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# METHODOLOGICAL SUPPORT FOR ASSESSMENT OF THE COMPANY'S PERSONNEL POTENTIAL QUALITY BASED ON THE QUALITY FUNCTION DEPLOYMENT METHOD

*The object of research is the company's success key factors implementation by improving the quality of its personnel potential. The research is directed at studying the issue of assessing the quality of a company's personnel potential.*

*The paper is devoted to substantiating methodological recommendations for assessing the quality of the company's personnel potential based on the method of deploying the quality function. It takes into account the cause-and-effect relationships between the company's target requirements, the components of its personnel potential, and the processes that ensure the level of its implementation.*

*The quality function deployment analysis uses permits to reveal relationships among the personnel potential components. This method helps to set factors influencing their implementation level. Results will permit the company's management to develop a clear measures plan for personnel work. It will be focused on the company's key success factors achievement. Emphasis on the key areas will make it possible to minimize the costs spent on maintaining and realizing the company's employees' potential.*

*To obtain an objective evaluation valid for decision-making, it is suggested to determine the company's personnel potential quality through success key factors. Such an approach makes it possible to form the objective criteria to compare personnel potential of different companies.*

*The results are presented with using the ratio matrix. It shows correlation of the company's personnel potential components implementation level and influencing on them factors. The results suggest that company's management must pay attention to the team socio-psychological climate, organizational management structure and material and non-material stimulation system.*

*The quality function deployment method can be used for constant improvement and quality increasing the personnel management system functioning at the enterprise in general: social and labor relations, HR policy, personnel planning, personnel selection and adaptation, personnel stimulation, personnel development, corporate culture forming, personnel assessment and control.*

**Keywords:** *company's personnel potential, quality function deployment method, house of quality, company's key success factors, consumer's needs.*

Received: 09.02.2026

Received in revised form: 18.05.2026

Accepted: 28.05.2026

Published: 19.06.2026

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## How to cite

Bilorus, T., Olikh, L. (2026). Methodological support for assessment of the company's personnel potential quality based on the quality function deployment method. *Technology Audit and Production Reserves*, 3 (4 (89)), 19–26. <https://doi.org/10.15587/2706-5448.2026.363464>

## 1. Introduction

Under modern business conditions, any company achieves success by its resource potential using. Personnel potential was, is and will be the main company's strategic resource in the competitive struggle. Based on this, the companies' management always strives for the optimal personnel potential formation, maintenance and development. This will provide better quality at a lower cost of maintenance.

The definition of "enterprise personnel potential" as a scientific category is the subject of discussion. In this research, let's rely on the interpretation proposed by [1]. According to this source, the enterprise personnel potential is characterized as follows:

– this is a general (quantitative and qualitative) personnel characteristic as one of the resources' types; it relates to its functions' performance and the achievement of the enterprise's long-term development goals;

– these are the existing and potential employees' capabilities as a whole system (team); they are used and can be used at a certain point in time.

Therefore, the personnel potential in real form can be presented by the: employees' opportunities, professional training quality, labor, personal, psychological and physiological characteristics and also, most importantly, creative abilities. The enterprise's personnel potential is endowed with the integrity property. It fundamentally distinguishes it from the properties inherent in each individual employee [1].

Like any resource that the enterprise uses in its activities, personnel potential requires constant accounting:

– its current state analysis and assessment;  
– use directions and set goals achievement;  
– improvement opportunities, modernization, quality improvement.

Most often, when it comes to assessing the enterprise's personnel potential quality, indicators characterizing its components are taken into account. The following indicators' groups are proposed for the knowledge economy [2]:

- the personnel number and structure according to the employees' quality;
- personnel training;
- certification training;
- employees' number since the year beginning;
- wage fund composition and other payments;
- expenses for the workforce maintenance, which are not included in the wage fund.

In their totality, these indicators' values create the enterprise's personnel potential general characteristic. They indicate its strengths and weaknesses. However, this information applies only to the enterprise's internal environment. The external environment threats and opportunities, the possibility of flexible response to them, are not taken into account. Also, the specified indicators' groups do not reflect the enterprise's competitiveness on the market. Because there are no comparison criteria. It is important to increase the company's perception degree of external influences and the response speed. In order to this fact, it is necessary to form a toolkit for assessing the company's personnel potential quality. It will interrelate the factors of its internal and external environment.

In the process of optimal personnel potential forming, a number of documents are usually used. Among them are job description, competency map, etc. They contain requirements for the basic personnel competencies. However, these characteristics are only the raw data for obtaining the final result. Managers are more interested not in the availability and high level of employee's certain competencies, but in the quality and effectiveness of its work. That is, the degree of expectations satisfaction. Therefore, in this case, the personnel potential quality should be determined not through the assessment of its components' level, but through its compliance with the target requirements expected by the employer.

It was considered: the employer as a "consumer" and the company's personnel potential as a "goods". In such case it is advisable to investigate the company's employees (personnel potential) ability to meet the employer's needs. In order to transform the employer's requirements into the personnel potential quality parameters, and, accordingly, quality parameters of the processes that affect the degree of its implementation, it will be appropriate to use the technology quality function deployment (QFD).

The greatest contribution to the development of the quality function deployment method was made by Japanese scientists Akao Y. and Mizuno S. They have systematized the main ideas and problems of this method using. Quality function deployment method is based on constant monitoring and taking into account the consumers' requirements and wishes. This is done by finding out them and constant clarification and consideration. This method provides the manufacturer's sequence of actions to transform the actual product's quality indicators into technical requirements for the product. It also provides processes and equipment transformation. They, in turn, must guarantee the quality that meets consumer expectations [3, 4]. So, quality function deployment is the tool aimed at transforming consumer requirements (desires) into product quality characteristics. They are realized through new or improved technologies and/or techniques used in the production process.

The basis for QFD formation as the independent tool was the Japanese government, entrepreneurs', manufacturers' goal to restore the domestic economy after the Second World War, and later to become a world economic leader. Its theoretical basis is the quality management separation in the 1950s as the independent scientific direction with its own methods and tools. To achieve the set goal, Japan has identified priority directions. They were education, science, technology, production. In fact, these are classic innovation process' components. But the

Japanese emphasized quality. Quality is a set of product characteristics. In their combination, they lead to a high level of product performance of the functions assigned to it. They are consumer's needs satisfaction. Another important aspect of quality management is the errors' reduction both at each stage of the production process and at the exit. It means the defective products volume reducing. It is Japanese companies that are an example of the parallel innovation process model implementation. This model provides constant communication of the innovation process all stages' representatives and strengthening the current control function. The quality function deployment method became the embodiment of the above ideas and approaches. In 1978 the first work on the quality function deployment method was published. It was considered as an independent tool for company development. The work was titled "Quality Function Deployment: Approach to Company-Wide Quality Management" [5].

After popularization and widespread use in Japan, in the 1980s the quality function deployment method began to be used in the USA and European countries [6, 7]:

- USA: the first large companies that started to use the quality function deployment technique were the automobile industry enterprises. It was so-called "Big Three." They were Ford, General Motors, Chrysler. Also, during this period, Akao Y. articles become widespread. Trainings on the presented method's practical implementation are held. This "pushes" the quality function deployment method out of the automobile industry. Its diffusion into other national economy branches is taking place. In particular, this method is starting to be used by such well-known companies, as Hewlett-Packard, Kodak Digital Equipment, Eaton Controls, Texas Instruments, the US Army, etc.;

- Europe: in Sweden, the quality function deployment method is mainly used by large industrial enterprises to improve the product technical characteristics (Whirlpool, Molnlycke) or taking into account the consumers' requirements and expectations (Volvo). The articles by Akao Y. became widely distributed in European countries. The idea of spreading the QFD methodology was implemented through the articles' publication, lectures and trainings. In particular, QFD-Institute Deutschland was created in Germany in the 1990s [8];
- in the late 1980s and early 1990s, the quality function deployment method began to be used in Latin America, East Asia, China, India.

In [9] the authors highlight the functional areas of quality function deployment method application. They are product development, quality management, consumer's needs analysis, design, planning, decision making, engineering, management, teamwork, timing, pricing. Also, the authors in this work single out the national economy branches in which the quality function deployment method is widely used or has been used in the relevant periods. These branches are shipbuilding, electronics, automobile industry, software, manufacturing, services, in particular government, banking, auditing, healthcare, education, research.

Thus, today the quality function deployment methodology has conquered the world. It has become not just one of the interesting methods, but was included among the international standards' mandatory requirements. In addition, today not only industry, but also trade, construction, as well as services (hotels, banks, etc.), business and the education system seek and find for themselves reserves of unlimited possibilities in the QFD approach. It has passed the way from a methodology to a quality assurance philosophy [10].

So, the vast majority of management functional areas is covered by the quality function deployment method. But it can be argued that it is not sufficiently mastered for use in personnel management. In scientific works devoted to the use of the QFD method in the field of personnel management, the object of research is the company's personnel. In particular, the article [11] is about the HR strategies selection and prioritization according to the clients' needs in Art and Cultural Organization. The author of another article [12] offers a methodology for diagnosing personnel competitiveness based on the concept of a "quality

house". In it, key success factors are ensured through the competencies of personnel. This article examines the provision of key success factors through the personnel potential components. The authors hold the position that personnel potential is the ability to implement personnel competencies. Therefore, the scientific novelty of the research lies in the development of a comprehensive approach to assessing a company's personnel potential as a tool for achieving key factors of its success in various areas of activity.

*The object of research* is the company's success key factors implementation by improving the quality of its personnel potential.

*The aim of research* is the methodical recommendations substantiation regarding the company's personnel potential quality assessment based on the quality function deployment method. Obtaining research results will permit the company's management: to improve the quality of the personnel management department work; to develop a clear measures plan for personnel work. To achieve the aim, the following tasks were identified and solved:

1) to distinguish the elements of the house of quality as a quality function deployment method's component and to characterize them according to the position "enterprise-consumer, personnel potential-goods";

2) to justify the expediency and show the practical use of the quality function deployment method for the enterprise's personnel potential assessment.

## 2. Materials and Methods

The need for effective company's personnel potential quality assessment requires the constant search and application of new methods. The authors determined the company's personnel potential essence and identified its components. Taking into account quality function deployment method given characteristics, it is proposed to apply it to assess the enterprise's personnel potential quality.

The quality function deployment method takes into account the cause-and-effect relationships between the company's target requirements, its personnel potential components and the processes that ensure its implementation level.

To perform tasks and achieve the goal, both general scientific and specific methods of cognition are used. In particular, they are:

- method of analysis and synthesis is used to identify the key factors of a company's success, which are provided by its human resources potential;
- abstract-logical method is used for QFD method implementation to assess the company's personnel quality;
- method of expert assessments is used to determine the degree of importance of key success factors for the company.

## 3. Results and Discussion

### 3.1. Distinguishing the elements of the house of quality as a quality function deployment method's component

One of the quality function deployment technique components is the house of quality (HOQ). It looks like the matrix. This matrix combines consumer's needs and the ways of their satisfaction by the company. House of quality is the road map's variety. This map ensures the formation of means of cross-functional planning and communication. The house of quality consists of seven elements [13]. Let's consider them from the point of view of general characteristic and within the framework of the chosen research direction. Let's characterize the components of the house of quality from the point of view that the consumer is the company, and the product is its personnel potential:

1. Consumer's needs. It means the product characteristic and description directly by the consumer. The collection of such information is carried out with the direct consumer participation. The most common ways to involve it in the process of the product creating or im-

proving are surveys, questionnaires, consumer participation as the stakeholder in the product development process, conducting focus groups, etc.

At this stage, the company evaluates its personnel potential state of, its qualitative and quantitative characteristics. It also compares the actual state with the desired one. It forms requirements for personnel potential correction, professional development, expansion or reduction, etc. This process is carried out with the all-departments' heads involvement.

2. Product's technical requirements. How the consumer's needs (element 1) can be satisfied by the company.

The personnel management department "inventories" the available means of the personnel potential quality improving in accordance with the company's management requirements and solving the set tasks. Then the personnel management department makes decision regarding the personnel management systems' modernization or its individual components.

3. Consumer's needs importance. It means consumer's needs collection, processing and grading. It makes possible for company to work over satisfaction of the most important needs.

Studying the company's tasks and ranking them in order of importance. On the basis of which decisions are made regarding the use of tools for improving the personnel potential quality.

4. Relationships between consumer's needs (element 1) and product's technical requirements (element 2). It is a two-dimensional matrix that indicates how much the product's technical characteristics satisfy the consumer's need.

Correlation of the company's tasks and the personnel potential quality and tools for its increase. Establishing the degree of company's need satisfaction for appropriate level personnel potential.

5. Internal dependence among product's technical requirements. Whether there is a dependency between the product's technical requirements and whether this is a positive or negative factor. Whether the improvement of one characteristic causes improvement or deterioration of other characteristics. Such influence can be ranked by the degree of action on the product's characteristic – strong, medium, weak. And mark in the matrix with the appropriate symbols.

The requirements' relevance for personnel potential and methods of their achievement. For example, how the time-management trainings for personnel influence the deadlines' violation level reduction. And at the same time how the time-management trainings correlate with the employees' professional qualifications simultaneous improvement.

6. Internal dependence among consumer's needs. These are the relationships among consumer's needs.

The relevance of the tasks that the company sets at the same time. For example, launching a new product of the existing production process on the market and opening the new technological line. Both directions require advanced training and redistribution of existing personnel potential or even attracting new employees from outside.

7. Product's technical requirements common priorities, competitive benchmarking, goals:

- common priorities are installed considering the matrix of relationships between the elements 1 and 2 and the consumer's needs common importance (element 3);
- competitive benchmarking: each technical requirement which has been distinguished as the important product's characteristic can be use as for existing company's product so for possible competitive products;
- goals: the final product of the house of quality is the combination of technical advantages with product's design.

At this stage the previous six stages' results combination takes place. And accordingly, the "picture" is formed. It takes into account the company's tasks and its personnel potential needs to solve them. It also considers human resources' opportunities and the ways of their improvement proposed by the personnel management department.

First of all, it is possible to pay attention to the fact that quality level and competitiveness are traditionally determined by comparing product's/service's state/characteristics of the investigated enterprise with similar competitors' indicators or given normative indicators. In our opinion, in the context of personnel potential quality determining, the more appropriate approach is [12]. This approach assumes focusing on the company's key success factors (KSF) implementation. According to this approach, the company's personnel potential quality is actually its ability to ensure the company's implementation on the market.

### 3.2. The practical use of the quality function deployment method for the enterprise's personnel potential assessment

The quality function deployment method using in assessing the personnel potential quality is a flexible decision-making method. It helps the company's management to focus on the personnel potential components from the point of their influence on the company's key success factors achievement.

Quality function deployment technology includes the following elements [14]:

1. The company's key success factors determination.

It is interested in the conceptual apparatus' systematization and specification for the category "personnel competitiveness", carried out by [15]. This systematization made it possible to identify the main morphological units of the "personnel competitiveness" category's essential component. Exactly this research was the basis for company's key success factors identifying. These company's key success factors are provided due to its personnel potential. They are:

- highly competitive position on the market achieving and maintaining;
- effective professional activity implementation;
- the highest performance results achieving;
- activity efficiency stable improvement ensuring;
- external environment changes adaptation ensuring;
- further development ability;
- market stable competitive position formation;
- competitors' resist ability.

2. The company's key success factors prioritization. The key success factors are always contradictory both within the same company and in different companies. it is impossible to choose such a staff that

would meet all the company's requirements at once. At the research beginning it is necessary to clearly understand which company's requirements, namely its key success factors, must be obligatory satisfied, and which can be neglected to a certain extent. To solve this question the company's key success factors must be arranged according to their importance degree for company at one or another time period.

In order to form a group of experts, an online survey of middle managers of organizations in various industries was conducted. Of the 42 online questionnaires sent out, 28 were returned with responses. This is 66.67% and is quite legitimate. The goal of this stage was to identify the personal characteristics of respondents according to predetermined criteria, namely:

- *K1* – education level and profession: higher economic education (management, marketing, personnel management) – 3 points; higher economic education (other) – 2 points; higher non-economic education – 1 point; lack of higher education – 0;

- *K2* – work experience in the field of personnel management: more than 3 years – 3 points; 1–3 years – 2 points; up to 1 year – 1 point; no experience of such work – 0;

- *K3* – experience in participating in similar examinations: take part – 3 points; don't take part – 0;

- *K4* – level of familiarity with expert assessment methods: familiar – 3 points; unfamiliar – 0.

According to the answers received to the questions, the organizers of the examination assigned scores according to the scale described above. The results of the expert evaluation are given in the Table 1.

So, based on the survey results, a group of experts of 10 people was formed. They are those who received scores higher than 10 according to the results of the examination conducted by the organizers. They will participate in the expert research procedure at the subsequent stages of the research.

In order to implement this task, the experts' group was asked to rank the company's key success factors from 1 to 8. 8 is the highest value (Table 2).

3. The company's key success factors transformation into its personnel potential general components. Actually, it is the company's target requirements with personnel quality components combining. It is answering the question: "How to achieve the company's key success factors due to its personnel potential using?"

Table 1

Results of expert evaluation by criteria

Criterion	Expert													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
<i>K1</i>	2	3	3	3	2	3	3	2	2	2	3	1	1	3
<i>K2</i>	3	1	1	2	1	3	2	2	1	0	1	0	0	3
<i>K3</i>	3	3	0	3	0	3	0	0	0	0	0	0	0	3
<i>K4</i>	3	3	0	3	0	3	3	0	0	0	3	0	0	3
$\Sigma$	11	10	4	11	3	12	8	4	3	2	7	1	1	12
Criterion	Expert													
	15	16	17	18	19	20	21	22	23	24	25	26	27	28
<i>K1</i>	3	2	3	3	3	2	2	2	3	3	3	0	2	3
<i>K2</i>	1	1	2	2	1	1	0	0	2	1	2	1	1	2
<i>K3</i>	3	0	0	3	0	0	0	0	3	0	3	0	0	3
<i>K4</i>	3	0	0	3	3	0	0	0	3	0	3	0	0	3
$\Sigma$	10	3	5	11	7	3	2	2	11	4	11	1	1	11

Table 2

Determination the key success factors importance degree for the company

The key success factor	Expert										Sum	Weight
	1	2	3	4	5	6	7	8	9	10		
The key success factor 1. Highly competitive position on the market achieving and maintaining	5	4	4	7	3	5	7	5	7	8	55	15.28
The key success factor 2. Effective professional activity implementation	4	6	5	8	2	4	8	4	8	3	52	14.44
The key success factor 3. The highest performance results achieving	6	5	6	5	7	6	4	6	5	6	56	15.56
The key success factor 4. Activity efficiency stable improvement ensuring	1	3	3	4	1	1	5	1	2	1	22	6.11
The key success factor 5. External environment changes adaptation ensuring	8	7	8	6	8	8	6	8	6	7	72	20.00
The key success factor 6. Further development ability	3	1	2	3	4	3	1	3	1	2	23	6.39
The key success factor 7. Market stable competitive position formation	7	8	7	1	5	7	3	7	4	5	54	15.00
The key success factor 8. Competitors' resist ability	2	2	1	2	6	2	2	2	3	4	26	7.22
In general	-	-	-	-	-	-	-	-	-	-	360	100

In our research, six personnel potential components were singled out. In our opinion, they influence on the company's key success factors in the greatest way. They are:

- personnel potential component 1 – psychophysiological potential: age, health, working capacity, persistence, talent, capabilities, abilities, predisposition, vocation, nervous system type, etc.;
- personnel potential component 2 – moral and motivational potential: work desire, work satisfaction, settings, needs, motives, person orientation, value orientations, moral orientations, social maturity, etc.;
- personnel potential component 3 – professional qualification potential: education level, qualification, professionalism, competence, professional culture, seniority (experience), creative potential, etc.;
- personnel potential component 4 – communicative potential: communication, communication flexibility, team work ability, information gathering, processing, reproducing and transferring ability, etc.;
- personnel potential component 5 – normative role potential: official discipline, socio-psychological climate, person culture, organization culture, person self-organization, etc.;
- personnel potential component 6 – adaptation and innovation potential: adaptability, activity, flexibility, mobility, self-determination, environmental adaptability, intellectual abilities, development and learning tendency, scientific cognitive and analytical abilities, etc.

4. The connection strength determination. It depends on the extent to which individual personnel potential components influence the particular company's key success factor implementation. The connection strength is evaluated by such points:

- 9 (※) – strong connection;
- 3 (●) – medium connection;
- 1 (▲) – weak connection.

Also at this stage, the degree of actual key success factors implementation by the company is evaluated. The assessment is carried out on a five-point scale. Then it is compared to the desired level:

- 5 points – the absolute achievement level of the key success factor;
- 4 points – the above average achievement level of the key success factor;
- 3 points – the medium achievement level of the key success factor;
- 2 points – the below average achievement level of the key success factor;
- 1 point – the low achievement level of the key success factor.

According to the obtained results (Table 3) it is possible to make such conclusion. The company's management must pay attention to the priority improvement of some personnel potential components. They are moral and motivational potential, professional qualification potential and communicative potential.

Table 3

The personnel potential components influence on the company's key success factors implementation

The key success factor (KSF)	KSF importance degree	Personnel potential components (PPC)						Factor implementation degree rating		Improvement necessity*	Absolute weight**	KSF importance for the company in the current period, %***
		PPC1	PPC2	PPC3	PPC4	PPC5	PPC6	Actual level	Desired level			
KSF1	15.28	-	※/198.99	※/198.99	※/198.99	▲/22.11	■/66.33	2	5	2.5	38.2	22.11
KSF2	14.44	▲/13.96	※/125.64	※/125.64	※/125.64	■/44.88	-	3	5	1.67	24.11	13.96
KSF3	15.56	▲/15.04	※/135.36	※/135.36	※/135.36	■/45.12	▲/15.04	3	5	1.67	25.99	15.04
KSF4	6.11	-	※/79.65	※/7; 9.65	▲/8.85	-	■/26.55	2	5	2.5	15.28	8.85
KSF5	20.00	■/57.99	※/173.97	※/173.97	■/57.99	■/57.99	※/173.97	3	5	1.67	33.4	19.33
KSF6	6.39	-	※/41.67	※/41.67	■/13.89	▲/4.63	※/41.67	4	5	1.25	7.99	4.63
KSF7	15.00	-	※/97.65	※/97.65	▲/10.85	-	▲/10.85	4	5	1.25	18.75	10.85
KSF8	7.22	■/15.69	※/47.07	※/47.07	※/47.07	■/15.69	■/15.69	4	5	1.25	9.03	5.23
Total estimate		82.68	900.0	900.0	598.64	190.42	350.1	Σ3021.84	-	-	172.75	100
The personnel potential component improving priority, %		2.74	29.78	29.78	19.81	6.3	11.59	Σ100	-	-	-	-

Notes: \* – the necessity of the key success factor implementation degree improvement is defined as the key success factor desired level to the key success factor actual level relation;

\*\* – the absolute weight (the key success factor improvement relevance) is defined as the product of the key success factor importance degree by the key success factor improvement necessity;

\*\*\* – the key success factor importance for the company in the current period provides the absolute weight value conversion into percentages. It is achieved by dividing the particular key success factor absolute weight by the total absolute weight. Then multiply the obtained value by 100.

In Table 3 the values in the cells next to the symbols are determined by multiplication the key success factor importance for the company in the current period (the last column of the table) by the symbol value (9, 3 or 1). The personnel potential component's importance for the company's key success factor implementation provision is defined as the product of the strength connection value by the key success factor importance for the company in the current period.

During our research it has been again proven some fact. There is usually the difference between personnel potential possible level and its realization level. It is the last indicator that is influenced by a number of factors. Therefore, it was appropriate to establish these factors and strength connection between them and the personnel potential components. In the future, this will enable the company's management to make reasonable personnel decisions. They will be about the personnel potential using level increasing and the company's key success factors achieving.

All factors influencing the personnel potential realization level personally by each employee have been divided into three groups. There were singled out three most significant subfactors within each of the group:

1. Organizational factors:
  - factor 1. Work and rest regime organization;
  - factor 2. Work place organization (labor rationing and tariffication);
  - factor 3. Organizational management structure.
2. Motivational factors:
  - factor 4. Material and non-material stimulation system;
  - factor 5. Personnel development system and employee career planning;
  - factor 6. Comfortable work conditions.
3. Socio-psychological factors:
  - factor 7. Corporate culture;
  - factor 8. Team socio-psychological climate;
  - factor 9. Management style.

So, using the quality function deployment method let's determine the connection strength. It depends on how much influencing factors on personnel potential realization level affect one or another personnel

potential component. The connection strength is evaluated by such points:

- 9 (※) – strong connection;
- 3 (▪) – medium connection;
- 1 (▲) – weak connection.

Also, at this stage the company's personnel potential components actual implementation degree is assessed. It is evaluated on a five-point scale. The result is compared with desired level:

- 5 points – the absolute level of company's personnel potential components realization;
- 4 points – the above average level of company's personnel potential components realization;
- 3 points – the medium level of company's personnel potential components realization;
- 2 points – the below average level of company's personnel potential components realization;
- 1 point – the low level of company's personnel potential components realization.

Our results are presented with using the ratio matrix (Table 4). It shows correlation of the company's personnel potential components implementation level and influencing on them factors. The results suggest that company's management must pay attention to some factors. They are team socio-psychological climate, organizational management structure and material and non-material stimulation system.

Using the quality function deployment method made it possible to identify some company's personnel potential components. They must be taken into account in order to provide the company's key success factors implementation. Besides that, the quality function deployment analysis using permits to reveal relationships among the personnel potential components. This method also helps to set factors influencing their implementation level. Obtained research results will permit company's management to develop a clear measures plan for personnel work. It will be focused on the company's key success factors achievement. Emphasis on the work key areas will make it possible to minimize the costs spending on maintaining and realizing company's employees' potential.

Table 4

Influencing factors impact degree on the personnel potential realization level

Personnel potential component (PPC)	Personnel potential components importance degree	The personnel potential realization level influencing factors (F)									The value of the personnel potential components realization degree		Improvement necessity*	Absolute weight**	The personnel potential component importance for the company in the current period, %***
		F1	F2	F3	F4	F5	F6	F7	F8	F9	Actual level	Desired level			
PPC1	2.74	※/23.4	※/23.4	▪/7.8	▲/6	▲/2.6	※/23.4	※/23.4	▪/7.8	※/23.4	3	5	1.67	4.58	2.60
PPC2	29.78	▪/126.48	▲/42.16	※/379.44	※/379.44	▪/126.48	▪/126.48	▪/126.48	※/379.44	▪/126.48	2	5	2.5	74.45	42.16
PPC3	29.78	▲/21.08	※/189.72	▪/63.24	※/189.72	※/189.72	※/189.72	▪/63.24	※/189.72	▪/63.24	4	5	1.25	37.23	21.08
PPC4	19.81	▲/18.73	▪/56.19	※/168.57	▲/18.73	▪/56.19	※/168.57	※/168.57	※/168.57	※/168.57	3	5	1.67	33.08	18.73
PPC5	6.3	▪/13.41	▲/4.47	※/40.23	▲/4.47	▲/4.47	▲/4.47	▪/13.41	▪/13.41	※/40.23	4	5	1.25	7.88	4.47
PPC6	11.59	▲/10.96	▪/32.88	▲/10.96	※/98.64	※/98.64	▪/32.88	※/98.64	※/98.64	▪/32.88	3	5	1.67	19.36	10.96
Total estimate	214.06	348.82	698.8	693.6	590.48	545.52	493.74	857.58	454.8	4897.4	–	–	–	176.6	100
Improvement priority of the influencing factors on the personnel potential realization, %		4.37	7.12	14.27	14.16	12.06	11.14	10.08	17.51	9.29	100	–	–	–	–

### 3.3. Limitations and directions of research development

Despite the relevance of the findings, certain limitations should be considered when interpreting the research results. First of all, the industry specifics of enterprises' activities and the influence of external and internal environmental factors were not taken into account. It should also be noted that the set of key success factors and components of human resource potential, as well as weighting factors, is not constant and may be changed depending on the aim of research.

This direction can be developed in further researches. The quality function deployment method can be used for constant improvement and quality increasing the personnel management system functioning at the enterprise in general. In particular it is about developing and improving such its components as social and labor relations, HR policy, personnel planning, personnel selection and adaptation, personnel stimulation, personnel development, corporate culture forming, personnel assessment and control.

## 4. Conclusions

1. It is distinguished the elements of the house of quality as a quality function deployment method's component and characterized them according to the position "enterprise – consumer, personnel potential – goods". So, there are such results:

- to determine the company's need in personnel, it is necessary to assess its current state and compare it with the desired indicators. To obtain this information, it is advisable to take into account the opinion of employees. This can be done through surveys, questionnaires, and other forms of engagement;
- product's technical requirements. To improve its personnel management system, the company reviews its existing management tools and makes decisions about making changes;
- consumer's needs importance. The company makes decisions on improving the quality of its personnel based on the chosen development strategy;
- relationships between consumer's needs and product's technical requirements. Establishing the relationship between the first and second elements of the quality building. That is, to what extent do the company's capabilities in improving the personnel meet its needs and requirements for its quality level;
- internal dependence among product's technical requirements. To what extent are the requirements for personnel potential correlated with each other. To what extent are the measures implemented to improve the quality of personnel potential effective;
- internal dependence among consumer's needs. To what extent are the company's goals and objectives consistent with each other. Do they not place a double burden on personnel potential, thereby reducing its effectiveness;
- product's technical requirements common priorities, competitive benchmarking, goals. At this stage, the synthesis of the previous results is carried out. The company's goals are coordinated with the quality of the personnel potential necessary to achieve them. Decisions are made to improve the personnel potential.

2. It is justified the expediency and shown the practical use of the quality function deployment method for the enterprise's personnel potential assessment. To accomplish this task, the following steps were taken and the results obtained:

- identified the key factors of the company's success;
- ranked them by priority for the company;
- combined the key factors of success with the components of the personnel potential that have the greatest impact on their achievement;
- determined the strength of their connection.

According to the results of the matrix of the correlation between the level of implementation of the components of the company's personnel

potential and the factors that influence them, it was established that the company's management should pay attention to such factors as "social and psychological climate in the team", "organizational management structure" and "system of material and non-material incentives".

### Conflict of interest

The authors declare that they have no conflict of interest regarding this research, including financial, personal, authorship, or other, that could influence the research and its results presented in this article.

### Financing

The research was conducted without financial support.

### Data availability

The manuscript has no associated data.

### Use of artificial intelligence

The authors confirm that they did not use artificial intelligence technologies when creating the presented work.

### Authors' contribution

**Tetiana Bilorus:** Conceptualization, Methodology, Validation, Investigation, Writing – original draft; **Lesia Olikh:** Formal analysis, Investigation, Writing – review and editing.

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