.

The second aspect of digital transformation in terms of the number of disciplines considering it is the direction of informatization. In our opinion, it is impossible to draw a clear line between the concepts of "informatization" and "digitalization". In our opinion, the key difference should be sought in the plane of the number of degrees of freedom of ways of feedback of elements of economic and information systems, which "digitalization" should provide much more. In our opinion, over time, in the conditions of the modern development of society (as well as trends in legislative regulation in the field of information technology and education), educational programs implemented by agricultural universities should shift the focus from "informatization" to digitalization.

Also noteworthy is the relatively low number of academic disciplines that deal with the problems of artificial intelligence, as well as the general digital literacy of students. It should be noted that a number of BRIs under study were approved before the entry into force of the requirement to study artificial intelligence technologies. In addition, certain aspects of both digital literacy and the use of artificial intelligence systems can be considered within separate sections of other disciplines. However, due to the importance of artificial intelligence technologies, the timeliness of the requirements of the President of the Russian Federation should be noted. As for the general issues of digital literacy, in our opinion, academic disciplines devoted to this aspect are necessary to eliminate gaps in the competence of students that may be caused by different levels of training within the systems of general and secondary vocational education. The studies of G. V. Soboleva, I. N. Popova and T. O. Terentyev directly indicate that today it is the requirements for job applicants in the field of accounting competencies in the field of general digital literacy that are relevant in the modern Russian market labor [3].

Table 1. Correspondence of the academic disciplines of the leading agricultural universities provided for in the OPOP for the preparation of bachelors in the field of study 38.03.01 Economics, the main directions of digitalization in the field of accounting

Direction of digitalization	Academic disciplines
Digital literacy	Informatics (Ulyanovsk State Agrarian University); Informatics with the basics of digitalization (FGBOU VO SPbGAU)
Modern aspects of digital transformation of economic relations	Fundamentals of the Digital Economy (FGBOU VO RSAU-MSHA named after K.A. Timiryazev); Digital Economy (Bashkir State Agrarian University); Digitalization of the agrarian economy (FGBOU VO SPbGAU); Digital Business Process Management Systems (Ulyanovsk State Agrarian University); Digital Technologies (Bashkir State Agrarian University); Digital technologies in the economy (FGBOU VO Saratov State Agrarian University)

Information technology, informatization, informatics	Fundamentals of Information Technology (Bashkir State Agrarian University); Management information support (FGBOU VO Voronezh State Agrarian University); Information and Communication Technologies (FGBOU VO Donskoy State Agrarian University); Information systems in the digital economy (Bashkir State Agrarian University); Information systems in economics (Ulyanovsk State Agrarian University); Information systems and technologies in economics (FGBOU VO SPbGAU); Information Technology (FGBOU VO Stavropol State Agrarian University); Information technologies in professional activity (FGBOU VO RSAU-MSHA named after K.A. Timiryazev); Information Technologies in Economics (Voronezh State Agrarian University); Information Technologies in Economics (FGBOU VO Donskoy State Agrarian University)
Artificial intelligence systems	Artificial intelligence in economics (FGBOU VO RSAU-MSHA named after K.A. Timiryazev); Artificial Intelligence Systems (FGBOU VO SPbGAU)
Professional software	ERP-systems (FGBOU VO RSAU-MSHA named after K.A. Timiryazev); Automation of accounting (FGBOU VO Ulyanovsk State Agrarian University); Automation of accounting in the 1C environment (FGBOU VO Bashkir State Agrarian University); Accounting computer programs (FGBOU VO Kuban State Agrarian University); Accounting in the 1C environment (FGBOU VO Stavropol State Agrarian University); Computer programs for accounting (FGBOU VO Stavropol State Agrarian University); Computer systems in analysis and audit (Stavropol State Agrarian University); Computer technologies for reporting (FGBOU VO Kuban State Agrarian University); Computer technologies for economic analysis (FGBOU VO Kuban State Agrarian University); Laboratory workshop on accounting (FGBOU VO Donskoy State Agrarian University); Laboratory workshop on accounting (FGBOU VO SPbGAU); Laboratory workshop on accounting in the agro-industrial complex (Ulyanovsk State Agrarian University); Laboratory workshop on accounting in the branches of the agro-industrial complex (FGBOU VO Kuban State Agrarian University); Laboratory workshop on accounting (SGA) (FGBOU VO Stavropol State Agrarian University); Laboratory workshop on tax accounting (Stavropol State Agrarian University); Professional computer programs (Ulyanovsk State Agrarian University); Specialized packages of professional activities (Bashkir State Agrarian University); Electronic workshop on accounting and reporting (FGBOU VO RGAU-Moscow Agricultural Academy named after K.A. Timiryazev)

Source: compiled by the authors based on data from official websites of leading agricultural universities

The data presented in table. 2 show that in the educational programs of the magistracy, academic disciplines related to the functioning of artificial intelligence are currently less in demand. At the same time, much more attention is paid to the study of the "digital" aspects of the modern economy.

Taking into account the tasks of training accounting specialists in the current ones, given by us in the introductory part of this article, it seems important to note such academic disciplines as "Data Analysis in Economics", implemented by the Federal State Budgetary Educational Institution of Higher Education RGAU-MSHA named after K.A. Timiryazev within the framework of the OPOP master's program in the direction of preparation 38.04.01 Economics, the focus "Financial and management accounting and audit in the digital economy", associated with the analysis of data arrays, which, according to modern researchers [3], is one of the most popular modern digital technologies namely in the field of accounting, the discipline "Digital Law", implemented within the same educational program, directly related to the formation of new objects of law and economic relations generated by the digital economy, which can be considered as independent aspects of accounting, as well as the academic discipline "Audit information system", implemented by the Stavropol State Agrarian University within the framework of the training program "Audit and financial consulting", which considers the information system of an economic entity itself as an object of professional activity.

4 Discussion

An important issue of digitalization of higher education, not directly related to the content of individual academic disciplines, but directly related to the implementation of each of them, is the issue of digital learning technologies. In the conditions associated with the COVID-19 pandemic [21], in recent years, technologies for building a digital educational learning environment, as well as distance education technologies, have come to the fore in this respect.

Table 2. Correspondence of the academic disciplines of the leading agricultural universities provided for in the OPOP for the preparation of masters in the direction of 38.04.01 Economics, the main directions of digitalization in the field of accounting

Direction of digitalization	Academic disciplines
Digital literacy	Computer technologies in professional activity (FGBOU VO Kuban State Agrarian University); Office computer technologies (FGBOU VO Voronezh State Agrarian University)
Modern aspects of digital transformation of economic relations	Data analysis in economics (FGBOU VO RSAU-MSHA named after K.A. Timiryazev); Accounting and reporting in the digital economy (SPbGAU); Organization of accounting in the digital economy (FGBOU VO RSAU-MSHA named after K.A. Timiryazev); Digital law (FGBOU VO RSAU-MSHA named after K.A. Timiryazev); Digital technologies of the tax system (FGBOU VO RGAU-MSHA named after K.A. Timiryazev); Digital solutions and services in professional activities (FGBOU VO Donskoy State Agrarian University); Digital technologies in professional activity (FGBOU VO Donskoy State Agrarian University)

Information technology, informatization, informatics	Information system audit (Stavropol State Agrarian University); Information systems and digital technologies in the economy (Bashkir State Agrarian University); Information Technologies for Business Analysis (FGBOU VO Kuban State Agrarian University); Information technologies in audit (FGBOU VO Kuban State Agrarian University)
Artificial intelligence systems	Artificial intelligence systems in economics (FGBOU VO SPbGAU)
Professional software	ERP systems (FGBOU VO RSAU-MSHA named after K.A. Timiryazev); Automation of accounting processes (FGBOU VO Stavropol State Agrarian University); Automation of reporting data generation (FGBOU VO Kuban State Agrarian University); Accounting computer programs (advanced level) (FGBOU VO Kuban State Agrarian University); Accounting computer programs (advanced level) (FGBOU VO Saratov State Agrarian University); Computer information systems in accounting and control (Voronezh State Agrarian University); Computer technologies for business analysis (FGBOU VO Kuban State Agrarian University); Laboratory Workshop on International Financial Reporting Standards Workshop on reporting in 1C in commercial organizations (Stavropol State Agrarian University)

Source: compiled by the authors based on data from official websites of leading agricultural universities

According to S.E. Dzhaferova and E.I. Mustafayeva, the use of distance education technologies can contribute to the implementation of the principles of independence of students in time and the principle of extraterritoriality of education [22], the conceptual framework for the application of which in education was developed by R.M. Delling, Ch.A. Wedemeyer and M.J. Moore [23].

According to I.V. Kalnitskaya, O.V. Maksimochkina and O.G. Konyukova, in their development, technologies for building a digital educational learning environment pursue a number of goals, including expanding the potential number of participants in the educational process by increasing the accessibility of learning both in time and space, implementing innovative learning technologies, primarily in the direction of increasing interactivity educational process, solving the problem of regular updating of educational and methodological materials, reducing transaction costs associated with time and additional material costs of students, as well as increasing the volume of educational services in relation to the applied human and material resources of an educational organization [24]. The results of the development of the digital learning environment, according to K.A. Tatarinov and S.M. Music should become an increase in the role of the student himself in the formation of his knowledge and competencies through the transition from a passive model of obtaining knowledge to more active forms, the transition from competitive relations within a group of students to cooperative ones, intensification of the learning process, as well as formation through the comprehensive use of digital teaching methods new principles of the "culture of thinking" of students related to the abilities in the field of communications in the digital environment, self-development in the conditions uncertainty, creative thinking, information data management and critical thinking in the information environment [24, 25]. Despite the fact that universities cannot always provide

students with the latest technologies used in the professional sphere as part of the formal educational process, they should, based on the promotion of freedom of action, form a positive attitude towards "digital" thinking and innovative behavior [26].

When implementing digital learning technologies, it is important to highlight specific areas of digitalization implemented in the educational process. According to I.Yu. Vaslavskaya and N.A. Zharina [27], among the cross-cutting key technological areas belonging to the category of digital, in the educational environment of modern Russian universities, such technologies as Big Data are actively used, which are used primarily in monitoring the educational process and controlling its results, as well as applicable for building models; personality-oriented learning and personification of the educational process, taking into account the professional orientation of students; Blockchain technologies and virtual reality technologies can be used: the first is for storing and using learning results, the second is for implementing immersion and interactive teaching methods, as well as artificial intelligence technologies that automate many learning processes, including admission of applicants to universities, proctoring during distance exams, and in the near future - the development of a fund of assessment tools in a number of academic disciplines. The most important place in terms of the number of areas of application in the educational process is occupied by cloud technologies used to store and edit documents, which is necessary both when interacting with students and in preparing the normative and methodological support of the educational process, to provide access from various devices to the data necessary for learning, including data from educational Internet resources, electronic library systems and electronic textbooks, to provide the possibility of video conferencing necessary for the implementation of distance learning. The same technologies make it possible to implement systems of virtual boards, surveys, graphic design services, as well as the construction of a virtual educational environment, which is a technological platform for the implementation of a distance learning format.

5 Conclusions

Summarizing the above, we can highlight the main theses that reflect the results of the study. Education of accountants in Russia currently seems impossible outside the context of the digital transformation that all sectors of economic activity are experiencing. The requirements of the digitalization of the economy affect the process of teaching accountants in higher education both from the point of view of the need to update educational content in terms of acquiring new "digital" competencies by students and the formation of a digital culture, getting an idea of modern opportunities related to the digitalization of the economy, studying modern digital technologies, including those used directly in professional activities and new accounting objects, and from the introduction of various kinds of digital technologies directly into the learning process.

At the same time, a regulatory framework has been formed in the Russian Federation that provides for the intensification of efforts by all educational institutions of higher education to introduce digital competencies both in relation to the practice of the educational process and in relation to the content of the main professional educational programs within which the educational process is implemented.

The conducted research allows us to conclude that at present the leading agricultural universities have formed a worthy response to the challenges associated with the digital transformation of society. Their educational programs adequately represent academic disciplines related to various aspects of digital technologies. At the same time, educational disciplines related to the study of professional software. It seems timely to fulfill the instructions of the President of the Russian Federation and the Deputy Government of the Russian Federation on the introduction of sections on the study of artificial intelligence

technologies into the educational programs of higher education. As a disadvantage, a relatively low share of academic disciplines devoted to the basics of digital literacy can be noted, which can lead to distortions in the formation of students' digital competencies.

In accordance with the Strategy for the Digital Transformation of Science and Higher Education, all educational organizations, not excluding agricultural universities, implement the use of various digital technologies as part of the implementation of the educational process and its support, especially in connection with the development of distance learning programs. Big data analysis technologies, artificial intelligence, virtual reality and augmented reality, and blockchain technology are finding their application. However, today the leading role among digital technologies used in the practice of higher education is played by cloud technologies.

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