

# *Financial and accounting competencies in the education of modern managers*

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**Abstract** — The article is devoted to the actual topic of obtaining an integrated education that allows a modern specialist in the field of management to independently solve the tasks of the financial and economic activities of the organization. The article considers the provisions of the strategy to improve financial literacy in the Russian Federation in terms of the implementation of educational programs of educational organizations on the basis of federal state educational standards. On the example of the preparation of bachelors in the direction of "Management", implemented at the St. Petersburg Institute of Technology (Technical University), the article presents a modular approach to the development of financial and accounting competencies by students of all areas of training. As prospects for the development of education, a procedure has been proposed for incorporating financial and accounting competencies into educational programs taking into account the requirements of professional standards (GEF VO 3 ++).

**Keywords** — *Financial literacy, modular approach, competence, digitalization, educational standard*

## I. INTRODUCTION

For more than 180 years, economic disciplines for technology students have been taught at the Technological Institute. In 1837, the first graduation of students in the history of the Technological Institute took place, at the final exam among the compulsory subjects was "Accounting". The thorough economic training of students at the Technological Institute allowed many of its graduates to become, in different historical periods, prominent organizers of industrial production, head plants, factories and more. A graduate of the Technological Institute of 1891, Adametsky Karl Karlovich in 1898 published research in the field of management, having

formulated the scientific principles of management even earlier than the classics of the scientific organization of labor Frederick Taylor. Currently, the name of our graduate K.K. Adametsky wears the Academy of Economics in the Polish city of Katowice. A graduate of the Technological Institute Gulishambarov Stepan Iosifovich is the author of a number of monographs on economics, including the monograph "World Trade of the XIX Century and Participation in Russia" and the author of articles on economics in the Encyclopedic Dictionary of Brockhaus and Efron.<sup>1</sup>

Lessons from the history and needs of modern business necessitate the training of professional specialists who possess not only the necessary knowledge and skills to effectively perform work functions, but also the competencies necessary to independently solve tasks on financial and economic activities. The inclusion in the curriculum of the tasks of mastering knowledge in the field of accounting and finance is also related to the fact that the most important transforming factor of the modern economy is the penetration of information technologies into all spheres of human activity and the digitalization of economic processes, creating the basis for the formation of new approaches to analytics, forecasting and management decisions.

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<sup>1</sup> [www.technolog.edu.ru](http://www.technolog.edu.ru)

## II. MATERIALS AND METHODS (MODEL)

As part of the work on the digitization of the management system in the enterprise, restructuring and optimization of the entire information flow system is taking place and a management information system (MIS) is being created (MIS), the task of which is to process data from a variety of

internal and external sources in order to obtain a valid to apply information related to the activities of the organization. The introduction of accounting information systems is a connecting element and the basis of the company's system integration (Fig. 1) [3]

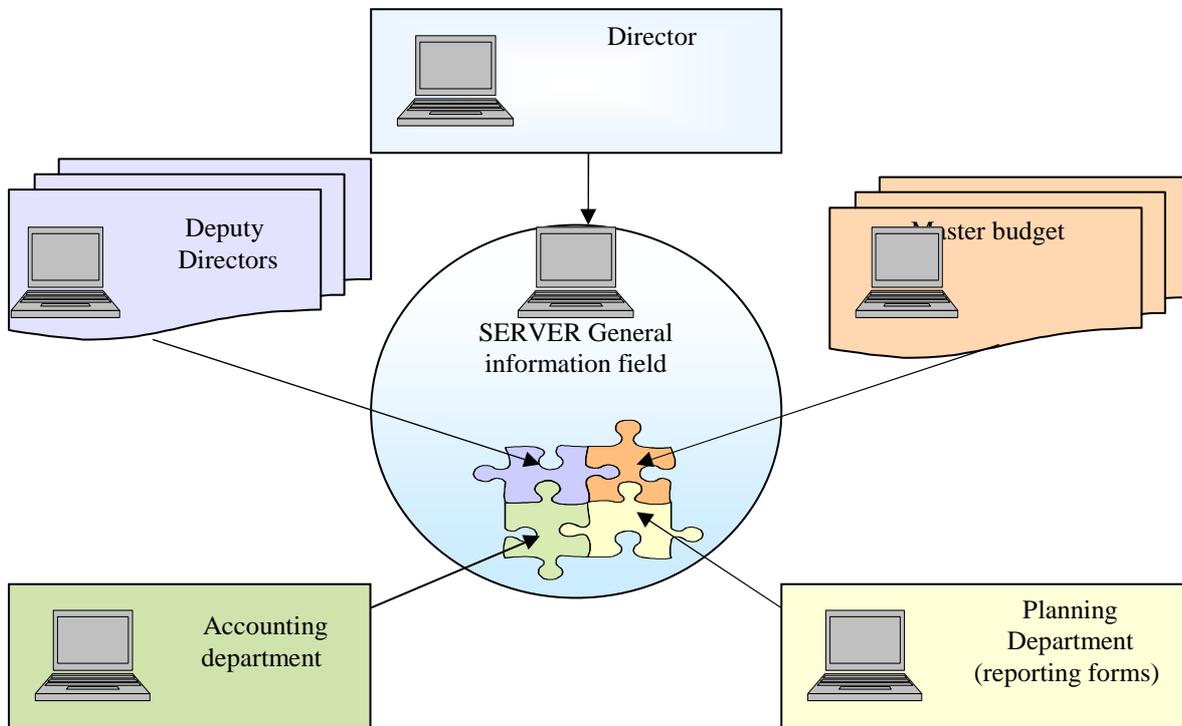


Figure 1 Scheme of the management information system (developed by authors)

Priorities in the education system are shifting towards higher requirements for the formation of students' knowledge and skills to use information technology in future activities. In 2011, the Government of the Russian Federation decided to implement, jointly with the International Bank for Reconstruction and Development, the project "Promoting financial literacy of the population and developing financial education in the Russian Federation" (the project was executed by the Ministry of Finance of the Russian Federation). The Order of the Government of the Russian Federation of September 25, 2017 approved the "Strategy for improving financial literacy in the Russian Federation for 2017–2023". As part of the implementation of this strategy, educational programs to improve financial literacy are being developed and implemented for various target and age groups of students in educational institutions. A network of federal and regional methodological centers for training and raising the level of skills for teachers of general educational organizations, teachers of educational institutions of higher education and tutors for adults has been created [5].

An important direction of the strategy implementation is the actualization and introduction of elements of financial literacy into the programs of educational organizations on the basis of federal state standards and exemplary basic educational programs of various levels of education in undergraduate programs (specialties) in all areas of training and specialties. It seems necessary to train students to work with the application programs used in the graduate's professional activities in the relevant field, including in the field of finance and accounting.

At the St. Petersburg Institute of Technology (Technical University), accounting and financial competencies within the training area of 03/03/02 "Management" are implemented in the training module "Financial Accounting and Analysis". Being a module of the basic part of the educational program, it is studied by students of all areas (profiles) of the "Management" direction: production management, financial management, logistics and marketing.

Studying the module program allows students to master the following professional competencies (PK) and general professional competencies (GPK):

-GPK-5: possession of the skills of drawing up financial statements taking into account the consequences of the influence of various methods and methods of financial accounting on the financial performance of an organization

based on the use of modern methods of processing business information and corporate information systems (Table 1);

**TABLE I. GPK-5 COMPETENCY MAP**

**GPK-5** Possession of the skills of drawing up financial statements taking into account the consequences of the influence of various methods and methods of financial accounting on the financial performance of an organization based on the use of modern business information processing methods and corporate information systems

<i>Own</i>										
Skills of drawing up financial statements taking into account the consequences of the influence of various methods and methods of financial accounting on the financial performance of an organization based on the use of modern business information processing methods and corporate information systems										
<i>Be able to</i>										
Prepare financial statements					Use modern business information processing methods.					
<i>Know</i>										
regulatory documents governing the preparation of financial statements	Methods and methods of financial accounting	Basics of tax Accounting	The classification of the reporting organization, the composition and requirements for its preparation.	The order of formation and information support for the preparation of financial statements.	The impact of various methods and methods of financial and tax accounting on the financial performance of the organization	The essence and purpose of corporate information systems, the place of accounting information in these systems.	Classification of business information by management function.	Documentation of financial accounting and the procedure for its preparation.	Forms of accounting and information processing, organization's document circulation and the procedure for its formation	Modern business information processing methods.

- PC-4: the ability to apply basic financial management methods for asset valuation, working capital management, investment decisions, financing decisions, dividend policy and

capital structure, including when making decisions related to operations on world markets in globalization (Table 2);

**TABLE II. PC--4 COMPETENCY MAP**

**PC-4** Ability to apply basic financial management techniques for asset valuation, working capital management, investment decisions, financing decisions, dividend policy and capital structure, including when making decisions related to operations on world markets in the context of globalization

<b><i>Own</i></b>										
Skills of applying basic financial management methods for asset valuation, working capital management, investment decisions, financing decisions, dividend policy and capital structure, including when making decisions related to operations on world markets in the context of globalization										
<b><i>Be able to</i></b>										
Apply financial management techniques for asset valuation, working capital management, for the formation of dividend policy and capital structure					Apply financial management techniques to make investment decisions, financing decisions, decisions related to operations on world markets in the context of globalization					
<b><i>Know</i></b>										
Essence, objectives, methods and information support of financial management, its relationship with financial and tax accounting	Composition and classification of assets and liabilities of an organization, methods of their evaluation	Essence and classification of working capital of an organization	Funds and procedure for their placement, methods of analyzing cash flows	Concept and composition accounts receivable, accounts receivable management	Basic concepts of the price of capital, the basic theory of capital structure. The concept of leverage	The concept of financial resources of the organization, their sources and directions of use.	The concept of investments, their types and features	The concept of financial assets and their classification, profitability of a financial asset and valuation.	Dividend policy of the organization, the main approaches and limitations in its formation	The essence of the international capital market, the characteristics of the modern international monetary system

- PC-14: the ability to apply basic principles and standards of financial accounting for the formation of accounting policies and financial reporting of the organization, skills of

cost management and decision-making based on management accounting data (Table 3).

**TABLE III. PC--14 COMPETENCY MAP**

**PC-14** Ability to apply basic financial management techniques for asset valuation, working capital management, investment decisions, financing decisions, dividend policy and capital structure, including when making decisions related to operations on world markets in the context of globalization

<b><i>Own</i></b>										
Skills of applying basic financial management methods for asset valuation, working capital management, investment decisions, financing decisions, dividend policy and capital structure, including when making decisions related to operations on world markets in the context of globalization										
<b><i>Be able to</i></b>										
Apply financial management techniques for asset valuation, working capital management, for the formation of dividend policy and capital structure					Apply financial management techniques to make investment decisions, financing decisions, decisions related to operations on world markets in the context of globalization					
<b><i>Know</i></b>										
Essence, objectives, methods and information support of financial management, its relationship with financial and tax accounting	Composition and classification of assets and liabilities of an organization, methods of their evaluation	Essence and classification of working capital of an organization	Funds and procedure for their placement, methods of analyzing cash flows	Concept and composition accounts receivable, accounts receivable management	Basic concepts of the price of capital, the basic theory of capital structure. The concept of leverage	The concept of financial resources of the organization, their sources and directions of use.	The concept of investments, their types and features	The concept of financial assets and their classification, profitability of a financial asset and valuation.	Dividend policy of the organization, the main approaches and limitations in its formation	The essence of the international capital market, the characteristics of the modern international monetary system

To carry out professional activities, graduates of the faculty need additional competencies required to obtain a holistic view of the financial and economic activities of the organization. The training material of the Financial Accounting and Analysis module contains several key sections in which, with an emphasis on the specifics of the training orientation, the general issues of accounting at the enterprise, financial management, and cost management are addressed.

### III. RESULTS AND DISCUSSION

One of the main problems of a methodological nature that caused a broad discussion is the problem of implementing a competence-based approach in educational activities. The problems of the need for students to receive comprehensive education through the expansion of mastered competencies are noted by D. O. Vinohodov, M. V. Rutto, as well as P. N. Novikov and O. F. Seliverstova. [4, 6]

Different competencies that determine the value of a manager must be of varying degrees of importance and correspond to the nature of his duties. However, the degree of increasing importance of financial competencies increases depending on the increase in the level of management. The creation of an effective management system is associated with the development and implementation of an enterprise financial management system, an accounting and control system for responsibility centers that contribute to the achievement of the overall goal of an enterprise. All efforts in the field of management will not give the desired results if they are not supported by a management system that lacks operational information about the economic results of the enterprise and proper control over income and expenses. The implementation of all management functions at various levels and the validity of making timely management decisions are provided by a system of information provided by accounting (Fig. 2).

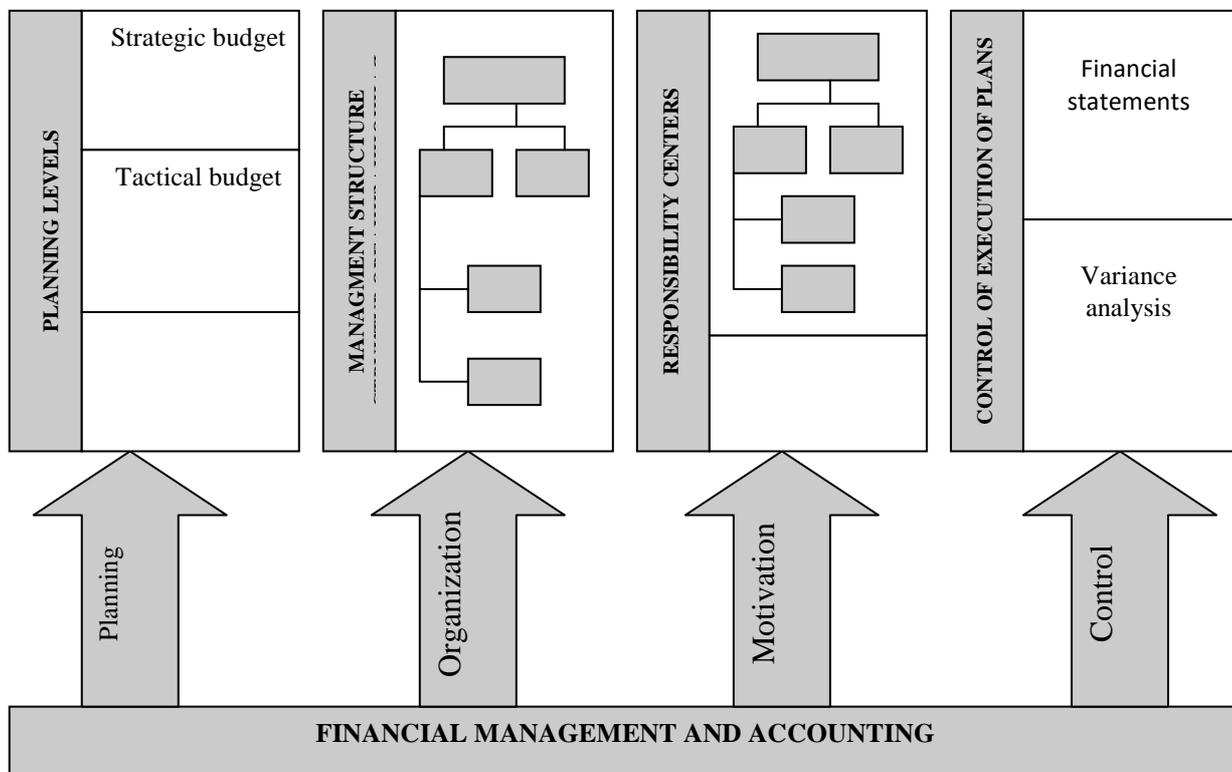


Figure 2 Financial management and accounting in the management system (developed by authors)

*Planning* as a management function in the Financial Accounting and Analysis module is studied from the point of view of the development and management of the budgeting system. Students receive budgeting skills at various levels, and also learn:

- design financial management structure;

- to develop the structure of the general budget of the enterprise;

- assign responsibility for budgets and their articles;

- develop budget policy, including methodological, organizational and technical issues;

- develop budgeting provisions and regulations;

-to consolidate the functions of drafting, coordination, control of budget items for officials.

The revenue and cost budgeting system involves the description of formal relationships and ways of interaction between various organizational units and helps minimize the likelihood of negative consequences associated with a lack of coordination.

*The organization* of the fulfillment of planned tasks is based on self-control and a report to the immediate supervisor. Information exchange not only serves to transmit information about the implementation of planned tasks, but also allows you to control the sequence of their implementation, depending on the actual results, specify the schedule for their implementation, and take other necessary organizational operational measures.

Mastering the system of accounting and analysis of the activities of departments of the enterprise, students learn to make decisions about optimizing the organizational structure. In particular, the methodology of matrix projections is studied: the imposition of types of budgets and budget items on the organizational units of the financial structure, the formation of a table of responsibility.

The *motivation function* is closely connected with the accounting system. One of the ways to effectively use budgets and regulations as a system of goals is their correlation with the personal claims of managers, i.e. it is necessary to compare them with personal goals that managers hope to achieve.

The way to achieve this is to organize the management of responsibility centers. The classification of responsibility centers is based on the criterion of the financial responsibility of their managers, determined by the breadth of the powers granted to them and the completeness of their responsibility.

Studying the basics of accounting for centers of responsibility, students master the principles of applying to various departments of an enterprise various targets and assessment criteria that most effectively stimulate these departments in the economic activity of an enterprise.

Training in financial accounting as a systematizing element of *control* allows students to become familiar with the methods of analyzing the implementation of planned tasks, budgets and budgets, learn to identify undesirable discrepancies between actual and planned indicators, determine the reasons for this, in order to eliminate their influence in future work.

Thus, "Financial Accounting and Analysis" is a comprehensive knowledge module that combines such management functions as: planning, organizing and managing production, rationing, monitoring, analysis, and a number of others. This is its great advantage, since it is at the junction of the sciences, when using different scientific methods, significant breakthroughs to new knowledge and technologies occur.

It seems promising to introduce this module into educational programs of all areas of training students of the Faculty of Economics and Management and other faculties of the Institute of Technology.

In the light of the adoption of new educational standards of higher education, an important aspect of educational programs is the possibility of mastering competencies that involve students in acquiring accounting and financial skills in accordance with their job functions.

The transition of educational organizations of vocational education to the federal state educational standards of a new generation, developed to meet the requirements of professional standards (FGOS VO 3 ++), provides for the first time the possibility of direct integration of learning outcomes and employers' requirements.

The development of professional competences for the direction of training 38.03.02 "Management" should include the following steps:

- 1) Formation of a database of job descriptions of management personnel of enterprises.
- 2) Formation of a database of labor functions of management personnel of enterprises for professional standards (if any).
- 3) Formation of a database of educational standards for higher education.
- 4) Development and formation of a base of rules for compliance of labor functions, competencies, modules, disciplines, test tasks, training systems, training scenarios.
- 5) Formation of the educational program.
- 6) Assessment of the quality of training (fund of assessment tools).

#### IV. CONCLUSION

In conclusion, it should be noted that the requirements for graduates of educational programs imply their readiness for professional activity in accordance with the level of acquired competencies. The learning outcomes of the educational program (the totality of knowledge and skills that a graduate possesses as a result of training under the program) must ensure that graduates acquire relevant competencies and thus ensure their readiness for professional activities in accordance with the acquired qualifications. Formation of professional specialists in the field of management requires the development of the competencies necessary for the independent solution of tasks on financial and economic activities, obtaining additional knowledge and skills in the field of accounting and finance.

## References

- [1] Order of the Government of the Russian Federation of September 25, 2017 No. 2039-p On Approving the Strategy for Improving Financial Literacy in the Russian Federation for 2017-2023. Access address: <http://www.garant.ru/products/ipo/prime/doc/71675558/#ixzz5f9NZFU8N>
- [2] Federal State Educational Standard of Higher Education 38.03.02 Management (bachelor degree). Access address: [http://www.consultant.ru/document/cons\\_doc\\_LAW\\_194217/19789c499cb95f90a790c9c3c3b7702c09084414/](http://www.consultant.ru/document/cons_doc_LAW_194217/19789c499cb95f90a790c9c3c3b7702c09084414/)
- [3] Federal Law "On Education in the Russian Federation" of 12.29.2012 N 273-ФЗ. Access address: [http://www.consultant.ru/document/cons\\_doc\\_LAW\\_140174/](http://www.consultant.ru/document/cons_doc_LAW_140174/)