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METHODOLOGY OF CONSTRUCTING A STRUCTURAL MODEL FOR ESTIMATING THE MOTIVATION TO WORK OF AN EMPLOYEE OF A PROCESSING INDUSTRY

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Abstract. In the realities of post-war recovery of Ukrainian society, the processing industry will be of particular importance, as the products of processing enterprises will be of paramount importance for the reconstruction of destroyed industrial and civil infrastructure, fixed and working capital of business entities, and the restoration of natural ecosystems. The main driving force in the development of the above-mentioned enterprises will be their personnel, which in the context of digitalisation is turning into a strategic factor of production. The above raises a number of issues, among which a special place is occupied by the problem of motivating employees to effectively use their competence potential in the context of digitalisation, and, in particular, its assessment. The article is aimed at substantiating and developing the theoretical and methodological foundations for assessing the level of motivation of the staff of processing industry enterprise to effectively use its competence potential in modern conditions. To achieve this goal, it is proposed to formalise the theoretical developments in the form of a structural model for assessing the level of motivation of the staff of processing industry enterprise to effectively use its competence potential, based on determining the potential ability of staff to fulfil its mission (in terms of three categories, in particular, management staff, professionals and specialists, workers) and determining the determinants of staff motivation. To interpret the results obtained, it is proposed to use a scale for assessing the impact of motivators on the level of staff motivation to effectively use the competence potential, which will ensure the transition from quantitative to qualitative assessment and will allow to assess the level of motivation of employees of processing industry enterprises to effectively use their capabilities for the benefit of the enterprise. In the course of the study, general scientific research methods were used. The methods of system analysis, generalisation, cross-comparison, induction and deduction were used to identify the object of research as a stage of building a structural model for assessing the level of motivation of the personnel of a processing industry enterprise to effectively use its competence potential. The method of expert assessments is proposed to be used in determining the potential capabilities of an employee for the effective use of competence potential and assessing the share of motivation factors. The economic and statistical methods are proposed to be used in the scoring of motivation factors at the final stage of building the presented model. The practical value of the results of the study is related to the possibility of their use in making managerial decisions on hiring and re-certification of employees, as well as the development of a motivational policy to stimulate the effective use of the competence potential of the personnel of processing industry enterprises in the context of digitalisation of the Ukrainian economy.

Keywords: competence potential, structural model for assessing motivation to work, motivation, motive, incentive.

JEL Classification: J22, J24, J28, L60, M54

1. Introduction

The European Union's new industrial strategy is focused on improving the competitiveness of the European economic area through environmental and digital transformation (European Commission, 2020). One of the key factors in the successful implementation of these intentions is the ability and readiness of the labour force to meet new challenges, which is largely determined by the level of its involvement (derivative motivation) in economic activity.

The issues of motivating employees to work productively are constantly in the focus of attention of scientists and practitioners, as it is generally accepted that the pace and level of sustainable socio-economic development of enterprises, regions, areas of activity, and the national economy as a whole depend on the

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level and procedure for reconciling the interests of individuals and business entities. Rapid development of the means of production and technological progress cause changes in socio-economic relations, among other things. The introduction of smart technologies and means of production is changing the requirements of employers to employees, on the one hand, and the values, interests, needs and motives of employees themselves, on the other. In today's environment, changes in social and labour relations and the nature of labour activity lead to profound transformations of the conceptual foundations of the management system at the micro level.

Since the adoption of balanced management decisions should be preceded by an assessment of the degree of involvement of employees in work operations in the course of economic activity of enterprises, there is a need to assess the level of motivation of employees to effectively use their competence potential in the context of digitalisation. In the context of the above, the need to develop a methodology for building a structural model for assessing staff motivation to effectively use their competence potential in the context of digitalisation is becoming more relevant.

2. Logic of the Process of Constructing a Structural Model for Estimating the Motivation of an Employee of a Processing Industry Enterprise to Work Effectively

The projection of the study focuses on the manufacturing industry, as it is subject to processes and phenomena that reflect general economic trends that also cover the labour sector. As a result, the study of modern transformations through the architecture of manufacturing enterprises is important for understanding their essence, since in this sector of the national economy, which includes the release of new products through the physical or chemical processing of materials, substances or components, the nature of production operations promotes the active use of digital technologies and the creation of cyber-physical systems.

In global practice, digital technologies are becoming an integral part of all stages of the production process, namely:

– At the stage of purchasing production inputs and equipment, they use 3D printing technologies, order automation using robotics, online commerce platforms, virtual reality simulators, and smart inventory management using the Internet of Things system;
– at the production and operational management stage, robotics technologies are used to automate production processes, 3D printing of components and spare parts, smart machine-to-machine networks to automate and optimise work operations, as well as sensors to predict equipment maintenance, and virtual reality simulators to train staff and minimise production errors;
– at the stage of product sales, they use smart fleet and route management technologies using the Internet of Things.

In the national economy of Ukraine, the manufacturing industry is represented by 30660 enterprises, which are unevenly distributed across the regions (Figure 1). Unfortunately, active hostilities have been going on for a long time in 6 regions (Dnipro, Kharkiv, Donetsk, Zaporizhzhia, Sumy, Kherson), where more than a third of Ukraine's processing industry enterprises are located, resulting in the merciless destruction of fixed and current assets of business entities and depriving them of the opportunity to function fully.

The global trend of digitalisation creates preconditions for the transition to the reconstructive development of the processing industry of the national economy of Ukraine, but the speed and quality of the adoption and application of modern digital technologies will determine the level of competence of the personnel of processing industry enterprises. A prerequisite for the realisation of the cognitive, activity-process, and personal components of the employee's competence potential (Shatalova, 2023) is a high level of their motivational component as such that activates them.

An algorithm for building a structural model for assessing staff motivation to effectively use competence potential in the context of digitalisation is presented in Figure 2.

The logic of the presented model is reduced to the description of the research object, which is formalised in a certain value (Stage I), by which it is necessary to adjust the value of motivating factors (ordered in Stage II) when determining the quantitative assessment of the level of employee motivation to effectively use his/her capabilities (Stage III) and its interpretation as a qualitative value (Stage IV).

3. Methodology for Building an Identifier of the Object of Motivation to Work Effectively

At the first stage of assessing the motivation of enterprise personnel to effectively use the competence potential of living labour, it is necessary to identify the object of motivation, namely, to describe it. The object in this study is an employee of a processing industry enterprise. The object of motivation is characterised by a set of certain characteristic features that form the structural model of the identifier.

Identifier is a table that is formed by the type of individual clusters and subclusters that meet a certain membership criterion (clustering criterion). Its data can be used to identify the object of research, which will be quantified. To build the identifier, the method of expert assessments is used, the main advantage of which is the ability to assess quantitative

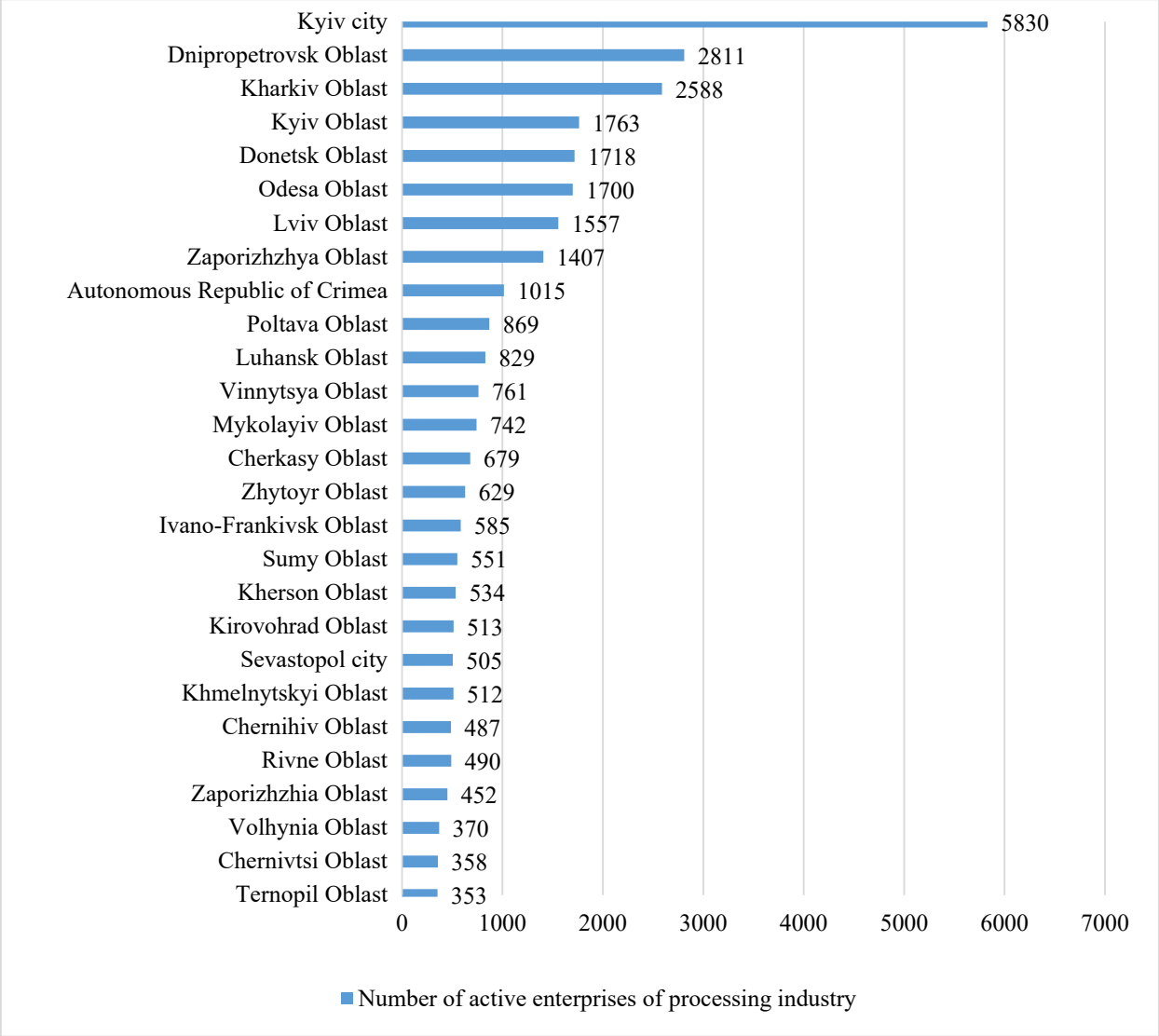

Figure 1. Number of active processing industry enterprises in the oblasts of Ukraine as of 21.07.2024, units

Source: developed by the author using the database (YC.Market, 2024)

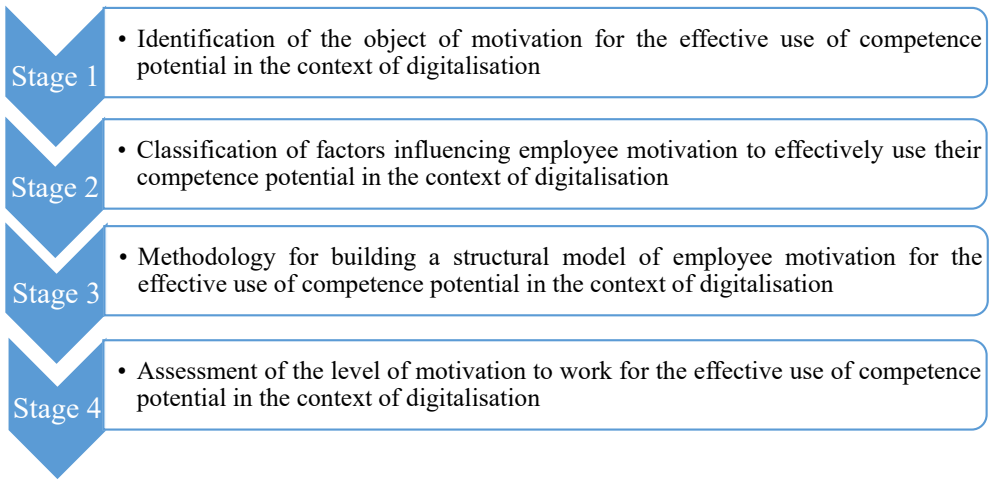

Figure 2. Algorithm for building a structural model for assessing the motivation of employees to effectively use their competence potential in the context of digitalisation

Source: developed by the author on the basis of (Umanets & Shatalova, 2016)

and qualitative indicators simultaneously. This assessment will characterise the potential ability of the staff to fulfil its mission and represents the proportion of the motivation object by which the value of the incentive factors should be adjusted when determining the score to be obtained with the help of the motivator.

It is proposed to identify the object of research depending on the category of personnel (The Order of the Ministry of Labor and Social Policy of Ukraine "On Approval of Issue 1 'Occupations of Employees Common to All Types of Economic Activity' of the Activities' of the Handbook of Qualification Characteristics of Employee Occupations", 2004). The similarity of the requirements to the level of education, knowledge and labour functions according to the research objectives allows for the identification of personnel in the context of such groups:

– Executives, managers (administrators);
– professionals, specialists;
– technicians, skilled tool operators, maintenance, operation and control workers for technological equipment, assembly of equipment and machinery.

The clusters and subclusters of features for identifying personnel of different categories are defined based on labour functions and requirements set out in the current labour legislation, in particular (The Order of the Ministry of Labor and Social Policy of Ukraine "On Approval of Issue 1 'Occupations of Employees Common to All Types of Economic Activity' of the Activities' of the Handbook of Qualification Characteristics of Employee Occupations", 2004):

– The activities of executives and managers are related to the performance of various management functions and have significant differences from the activities of other categories, which is a consequence of their complexity and responsibility;
– the activities of professionals and specialists are aimed at increasing theoretical knowledge and solving specific practical problems;
– the work tasks of the latter group are related to working with information, performing stages of work processes, operating and supervising the operation of equipment and machinery, including highly automated ones.

When constructing an identifier in accordance with the research objectives, it is advisable to combine the characteristics of employees into the following groups – clusters (column 1 of Tables 1-3), such as:

– Individual characteristics of a person. They include innate inherited abilities and the level of education received;
– Professional characteristics of the employee. Includes characteristics acquired in the course of employment;
– Digital competence of the employee. It characterises the level of perception of digital technologies and the realisation of the opportunities they generate;

Reflective and active environment of the enterprise. It is important from the point of view of creating a favourable environment in which the competence potential of an employee can be realised.

At the enterprise level, the identification of the competence potential of personnel should be carried out on the basis of an assessment of the integral impact of its features according to the following functional dependence

$$I = f(IC; PC; DC; RAE) \quad (1),$$

where IC – general assessment of individual characteristics of a person; PC – general assessment of professional characteristics of a person; DC – assessment of digital competence of a person; RAE – assessment of reflective and active environment.

It is important to note that the difference in potential opportunities for effective use of the competence potential of the three above-mentioned groups of personnel – executives and managers (managers), professionals and specialists, and workers – lies in the presence and degree of expression of certain features and their significance, which is reflected in the identifier of the competence potential of personnel in different categories (Tables 1-3).

Column 5 of Tables 1-3 presents an expert assessment of the employee's potential for effective use of competence potential based on the following assumptions:

1. Stable working capacity is characteristic of people aged 30-59 years; unstable working capacity is characteristic of workers aged 18-29 years; workers aged 60 years and older are characterised by residual working capacity.

2. The *health condition of employees* is a priority compared to other attributes, as it determines the ability to realise all other potential opportunities, which together determine the ability to work.

3. The *level of education* should correlate with the complexity and responsibility of the employees' professional activities. Such categories of personnel as executives, managers (administrators) and professionals, specialists must be able to solve complex problems and have a high level of knowledge in the field of physical, mathematical, technical, biological, agronomic, medical or humanitarian sciences, confirmed by a high level of education.

According to the Classifier of Occupations, the level of education should be (The Order of the State Service of Ukraine on Food Safety and Consumer Protection "Classifier of Occupations ДК 003:2010", 2010):

– for professionals – no less than higher;
– for specialists – at least a junior bachelor's degree (incomplete higher education);

Tables 1
Identifier of the competence potential of executives, managers (administrators)

Clusters of traits characterising a managerial employee	Share of clusters, m_i	Traits	Share of the trait in the respective cluster, k	Potential employee capabilities for effective use of competence potential, z	Weight of each trait in assessing the level of motivation to effectively use the competence potential of managerial personnel, d
1	2	3	4	5	6=4*5
Individual characteristics of a person	25	Age	0,03		
		Health condition	0,05		
		Education	0,05		
		Level of critical thinking	0,02		
		Responsibility	0,02		
		Transformational leadership	0,02		
		Emotional intelligence	0,02		
		Organisational skills	0,02		
		Morality	0,02		
Professional characteristics of the employee	25	Qualifications	0,1		
		Work experience in the professional field	0,1		
		Mastering related professions (mobility)	0,5		
Digital competence	25	Fundamentals of computer literacy	0,04		
		Information literacy, ability to work with data	0,04		
		Creation of digital content	0,02		
		Communication and interaction in a digital society	0,06		
		Safety in the digital environment	0,04		
		Problem solving in the digital environment and lifelong learning	0,05		
Reflective and active environment of the enterprise	25	Motivational receptivity to innovation	0,1		
		Qualification propensity to innovate	0,1		
		Profitability of labour	0,05		

Source: compiled by the author

– for technical employees and workers – at least complete general secondary and vocational education or complete general secondary education and on-the-job training.

4. To assess the level of *responsibility*, it is advisable to estimate the amount of working time. The increase in time in use should be estimated at the maximum. It is recommended to define the acceptable level of unplanned absence (absenteeism rate) as the average value for the previous 3 years. Below the average level, the indicator should be assessed with high scores, above it – with low scores. An alarming situation for an enterprise is when the employee absenteeism rate exceeds 20%. According to experts from the IZA Institute of Labour Economics, a 1% increase in sickness absence leads to a 0.24% decrease in productivity.

5. *Transformational leadership* promotes an organisational culture that fosters innovation and positive change. Transformational leadership should be understood as a management style in which leaders help their subordinates to understand the meaning and significance of their work by creating a favourable environment for this.

6. To assess *morale*, the percentage of lost working time due to violations of labour discipline should be estimated.

7. The existence and realisation of *creative potential* is revealed through the prism of the quantity and quality of innovation proposals.

8. *Professional qualifications* shall be awarded, recognised and confirmed by qualification centres, educational institutions and other entities authorised to do so by the applicable law.

9. The requirements for the minimum work experience in a professional field by categories of employees are reflected in the Handbook of Qualification Characteristics of Employee Occupations (The Order of the State Service of Ukraine on Food Safety and Consumer Protection "Classifier of Occupations ДК 003:2010", 2010).

10. To perform their job functions, including the development and production of new technologies,

Table 2

Identifier of the competence potential of professionals, specialists

Clusters of traits that characterise professionals, specialists	Share of clusters, m_i	Traits	Share of the trait in the respective cluster, k	Potential employee capabilities for effective use of competence potential, z	Weight of each trait in assessing the level of motivation to effectively use the competence potential of professionals and specialists, d
1	2	3	4	5	6=4*5
Individual characteristics of a person	25 25	Age	0,03		
		Health condition	0,05		
		Education	0,05		
		Level of critical thinking	0,02		
		Responsibility	0,02		
		Creative potential	0,06		
		Morality	0,02		
Professional characteristics of the employee	25	Qualifications	0,1		
		Work experience in the professional field	0,1		
		Mastering related professions (mobility)	0,05		
Digital competence	25	Fundamentals of computer literacy	0,04		
		Information literacy, ability to work with data	0,04		
		Creation of digital content	0,04		
		Communication and interaction in a digital society	0,04		
		Safety in the digital environment	0,04		
		Problem solving in the digital environment and lifelong learning	0,05		
Reflective and active environment of the enterprise	25	Motivational receptivity to innovation	0,1		
		Qualification propensity to innovate	0,1		
		Profitability of labour	0,05		

Source: compiled by the author

materials, industrial designs, specialists and professionals must have *digital competencies* to work with professional programs (research, design, calculation) and cyber-physical systems. Thanks to digital competence, such categories of personnel as technicians, skilled tool operators, maintenance workers, operators and controllers of technological equipment, and assembly workers can work on automated equipment with software control. At the same time, all categories of personnel should have the skills to work with systems that support production processes (logistics, energy, supply of materials and resources). The attributes of the *digital competence* cluster and its levels correspond to the Digital Competence Framework for Ukrainian citizens (The Digital Competence Framework for Citizens, 2022).

11. *Motivational support* for innovation is defined as the ratio of the amount of bonus payments for the development of innovative technologies to the total amount of bonus payments at the enterprise.

12. The *qualification propensity* to innovate is defined as the ratio of expenditures on staff development to expenditures on the renewal of fixed assets of the enterprise.

4. Methodology for Constructing a Classifier of Motivation of Enterprise Personnel for the Effective Use of its Competence Potential

After identifying the object of motivation, it is necessary to classify the factors that characterise the process of motivating staff to effectively use their competence potential. The layout of the structural model of the classifier is presented in Table 4.

The factors that make up the classifier are grouped in a certain order. The first criterion in the classifier is the grouping criterion, according to which the factors are grouped into a particular cluster. Then, the degree of cluster weighting is selected using the expert method. The weight of the factors in a given cluster is determined in a similar way. The weight of all factors in total should be 100%.

The clusters and their corresponding motivator factors are as follows:

Table 3

Identifier of the competence potential of technicians, skilled tool operators, workers in the maintenance, operation and control of technological equipment, assembly of equipment and machinery

Clusters of traits that characterise technical employees, skilled tool operators, maintenance, operation and control workers of technological equipment, assembly of equipment and machines	Share of clusters, m_i	Traits	Share of the trait in the respective cluster, k	Potential employee capabilities for effective use of competence potential. z	Weight of each trait in assessing the level of motivation to effectively use the competence potential of operational personnel, d
1	2	3	5	6	7=5*6
Individual characteristics of a person	25	Age	0,07		
		Health condition	0,05		
		Education	0,05		
		Level of critical thinking	0,02		
		Responsibility	0,02		
		Creative potential	0,02		
		Morality	0,02		
Professional characteristics of the employee	25	Qualifications	0,1		
		Work experience in the professional field	0,1		
		Mastery of related professions	0,05		
Digital competence	25	Fundamentals of computer literacy	0,04		
		Information literacy, ability to work with data	0,05		
		Creation of digital content	0,04		
		Communication and interaction in a digital society	0,04		
		Safety in the digital environment	0,04		
		Problem solving in the digital environment and lifelong learning	0,04		
Reflective and active environment of the enterprise	25	Motivational receptivity to innovation	0,1		
		Qualification propensity to innovate	0,1		
		Profitability of labour	0,05		

Source: compiled by the author

1) Motivations:
- Internal;
- external.

According to the criterion of the conditionality of the motivation process, there are intrinsic and extrinsic motives. Internal (intrinsic) motivators are internal motivating forces associated with needs, attitudes, interests, aspirations, and desires. External (extrinsic) motivators are exogenous factors of influence on the employee, which are caused by external conditions and circumstances.

2) Incentives:
- Tangible;
- intangible (moral).

Motives are formed on the basis of needs and are essentially what drives people to act. Incentives should be understood as exogenous factors that influence employees to take certain actions.

The motivation of enterprise personnel to effectively use their competence potential is based on human needs and values, and the motivation process is carried out by encouraging personnel to take active action in the direction desired by the enterprise through meeting the needs of individual employees. Content, process and field theories of staff motivation characterise the problem of motivation from different aspects: the first ones focus on natural human needs, in particular, their priority and hierarchy, and the desire to satisfy them; the second ones – on the perception and expectations of their satisfaction (Kolot, 2011); and the third ones – on the environment. Since these groups of motivation theories complement and mutually reinforce each other, it is necessary to take into account the motives of human behaviour, incentives and motivating factors of the environment when determining the factors influencing staff motivation.

In modern conditions, the role and significance of the labour factor goes far beyond the traditional understanding as one that unites and actualises all other factors of production. The labour force, thanks to its competence potential, is not only a condition

Table 4

Classifier of motivation of enterprise personnel for the effective use of the competence potential of living labour in the context of digitalisation

Clusters	Weight of cluster accounting	Subclusters	Weight of cluster accounting	Motivators for the effective use of the employee's competence potential	Share of motivators according to expert opinion, S_{Pji}
1	2	3	4	5	6
Motivations	50	Extrinsic (external)	40	Level of business activity of the enterprise	
				Enterprise size by number of employees	
				Application of information and communication technologies at the enterprise	
		Intrinsic (internal)	60	Striving to acquire new competences	
				Professional job satisfaction (mastery)	
				Need for self-determination (autonomy)	
Incentives	50	Tangible	50	Basic salary	
				Additional salary for high professional skills	
				Bonuses for the introduction of new equipment and technology	
				Incentive and compensation payments for mastering *basic* digital skills	
				Incentive and compensation payments for mastering *advanced* digital skills	
				Social package	
				Comfort of the workplace	
		Intangible (moral)	50	Clarity and comprehensibility of the goals and tasks to be achieved	
				Vertical loading	
				Opportunity for career growth	
				Opportunity for professional development	
				Flexible working hours	

Source: compiled by the author

for economic activity, but also a tool for ensuring the competitiveness of business entities, as it is a carrier of knowledge, intelligence, creativity, i.e., it becomes intellectual capital. A motivated workforce is the most important asset in a rapidly changing business environment (Gechbaia, Tchilaia, Goletiani, Muskudiani, 2020), ensuring the flexibility and adaptability of businesses.

In modern conditions, the introduction of digital technologies at all stages of business processes leads to a change in the motivational paradigm of business entities (Shatalova, 2024). This is a shift in focus from extrinsic motivation to employees' internal satisfaction with their work. People with a high level of intrinsic motivation are much better employees. A summary comparison of the advantages and disadvantages of intrinsic and extrinsic motivation is presented in Table 5.

A well-designed remuneration system should take into account the differences between the performance of employees employed by the company and their competencies and skills.

In the motivational mechanism, the starting point is the amount of salary. The ability to work is a unique property of humans that can be realised if certain physiological needs are met. In addition, working people have to provide for non-working family members. According to a study conducted by Rakuten AIP (a leader in online research in Asia), which examined employee motivation in the workplace in nine major Asian countries (China, Japan, Hong Kong, Taiwan, Thailand, Vietnam, India, Malaysia and Singapore), 40% of respondents named the *level of remuneration* as their main motivator (Rakuten AIP, 2016). Material incentives should be seen as a necessary but not sufficient condition for the realisation of the competence potential of living labour. It is believed that within three months of employment, salary has a high motivational potential.

The structure of the wage fund for full-time employees of the manufacturing industry in 2021 by functional elements is shown in Figure 3.

According to the official statistics of Ukraine, in the structure of the wage fund of full-time employees of the processing industry in 2021, the additional wage fund ranged from 32.9% in Q1 2021 to 35.2% in Q4 2021, the share of other incentive and compensation payments ranged from 3.7% in Q4 to 4.5% in Q1.

The additional salary fund includes, among other things, bonuses and surcharges to tariff rates for *high professional skills*, payment for additional leaves in connection with *training and sabbaticals*, amounts of

Table 5
Comparative characteristics of internal and external personnel motivation

Motivation type	Advantages	Disadvantages
Internal	– The inexhaustible nature of motivators; – profound level of involvement; – allows to perform heuristic tasks; – causes internal satisfaction; – causes independent actions.	– Complexity resulting from the combination of unique values and interests of each individual; – individual character; – the results are delivered over time.
External	– Fast results; – universal nature of action; – ease of use.	– Short-term effects; – risk of loss of effect due to addiction; – negative impact on intrinsic motivation; – the exhaustive nature of motivators.

Source: compiled on the basis of (Pink, 2023)

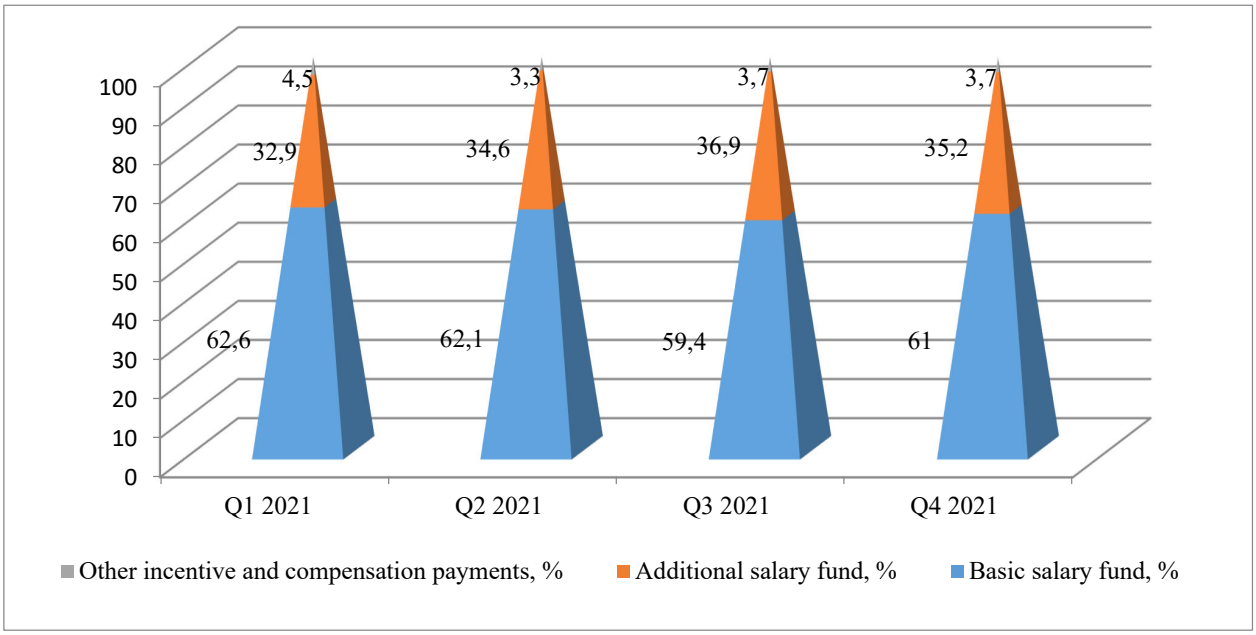

Figure 3. The structure of the wage fund of full-time employees of the processing industry in 2021

Source: developed by the author on the basis of (The State Statistics Service, 2022)

salary retained at the main place of employment for the period of on-the-job training in the *system of professional development and retraining*, and amounts accrued to individuals, who undergo training (preparation) to work at newly commissioned enterprises at the expense of funds provided for in the general construction estimates (The order of the State Statistics Service of Ukraine "Instruction on salary statistics", 2004). Other incentive and compensation payments include, among other things, remuneration for seniority (length of work experience), bonuses paid in accordance with the established procedure under special bonus systems, bonuses for promoting *invention and rationalisation, creation, development and implementation of new equipment and technology, commissioning of production facilities and construction projects on time and ahead of schedule*, bonuses for completion of important and especially important tasks (The Order of the State Statistics Committee of Ukraine "On Approval of the Instruction on Salary Statistics", 2004). Thus, additional wages reflect, in addition to payments for special working conditions, the costs of improving the quality of the labour potential of business entities, and other incentive and compensation payments are for actual labour achievements based on the results of work aimed at improving the efficiency of their activities.

5. Methodology of Construction of a Structural Model for Assessing the Level of Motivation of Personnel in the Processing Industry to Work Effectively

The layout of the structural model for motivating staff to effectively use their competence potential is presented in Table 6.

Table 6

Structural model of employee motivation for effective use of competence potential

Clusters	M_i	Subclusters	q_{ji}	Motivators for the effective use of the employee's competence potential	S_{pji}	Scoring of motivators				
						kp_{ji}	Factors impact assessment			$\frac{d * b_{p_{ji}}}{a_{p_{ji}}} * k_{pji}$
							a_{pji}	b_{pji}	$d \cdot b_{pji}$	
1	2	3	4	5	6	7= 2*4*6	8	9	10	11
Motivations	50	Extrinsic	40	Level of business activity of the enterprise						
				Enterprise size by number of employees						
				Application of information and communication technologies at the enterprise						
		Intrinsic вні	60	Striving to acquire new competences						
				Professional job satisfaction (mastery)						
				Need for self-determination (autonomy)						
Incentives	50	Tangible	50	Basic salary						
				Additional salary for high professional skills						
				Bonuses for the introduction of new equipment and technology						
				Incentive and compensation payments for mastering *basic* digital skills						
				Incentive and compensation payments for mastering *advanced* digital skills						
				Social package						
				Comfort of the workplace						
		Intangible	50	Clarity and comprehensibility of the goals and tasks to be achieved						
				Vertical loading						
				Opportunity for career growth						
				Opportunity for professional development						
				Flexible working hours						

Source: compiled by the author

It is a tool for assessing staff motivation to effectively use their competence potential.

The following iterations are required to complete Table 6:

Expertly select factors from the table "Classifier of motivation of enterprise personnel for the effective use of the competence potential of living labour in the context of digitalisation", which will be taken into account when assessing staff motivation for the effective use of competence potential. As shown in Table 4, the motivation of employees to effectively use their competence potential is determined by factors of two clusters – motives and incentives. Columns 1-4 of the Table "Structural model of employee motivation for effective use of competence potential" shall be filled in on the basis of data from columns 1-4 of the Table "Classifier of motivation of enterprise personnel for the effective use of the competence potential of living labour in the context of digitalisation".

In column 5, the name of the influence factors from the subclusters selected from Table 4 should be entered.

Column 6 contains the scores determined by experts. The total number of points for each cluster and subcluster takes a value in the range $[0;100]$.

Columns 7-11 indicate the estimated values of the employee's structural model before the effective use of his/her competence potential.

In order to fill in column 7, it is necessary to determine the share of each factor according to the expert assessment using the formula:

$$k_{p_{ji}} = m_i \cdot q_{ji} \cdot S_{ji}, \quad (2)$$

where $k_{p_{ji}}$ is the weight of the factor's impact according to expert opinion;

m_i is the share of the i-th cluster;

q_{ji} is the share of the j-th subcluster in the i-th cluster;

$S_{p_{ji}}$ is the share of the p-th factor in the j-th subcluster of the i-th cluster.

In column 8, record the expert estimates of the effect of motivation factors under ideal conditions.

In column 9, record the specialist's opinion on the result of the factors' impact on the employee.

In column 10, the assessment of the impact of the factor on the employee is adjusted by the coefficient of the employee's potential ability to effectively use the competence potential, which is calculated in Tables 1-3.

Column 11 shows the total motivational impact of the factor, taking into account the comparison of expert assessment of the factor's effect in ideal and actual conditions, using the following formula

$$c_{p_{ji}} = \frac{d \cdot b_{p_{ji}}}{a_{pji}} \cdot k_{p_{ji}} \ \left(i = 1; n, \ j = 1; l, p_{ji} = l_{ji}\right), \quad (3)$$

where *i* is the cluster number;

j is the subcluster number;

p_{ji} is the number of the factor in the j-th subcluster of the i-th cluster;

a_{ji} – assessment of the effect of the factor in ideal conditions;

b_{ji} – assessment of the factor's effect in actual conditions;

$c_{p_{ji}}$ – overall assessment of the factor's impact.

The assessment of an employee's motivation to effectively use their competence potential is calculated using the following formula:

$$c = \sum_{i=1}^{n}\left[\sum_{j=1}^{l}\left[\sum_{p_{ji}}^{l_{ji}} \frac{d * b_{p_{ji}}}{a_{p_{ji}}} * k_{p_{ji}}\right]\right] \quad (4)$$

If c<0.67, then there is a need to increase the impact of incentive factors to improve the efficiency of using the employee's competence potential. If c≥0.67, the employee is sufficiently motivated to use the competence potential effectively.

The transition from a quantitative to a qualitative assessment of the level of staff motivation to the effective use of competence potential is provided by the scale for assessing the impact of motivators on the effective use of competence potential (Table 7).

Table 7

Scale for assessing the impact of motivators on the level of staff motivation to effectively use competence potential

Criterion for assessing motivation	Characteristics of the influence of motivators on the level of motivation
c=1	Optimal level of influence
0,67≤ c< 1	High level of influence
0,34≤ c <0,67	Average level of influence
0≤ c <0,34	Low level of influence

Source: compiled by the author

6. Conclusions

The methodology for assessing the motivation to work of an employee in the processing industry is a universal tool that allows changing the assessment parameters depending on changes in the conditions of the external and internal environment with the possibility of focusing on the most important ones. The logic of this methodology for assessing motivation implies its formalisation in the form of a structural model for assessing employee motivation to work. The initial stage is the identification of the research object, which is an employee of a processing industry enterprise, and determination of his or her ability to achieve certain goals. At the second stage, the author identifies the factors that motivate action and their importance for employees. The author emphasises that in the context of the intellectualisation of labour, which is characteristic of the digitalisation era, the internal motives of employees for productive labour activity become more important. At the third stage, the total assessment of the effect of the factors of motivation of employees to work productively is determined. The last stage is the transition from a quantitative assessment of the level of staff motivation to productive work to a qualitative one, which will simplify the possibility of practical application of the results obtained.

Summing up the above, it should be noted that the results of the assessment of the level of motivation of the personnel of processing industry enterprises to effectively use their competence potential can be useful in developing strategies for the development of the competence potential of living labour. In the context of the digitalisation of the economy, the competence potential of the workforce is transforming towards a greater role for higher cognitive abilities, social and emotional abilities, as well as creative and analytical thinking, and technological skills, the development of which is long and complex. Qualitative changes in the competence potential of a modern employee lead to changes in the organisation of the work process, the working environment, and the nature of labour relations, which are fully correlated with the concept of Motivation 3.0, which is based on a deep desire to manage one's life independently, to expand and develop abilities, and to live for a high purpose (Pink, 2023). The practical value of the presented model lies in the fact that it can become a starting point for the formation of a modern concept of motivating employees to effectively use their competence potential.

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