

# An analysis of the theoretical and methodological aspects of the competency-based approach in personnel management: directions for modification

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**Abstract.** The article discusses features and advantages of the competency-based approach manifested when it is used in the personnel policy. To identify a unified framework for the competency-based approach, definitions of the category “competence” were studied, and constituent elements of professional competencies were presented and analyzed. They were divided into implicit and explicit; priority elements were identified in terms of goals of management. The analysis of the theoretical and methodological aspects of the competence-based approach allowed the authors to present the concept “competence”, and identify parameters for the implementation of the approach in the context of developing the human capital.

## 1 Introduction

In the changing macroeconomic environment characterized by a heightened degree of uncertainty and a sharp limitation in the availability of capital markets, it is large organizations experienced in surviving multiple crisis impacts that are able to form a flagship force for economic prosperity. Having the necessary infrastructural and resource capabilities, these organizations are able to implement a systematic approach in reorienting personnel policy to the updated market demands and thereby form the core of competitiveness of the economy through the development of human capital, improvement of the quality and productivity of labor, and implementation of advanced scientific developments into production while ensuring the effective employment of the population.

## 2 Materials and Methods

The competence-based approach is a set of technologies for managing the personnel, through which personal behavior in the professional activity is considered in the context of manifestation and implementation of employee’s competencies; the emphasis of the approach is on labor functions and a correlation between competencies and labor efficiency [1]. This emphasis on performance causes the increased popularity of the competence-based approach [2]. The approach has a number of features and advantages that are manifested when it is applied in the personnel policy.

1. Within the competency-based approach, there is a formalization and structuring of the elements of human capital, where the category of competence acts as a central basis for the main directions of the personnel policy.

2. The approach is focused on the study of a person in terms of the most relevant characteristics for the performance of labor functions, which together determine effective professional behavior.
3. The competence-based approach through the construction of competency models allows you to link the personnel policy with its strategic goals and objectives, thereby determining the role of each individual employee.
4. The competency-based approach allows us to formulate requirements for each employee, depending on his position and function.
5. The competency-based approach forms the basis for the development of measures to develop the human resources potential, since it allows you to develop focus requirements for both training programs and staffing through the definition of results of transformations in the form of required competencies and further assessment of their level.

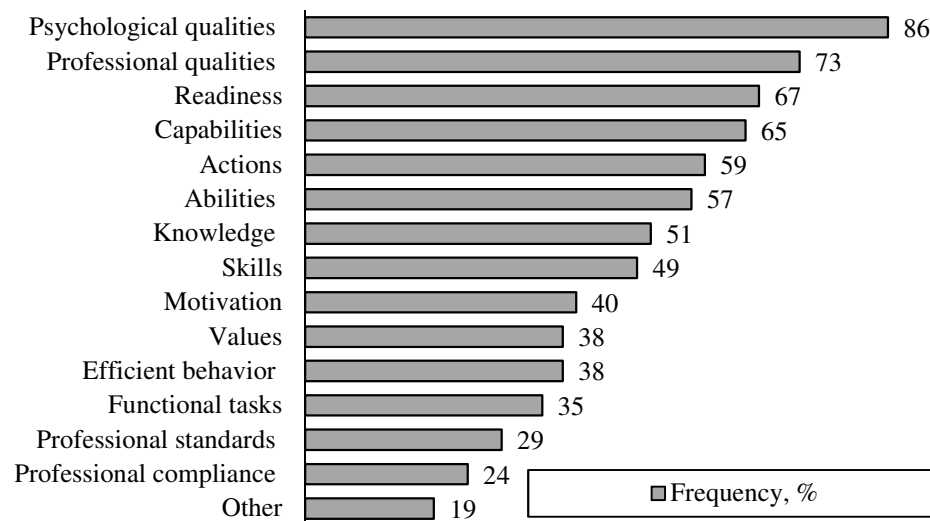
The analysis of the definitions of competence allowed us to assume that this term is used as a synthetic category that combines components such as personal qualities, knowledge, skills, abilities, and experience that determine effective professional behavior focused on achievement of specific results in accordance with the established requirements for the position held. The main emphasis is placed on the performance of professional functions, and these components are factors which help predict labor productivity of the employee.

The introduction of the category "competence" was due to the need to formalize and structure the most significant elements of human capital as part of a single

variable with the aim of its further operationalization as part of the application of management measures.

The task of operationalizing the competence necessitates the establishment of a hierarchy of its

constituent elements and their content. Closet conducted a content analysis of competency statements and compiled a list of the most common elements that define this category (Fig. 1).



**Fig. 1.** The result of the content analysis of the elements of the definition of competencies [21].

The competencies, which will be of practical value in the personnel management and are a foundation in building the management system and developing human resources, must meet a number of criteria. Kudryavtseva identifies the following mandatory criteria [32]:

1. Versatility. Due to the fact that competencies are the basis of effective activity, they must be universal and applied to different employees, while they must be reproducible and developed.
2. Subjectivity. Competencies should always be addressed to a specific subject.
3. Instrumentality. Competences should determine the performance of a function, being a condition for its implementation. If this criterion is not met, the competency can be removed from the model.
4. Specificity. Competence statements should be clear and unambiguous. Competences should be formulated in terms of practical tasks. Abstractness excludes the possibility of their use in the personnel policy and creates prerequisites for managerial risks due to the difference in subjective interpretations.
5. Goal-orientation. Competences should directly correlate with the strategic vector of the company, be the foundation for the performance of functions to achieve short-term and long-term goals.
6. The study of methodological works allowed us to supplement these criteria [33].
7. Measurability. Each competency should be formulated in such a way that it is possible to assess its level, and all assessment results can be reduced to a formalized assessment metric. This criterion excludes the use of implicit personal qualities in the form of competencies, such as leadership, result orientation, flexibility of thinking, innovation.
8. Exhaustibility. Developed competencies should fully cover professional activities. If the components of the competence are partially defined, the effectiveness of

an employee may fail to correlate with the level of competence, discrediting the effectiveness of training.

9. Discreteness. The content components should not overlap, otherwise the results of assessment and the degree of influence on the effectiveness of the performance of functions will be distorted, because one competency will contain elements of another one.
10. Focus. The content field of each competence should cover only a narrow-controlled area of the employee's human capital. An attempt to cover a significant number of skills and abilities will lead to a blurring of the boundaries of its elements, excluding the possibility of assessing the general level of competence and linking it to a specific practical function.
11. Adaptability. The competency system should be permanently updated due to changing environmental factors.

The primary task in studying the personnel development is to explore the issue of the variability of competencies. Most studies on competencies define them as a static category, describing the present and past professionally significant characteristics [34]. With this approach, there is a lack of continuity of competencies in the process of their evolution. However, some authors still introduce a dynamic aspect into the content of competencies. In her work, Chulanova classifies competencies by dynamism [35]. According to this criterion, competencies are divided into static, developed in the development of the personality and not changing in the future, and dynamic, i.e. changing in the development and learning. The dynamic nature of competencies is emphasized by Morgan, defining the elements of managerial competencies and noting the possibility of their change and development [36].

In our opinion, competencies are an exclusively dynamic category that can change under the influence of external and internal factors. The assumption about the existence of static competencies contradicts the previously described criterion of Kudryavtseva about the mandatory reproducibility and development of competencies, while their invariance would indicate their uncontrollability, which contradicts the general concept of the competency-based approach as a set of effective personnel management technologies and a system for evaluating the results of the educational process. If competencies are static units, they cannot be developed in training. These contradictions are a direct consequence of the borrowing elements of the American competency-based approach, which defines fundamental personal and professional qualities and human abilities as separate competencies.

The concept of dynamic competencies necessitates the development of tools for assessing and monitoring changes in the level of competencies in dynamics within the professional activities of employees. In order to achieve stability of personnel's work, a permanent assessment of competencies, including motivation, should be carried out to reveal the level of competence in dynamics and make timely adjustments. Therefore, the evolutionary approach is reasonable.

Competence is a controlled dynamic explicit category, which is a set of professionally significant knowledge, skills and abilities in conjunction with motivation, existential acceptance, formed on the basis of implicit personal characteristics of an employee, which determine professional effective behavior in the performance of labor functions in accordance with established requirements.

Within the competency-based approach, the definition of a model for grading competency levels is of particular importance. The introduction of a scale of competency levels makes it possible to group employees, to determine the threshold levels of competencies necessary to perform professional functions, thereby forming the minimum requirements for employees, identify potential "borderline" stages of competency development for more efficient development of advanced training programs and identifying experts in professional fields for the purpose of subsequent design of career promotion and mentoring activities [37].

Parry described three levels of competencies: beginner, adept and expert [38]. The most widely used are five-level competency-based gradations. These scales include the models by Marr, Stewart and Dreyfus presented in Tables 1 and 2.

**Table 1.** Gradation of levels by Dreyfus competence [39].

Proficiency levels	Descriptor
Newbie	Behavior rigidly regulated by rules is inflexible
Experienced Beginner	Behavior that additionally includes responding to a change in a situation
Practitioner	Conscious behavior focused on achieving long-term goals
Knowledgeable Practitioner	The presence of systems thinking, perception of the situation as a whole and actions in accordance with personal beliefs
Expert	Having an understanding of the situation at the level of intuition and scaling the key aspects of the situation

**Table 2.** Marr's competence level gradation [40].

Competence level	Descriptor
E. Competence not developed, unsatisfactory level	The employee does not possess or show the competence and abilities necessary for this competence

D.	Competence underdeveloped	The employee partially demonstrates the constituent elements of competence (skills), but not always successfully.
C.	A basic level	The employee has the required level of competence, which determines effective behavior. This level corresponds to the general competence of middle managers
B.	High level	The employee has skills and abilities of increased complexity, influencing the implementation of business processes. The employee has predictive skills in determining the trends and consequences of events
A.	Leader level	The highest level of competence development, which implies that the employee has a full range of necessary skills, while also contributing to the development of relevant competence in other employees. This level determines the behavior of senior managers whose decisions can influence the strategy of the company.

Marr's levels were taken as the basis for the study as they are more universal and take into account focal requirements for each of the competency levels. In order to develop mathematical tools for assessing the level of competencies and to increase the level of visibility of the assessment gradation, the percentage scale will be used.

In terms of the personnel assessment, the competency-based approach involves identifying the degree of efficiency, quality and complexity of the work, competencies of a particular position. Thus, it is necessary to establish a set of competencies which accurately describe the requirements for knowledge, skills, and the required indicators of behavior within a given position (group of related positions) or a range of professional functions. This set can be a competence model of the company [41].

The competency model may consist of clusters or functional blocks of competencies, names of competencies, descriptors, and a unified assessment scale. Behavioral indicators can be tied to competencies used in order to understand the requirements for personnel.

The competency model acts as a connecting element between the personnel management and development policy and the ways to achieve its strategic goals, thus

allowing the unified business strategy to be scaled up to the roles and functions of each employee, translating the requirements for the competency composition and level through the creation of competency profiles [42].

The introduction of the competency-based approach into the organizational structure highlights the tasks of developing human resources based on the activation of mechanisms for the search, accumulation and implementation of corporate knowledge.

### 3 Results and Discussion

The efficiency of the competency-based approach in the management and development of human capital depends on the composite parameters interpreted within the category "competence". It is important to understand and interpret the definition of competence. In view of the significant differences in interpretations due to the development of this concept as a socio-economic category that meets the current needs of society at various stages of its ontogenesis, the authors investigated the main approaches to the definition of competence (see Table 3).

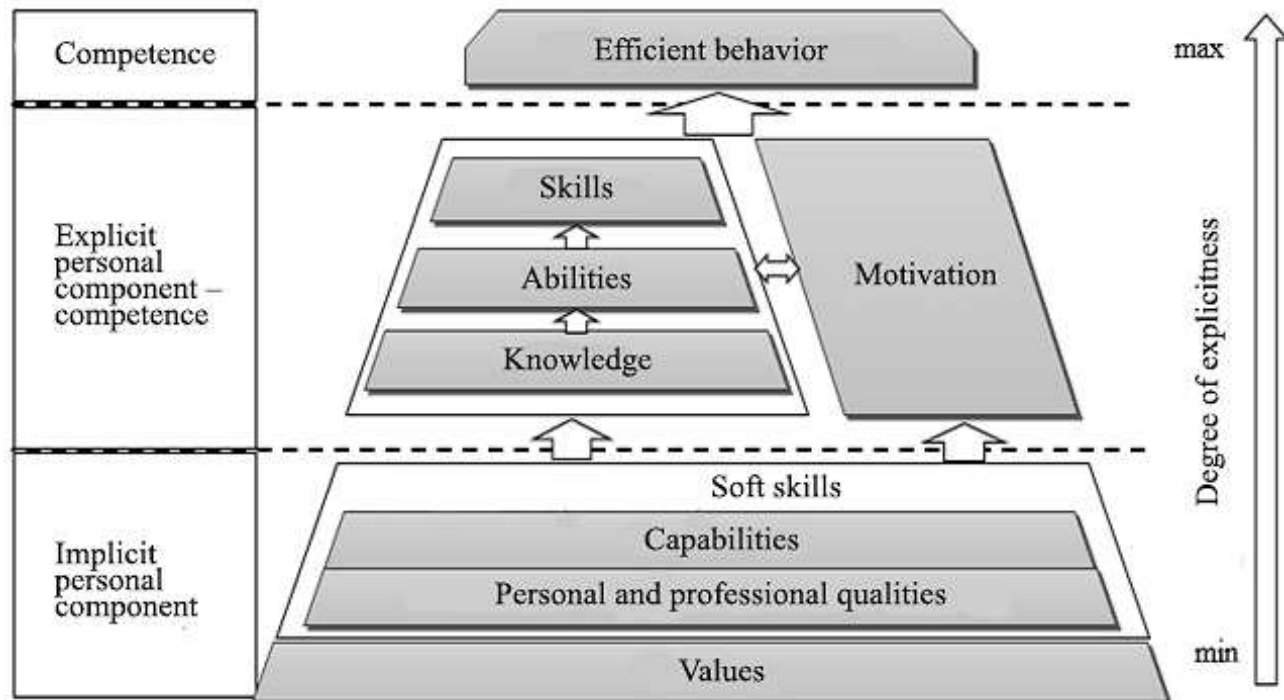
**Table 3.** Definitions of the category "competence" [3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20].

Authors (source)	Definition of competence (constituent elements)
White	The ability of an organism to influence the environment and effectively interact with it through a set of personal abilities
McClelland	An assessed characteristic of a person that allows for predicting the level of performance of a job and differentiating employees by their degree of efficiency and productivity
Spencer Jr. Spencer	The basic individual characteristic that determines the effective, best, criteria-based behavior

Boyatzis	The basic personality characteristic related to effective or outstanding work performance. Among these characteristics are motives, character traits, skills, assessment of one's own image or social role, totality of knowledge used.
Rankin	A set of statements of the expected actions of an individual that give a complete picture of the most significant components of behavior and values that determine the success of the organization
Woodruff	Competencies that allow an employee to perform his work in accordance with the requirements for quality and timing
UK National Vocational Qualifications Standards, NVQ	Capabilities that allow the employee to be relevant to the position held
Waitman	Some of the characteristics and abilities that the employee demonstrates in performance-oriented behavior
Widdett Holliford	Behavior that the employee demonstrates in performing a task in the company
Project Tuning Educational Structures in Europe	The dynamic set of understanding, knowledge, skills and abilities
<i>Domestic works</i>	
Khutorskoy	A set of interrelated qualities of the individual (knowledge, abilities, skills, methods) in relation to a certain range of objects and processes necessary for high-quality productive activity
Markova	Possession of a certain activity within the profession at a sufficient level
Shekshnya	The basis of behavior that maintains high standards of work. Competencies include parameters such as knowledge, skills, motivation, psychophysical characteristics of the individual.
Chub	The ability based on the organic unity of knowledge, skills, experience and attitudes to both familiar and new professional activities
Tishkova	A dynamic combination of knowledge, understanding, skills and abilities. Competence means a certain ability or skill activated by a person to perform a task in such a way that it is possible to evaluate the effectiveness of its performance.
Shishov Agapov	The ability and readiness for activities based on knowledge and experience acquired through training, focused on the independent participation in the educational and cognitive process and aimed at its successful inclusion in labor activity.
Lednev Nikandrov Ryzhakov	The term "competence" replaces knowledge, skills and possession and is a relational category that links them within the human practice.

FSS HPE-3	The ability to apply knowledge, skills, and personal qualities for success in a particular area
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The most significant elements of competence were identified and grouped (Fig. 2).



**Fig. 2.** Logical hierarchy of the main elements of competencies.

When constructing this hierarchy, the authors modified the Iceberg model by Spencer and Spencer [22]. Each of the elements of the lower level determines features of the other elements located above, thus emphasizing the systemic nature of solving problems in the development of competencies.

1. Values. They represent a set of internal fixed psychological attitudes that underlie the worldview of the individual and characterize his reactions to surrounding events and objects. Being the determinants of reflective behavior, internal values can determine the vectors of the employee's behavior in his professional activities.
2. Personal and professional qualities (attitudes). Psychophysical properties that manifest in professional activities and determine the quality and effectiveness of the development of competencies. There is no single standardized set of personality traits that could unambiguously characterize an effective employee due to the impossibility of establishing transparent causal relationships with the result and differences in the content of work performed; however, many employers form lists of the most sought-after personal and professional qualities. One of the variants of the list of these qualities was developed by Tome and Kahele [23].

This list has been updated and supplemented by the authors:

- business qualities: organization, discipline, self-discipline, initiative, activity, responsibility, diligence, independence, result-orientation;
- moral and psychological qualities: leadership, self-esteem, humanity, tolerance, justice, honesty;
- integral qualities: efficiency, self-management, creativity, attentiveness, authority, sociability, openness, culture of thinking and work, adaptability.

Personal qualities cannot be independently defined as competencies due to the fact that they do not directly affect the result of the activity, but indirectly affect the behavior of the employee and determine his reactions to situations or incoming information. According to Baidenko, there are competencies and personal qualities; competencies should be supported by personal qualities such as performance, endurance, and overcoming difficulties [24].

3. Ability. This group may include physiological innate capabilities and individual psychological characteristics which are fundamental and manifest in numerous activities. Teplov defines abilities as features that differentiate people and affect the success

of their activities [25]. Unlike personal qualities, which are fundamental constants in the formation of a personal and professional profile and are superimposed on all forms of human behavior, abilities are activated when performing certain practical activities that directly correlate with them.

Abilities are the basis for the subsequent acquisition of knowledge and the formation of skills; new abilities may develop, and existing ones may be modified or lost.

Abilities include anatomical and physiological characteristics (to run fast, physical endurance, reaction speed) and key psychological characteristics (critical thinking, analytical thinking, identifying motives of other people, solving problems, subjective attitude to existences).

Personal and professional qualities and abilities are combined into “soft skills”. The growing role of soft skills in the context of technological progress and dynamization of the business environment may indicate a general restructuring of the guidelines for designing personnel policy towards the formation of personnel with the potential for rapid adaptation and development of key competencies [26].

The three groups of elements refer to the implicit component of the personality, which manifests in the labor activity in an indirect form through specific behavioral signs; these elements are realized through the explicit component - competencies.

4. Knowledge. It is verified, tested, and assimilated information that a person, a group of people or organization possesses. This information can be applied to the solution of practical problems. Based on the study by Stewart [27], it can be concluded that knowledge is a fundamental category for the development of competencies. Knowledge as an element of competence has three components: cognitive knowledge, practical knowledge, and systemic knowledge. Cognitive knowledge combines meaningful information about objects, phenomena, laws and is concentrated around the question “what?”. It is the theoretical basis for the further development of professionalism. Practical knowledge is a logical continuation of theoretical training, it forms “skills”, underlies the algorithmization of practical activities, methods, and results of practical actions, concentrating around the questions “how?”. Systemic knowledge is concentrated around the interconnection systems and the “theory” and “skills” – they form “skills”, patterns, cause-and-effect relationships, answering the question “why?”. There is a direct objective relationship between these components [28]. Professional knowledge is implemented through the development of skills and abilities of the employee.
5. Skills and abilities are realizable abilities to perform specific professional actions through their effective algorithmization based on professional knowledge. Skills and abilities are differentiated and correlated in accordance with the degree of automation of actions, at which the skill is improved in the professional activity, transforming into a higher-level category due to the emergence of cognitive unconsciousness and a

reduction in the level of understanding of the implementation of intermediate steps. At the same time, skills and abilities are in permanent diffuse movement, when the emergence of certain skills is based on the application of a previously formed set of abilities. Thus, two forms of skill-to-ability correlation can be formulated [29]:

- abilities develop into a higher level – skills;
- abilities are a conscious tool for implementing a complex practical action through the use of previously developed skills, while the skill takes the form of an automated execution of simpler actions.

The level of professional skills and abilities is determined by the availability, accuracy and completeness of employee's professional knowledge. The process of developing competencies is complex and systemic, and the development of skills and abilities ignoring the “knowledge” component is impossible.

6. Motivation reflects the degree of motivation of the employee to perform professional functions. It is important to understand that high performance and labor productivity is impossible without explicit motives, because regardless of the level of qualification, the amount of knowledge and the level of development of skills and abilities, the employee will tend to avoid performing these functions. The motive is defined as an internal psychological driver in the form of a target setting that determines the vector and intensity of the individual's behavior. The tools for influencing internal motives are incentives, which are internal or external incentive factors that cause a response as a result of this impact [30, 43, 44]. Particular attention is paid to the motivation factor in the competency-based approach in the behavioral models of the American school, while motivation is not considered as an independent element of competencies but is conditionally integrated into other elements. This approach reduces the transparency and complicates the operationalization of competencies; to determine the content of competencies, the concept of “readiness” is used as an internal motivation factor. This leads to the impossibility of identifying the independent contribution of these elements to the integral professional behavior of the employee. If the employee lacks a competence, it becomes impossible to determine whether this employee has objective practical skills, or whether he is not sufficiently motivated. Thus, motivation is an independent element of competence, which determines its implementation and should be evaluated in conjunction with knowledge, skills, and abilities.

Knowledge, skills, abilities, and motivation form a single competence resource, which is the basis for effective professional behavior.

Effective behavior is a form of behavior that determines the solution of assigned practical tasks in accordance with the established requirements, which helps achieve positive results. This form of behavior

determines the degree of competence of the employee. Competence is an integral characteristic of the employee having the necessary competencies, personal qualities, and abilities, which together determine the achievement of professional goals [31].

## 4 Conclusion

To identify a unified framework for the competency-based approach, the definitions of competence were studied; for its further operationalization, the constituent elements of professional competencies were presented and analyzed; they were divided into implicit and explicit ones; among them priorities in terms of goals were identified. The analysis of theoretical and methodological aspects of the competence-based approach allowed the author to interpret the concept of competence and identify the key parameters for implementing the approach in order to develop the human capital of organizations.

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