A Business Culture Quantitative Analysis Method

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Abstract. The paper reveals multidimensional nature of enterprises business culture. The results of investigation show that business culture (BC) is a complex phenomenon, which is characterized by many aspects (dimensions). As now there are no uniform objective ways of business culture evaluation, the authors of these have proposed a unique business culture quantitative assessment method for enterprises. This method based on clusters of indicators that grouped according to the business culture components (professional, intellectual, informational, social, legal, technical and technological, communicative). The procedure for calculating each cluster key indicators is based on the principles of Boolean algebra. Obtained values of indicators are used in special calculation formulas proposed by authors. Questionnaire for calculating procedure business culture indicators was made. Options for interpreting the results of indicators calculation according to formulas are presented. An analysis of the business culture of the group of enterprises, based on the proposed quantitative method, was carried out.

Keywords: business culture, quantitative analysis, indicators calculating procedure, dimensions, assessment.

1. Introduction

Now, the use of productive equipment, technologies, personnel, financial and intellectual resources by enterprises does not always have a significant impact on the results of their activities. However, among others factors, a business culture become the most significant as a system which consist of rules and values of behavior and order, that determine the interaction and subordination of team members, management units, structural units, the creation of new innovative products, production, providing services, ensuring their own activities, social responsibility relations, financial and economic relations and key factors of enterprise development. But industrial enterprises are not defining interrelation between the level of business culture and the level of the enterprise efficiency, because they haven't strong methodology of the organizations culture, corporate culture and the business culture of the enterprise forming. The problem of establishing a business culture as a foundation for improving the efficiency of the enterprise is extremely important, it ensures its effective operation. This applies not only to maximizing profits, but also to further strategic development, time savings, efficient use of resources, etc. At this situation should take into reason not only the efficiency of use the financial, intellectual and material resources of the enterprise, but also the level of its business culture.

2. Business Culture Basic Concept

The current practice of socio-economic relations, as well as the constant threats of economic crises generate the need for adequate tools to ensure the functioning of the participants in the production and distribution relations. Such tools, beside with technological, financial or labor aspects, should create conditions for the formation of positive norms of behavior, values, interpersonal communications, which are components of the subjects of productive-distributive relations business culture. This toolkit should also cover the systematic, orderly, effective and attributive contexts of individuals' interactions within the organization. That is why the formation of a business culture appraisal system with its indicators, calculation methods, economic and mathematical models and methods of interpreting the results of modeling or current assessment is important in determining the parameters of the organization-enterprise activity. Any evaluation system is based on a set of evaluation indicators, which in turn reflect the key features of the phenomenon under consideration [1; 8].

Despite the large number of publications on business culture that have emerged in the last twenty years, the problem of complex definition of its essence is not solved in all its complexity with numerous interconnections and subtleties. Authors of different scientific works in this context use different notions: "organization ideology", "organization philosophy", "organizational culture", "business culture", "corporate culture", "business culture", etc. [7; 11; 14; 16; 17]. Therefore, considering culture in the business system requires understanding the essence of the business itself and the phenomenon of culture. Business relations, conducting commercial transactions occur between different subjects of market relations have certain rules, norms and attributes. Thus, the phenomenon of the culture of such actions directly influences the business results, the achievement of its intermediate and final goals. The implementation of effective long-term plans for the development of the company is impossible without the leading role of morality, high life and labor values in its staff.

Business culture is a part of the intangible economy that defines the interrelations in the business environment on the labor, corporative, national values and can affect the success and development of the enterprise. Business culture is an example of how the development of civilization, scientific and technological progress lead society to the need for the development of spiritual culture and even to make the demands of a high culture, ethics, a priority in the work of a clean economy.

Values and norms in the organization are established in the course of formation of its business culture. Determination process of these values and norms is based on the following statements: culture is a system of collective perceptions that must be valid and reliable; the contextual significance of cultural perceptions can only be fully realized by people belonging to a particular culture; cultural perceptions can be seen as contributing to strategic organizational goals; new organizational practices may be derived from existing culture; the basic paradigm changes very seldom, the process of such organizational changes occurs in many years [2; 13; 15].

Business culture in each country is formed on the basis of human values, but has national characteristics, in particular due to the mentality of the population. An important component of the mentality is the economic mentality. Its main elements

include economic thinking, economic culture, economic psychology etc. The determining factors for the formation of economic mentality are the type of economic system, the level of productive forces development and above all the person (education, qualification, physical and mental states) [9; 19].

In business culture distinguish two segments: the value and mental [4; 18]. The value segment acts as a cultural phenomenon that can be transmitted as a tradition and determines the ethical side of business relationships. It is the basis of professional activity and is automatically start due to knowledge, skills, experience. This segment acts as a stereotype, as habitual official behavior, as concrete and actual values, norms of practice. The mental segment of business culture is related to situations where the usual norms and values do not work and it is necessary to start real thinking. The ideal business culture is not always realized in concrete actions. What it will be like in practice depends on the real situation, which brings to business relations something from the general culture, from certain stereotypes. Abstract business culture, its theoretically constructed values and norms in the minds of business people are based on generally accepted in the civilized world. They are declared, but internally they are not always approved and executed, only the external visibility of their acceptance is created. This raises the problem of matching the ideal model of a civilized entrepreneur business culture to the values and norms that really determine the actions and activities of modern entrepreneurs in the field of business.

3. Business Culture Assessment Procedure

There are no established methods for quantifying the status or level of business culture of any subject of public relations. Therefore, firstly you need to decide the parameters that should be evaluated. As these parameters have the different objects of evaluation, it is advisable to combine them in certain groups - sets: the set of indicators for evaluating of the professional component of business culture, set of evaluating its intellectual component, a plurality of evaluation information, social, regulatory, technical, technological and communicative component of entity business culture.

Each is from these sets has its own specific characteristics. Thus, the plurality of evaluation *of the professional component* of business culture includes indicators $(PRF)^*$ defining assessment: employee's educational level $(prf_1)^*$, work experience on specialty or on the profile (prf_2), the education's compliance to position (prf_3), the training activity of staff (prf_4), the ability of personnel to organize and plan their own work (prf_5), availability of personnel training in a particular functional area (prf_6), the ability of personnel to apply their existing knowledge and skills in a particular functional area activities (prf_7). The set of indicators of evaluation the parameters of *intellectual component of* business culture (ITC) should include assessments of the ability of employees to analytical thinking (itc_1), their ability to use a comprehensive approach in preparing and making decisions (itc_2), learning and self-study (itc_3), the ability to generate new ideas (itc_4), confidence in their actions (itc_5), the ability to

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* Indicator codes were compiled by the author

apply creativity in problem solving (itc_6). Indicators set for the evaluation of *the information component* (*INF*) may include data describing the availability of staff to approach management information (inf_1), the ability to develop guidelines and standards for contractors (inf_2), the ability to use the modern information systems (inf_3), ability to handle the information received (inf_4), the result-oriented ability to work (inf_5), to be open to new knowledge (inf_6). To set performance evaluation of *the social component of* business culture (*SOC*) appropriate to include those that indicate the presence or percent of personnel the knowledge and the skills of the ethics of business communication (soc_1), the ability to prevent and resolve conflicts (soc_2), the ability of quickly and correctly transfer information (soc_3), the leadership abilities (soc_4), the ability to communicate with experts in other areas (soc_5), be motivated for career growth (soc_6). The set of indicators for assessing the status of a business culture (*LWI*) *regulatory component* should first and foremost include indicators which show that employees have the ability to make quick decisions in accordance with the firm's mandate (lwi_1), the ability to work and make decisions independently on the basis of organizational and regulatory acts of the company (lwi_2), the ability of tracking changes in the legislative and regulatory framework (lwi_3), the ability of assessing the results obtained and identify causal relationships in accordance with applicable laws and organizations administrative acts of the firm (lwi_4), the ability of self-control within the legal norms of the firm (lwi_5), the skills of self-organization in accordance with the current legislation and organizational and administrative acts of the firm (lwi_6). A set of metrics for evaluating a firm's *techno-technological component* of business culture (*TECH*) may include estimation data on the application of the enterprise high-performance machine, labor and management processes ($tech_1$) to use the special management procedures (project-oriented, software-oriented, portfolio management) ($tech_2$), the presence of a control system and performance reporting processes ($tech_3$), the presence documented information data on the implementation of industrial processes and management procedures ($tech_4$), successful management of business processes activity ($tech_5$). The set of indicators for assessing regarding *communicative component* of business culture (*COM*) includes indicators that indicate of usefulness of the personnel to the conduct of negotiations (com_1), the ability of localizing interpersonal and group conflicts (com_2) the ability to claim the various actions (com_3), the ability to perform reliably their duties and tasks (com_4), the understanding and adherence to company values (com_5), sociability(com_6), the ability to manage subordinates (com_7).

Currently, there are no commonly accepted methods for determining differentiated indicators for each component of business culture. So at the beginning of research, the status of business culture of any business entity is appropriate to determine by establishing the presence or absence of a certain attribute. For these purposes, the principles of binary logic are well suited. According to them the presence of a certain sign of a phenomenon is mathematically formalized by "1 " and its absence by "0". The indicators are calculated for each employee of the firm separately and on their basis the average value of the corresponding assessment indicator is determined. So:

$$PRF = \frac{1}{L}\sum_{l=1}^{L}\frac{1}{11}\sum_{i=1}^{12} prf_i, \qquad prf_i = 0 \vee 1; \qquad 0 < PRF < 1 \qquad (1)$$

$$ITC = \frac{1}{L}\sum_{l=1}^{L}\frac{1}{6}\sum_{j=1}^{6} itc_j, \qquad itc_j = 0 \vee 1; \qquad 0 < ITC < 1 \qquad (2)$$

$$INF = \frac{1}{L}\sum_{l=1}^{L}\frac{1}{6}\sum_{k=1}^{6} \inf_k, \qquad inf_k = 0 \vee 1; \qquad 0 < INF < 1 \qquad (3)$$

$$SOC = \frac{1}{L}\sum_{l=1}^{L}\frac{1}{6}\sum_{m=1}^{6} soc_m, \qquad soc_m = 0 \vee 1; \qquad 0 < SOC < 1 \qquad (4)$$

$$LWI = \frac{1}{L}\sum_{l=1}^{L}\frac{1}{6}\sum_{p=1}^{6} lwi_p, \qquad lwi_p = 0 \vee 1; \qquad 0 < LWI < 1 \qquad (5)$$

$$TECH = \frac{1}{L}\sum_{l=1}^{L}\frac{1}{5}\sum_{q=1}^{5} tech_q, \qquad tech_q = 0 \vee 1; \qquad 0 < TECH < 1 \qquad (6)$$

$$COM = \frac{1}{L}\sum_{l=1}^{L}\frac{1}{7}\sum_{r=1}^{7} com_r, \qquad com_r = 0 \vee 1; \qquad 0 < COM < 1 \qquad (7)$$

L – number of the company's staff

For the purpose of assessing the current state of business culture at the enterprise, in the context of individual jobs or employees, analytical tables are formed, where the corresponding values of binary formalizations by individual indicators are entered.

When performing the calculations, special attention should be paid to the indicator prf_i ("Employee's educational level"), since this indicator has 5 grades (basic secondary education, full secondary education, basic higher education, full higher education, highly qualified professional) and create by absorbing binary values of different degrees of education (1 each, if any). For example, if a respondent has a full higher education, he or she has completed a secondary education ("1"), before which he / she received a basic higher education ("1"), and he / she was able to receive it only in the presence of a complete secondary education ("1"), which became possible after the completion of basic secondary education ("1"). Thus, complementation of positive values for a respondent with a university degree gives a generalized value of "4".

The resulting calculated values for individual components of business culture are transposed into the total value by the enterprise or its structural unit through the geometric mean as follows:

$$BCL_n = \sqrt[7]{PRF \cdot ITC \cdot INF \cdot SOC \cdot LWI \cdot TECH \cdot COM}, \qquad (8)$$

The analysis of the status or dynamics of any phenomenon or process is impossible without the procedure of interpretation of the values of the obtained diagnostic results and their subsequent evaluation. In the interpretation process of values calculated indicators of individual businesses components should keep in mind that the basis for their calculation laid binary logic by which determined the presence or percent of any certain features that characterize the state of the relevant aspect (component) of business culture. The best condition of a particular component of the business culture

is characterized by obtaining the maximum value of the calculated indicators for each of the components. Ideally

$$PRF = ITC = INF = SOC = LWI = TECH = COM = 1 \, , \qquad (9)$$

The achievement degree the level "1" the calculated value of business culture individual component show the level of conformity of a particular trait to the accepted standards. Thus, the higher level of the BCL, the better can be considered the business culture of the firm. Depending on the degree to which maximum values are reached by local metrics (*PRF, ITC, INF, SOC, LWI, TECH, COM*) we can talk about progress and problems in specific components of the company's business culture. To establish the reasons for the low levels of business culture individual components it is advisable to do a horizontal analysis at the level of primary performance indicators (PRF_i , ITC_j , INF_k , SOC_m , LWI_p , $TECH_q$, COM_r), defining them in groups, subdivisions or categories of personnel. The most objective estimates of changes in the level of business structure by its components can be obtained by establishing the relationship between the level of these indicators and performance (or efficiency) of the staff of the company. In these dependencies it is necessary to establish the degree of correlation between the obtained results, the made management decisions and the levels of the calculated indicators in the context of business culture components. The most informative method in such manipulations is to compare the rate of increase of components of business culture and increase the cost of its maintenance. In formalized form, this may have the following representation:

$$I_{BCL-EF} = \frac{I_{BCL}}{I_{EF}} = \frac{\dfrac{BCL_{after}}{BCL_{before}}}{\dfrac{COST_{after}}{COST_{before}}} \, , \qquad (10)$$

where I_{BCL-EF} - the rate index of the company's business culture increase level ; I_{BCL} - index of change of company's business culture level; I_{EF} - the cost index of the company's business culture components forming; BCL_{after} - an indicator of the level of company's business culture after the implementation of work packages on the formation (development) of it business culture; BCL_{before} - an indicator of the level of company's business culture before the implementation of work packages on the formation (development) of it business culture; $COST_{after}$ - - the amount of recurrent costs to maintain the current level of business culture after completing the business culture development work packages; $COST_{before}$ - - the amount of recurrent costs to maintain the current level of business culture before completing the business culture development work packages.

Keep in mind that if $I_{BCL-EF} > 1$ is effectively increasing the company's own level of business culture, and at $0 < I_{BCL-EF} < 1$ holds inefficient investment in the development of its business culture that work packages need to be reviewed for further organizational and cultural transformation of the company.

4. Company's business culture measurement indicators

According to the aims of using business culture assessment method a questionnaire was made. In it were formed and grouped indicators that disclose the essence of each business culture cluster separately. On the base of this questionnaire, primary data was collected and calculated for a group of 9 enterprises of Ukraine that manufacture plastic products (set A = $\{a_1, a_2, a_3, a_4, a_5, a_6, a_7, a_8, a_9\}$).

In the course of research on cluster "*the business culture professional component*" was found that the geometric average of the enterprise group is equal 0.35. The averages for enterprises are on the borders from 0.30 to 0.41. The results are presented in Table 1.

Table 1. Specific and averages indicators of companies' business culture professional component cluster

Indicators	a_1	a_2	a_3	a_4	a_5	a_6	a_7	a_8	a_9
prf_1	0,56	0,54	0,39	0,41	0,48	0,44	0,38	0,37	0,48
prf_{1A}	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	0,90
prf_{1B}	1,00	0,89	0,71	0,79	0,91	1,00	0,80	0,77	0,97
prf_{1C}	0,39	0,41	0,11	0,14	0,25	0,09	0,05	0,05	0,21
prf_{1D}	0,39	0,40	0,11	0,14	0,26	0,09	0,05	0,05	0,31
prf_{1E}	0	0	0	0	0	0	0	0	0
prf_2	0,41	0,36	0,38	0,40	0,43	0,42	0,31	0,40	0,41
prf_3	0,57	0,61	0,58	0,61	0,59	0,56	0,52	0,59	0,61
prf_4	0	0	0	0	0	0	0	0	0
prf_5	0,31	0,25	0,29	0,28	0,32	0,31	0,22	0,30	0,28
prf_6	0,11	0,13	0,11	0,11	0,14	0,12	0,14	0,10	0,09
prf_7	0,33	0,24	0,23	0,27	0,28	0,26	0,21	0,26	0,29
PRF_i	0,41	0,39	0,32	0,34	0,38	0,35	0,30	0,32	0,37

Notes: 1. prf_{1A}= ' basic secondary education ' , prf_{1B}= ' full secondary education ' , prf_{1C}= ' basic higher education ' , prf_{1D}= ' full higher education' , prf_{1E}= ' highly qualified professional '

2. a_1 = ' "Ukrplastik" JSC ' , a_2= ' "Planeta Plastik" Ltd. ' , a_3= ' "Brovarskiy Zavod Plastmas" JSC ' , a_4 = ' "Zdolbunivskiy zavod plastmasovych viribiv "ISKRA" JSC ' , a_5 = ' "Zavod pobutovoi ta promislovoi chimii" JSC ' , a_6 = ' "Plastmodern" JSC ' , a_7 = ' "Budplastyk" JSC ' , a_8 = ' "Pidvolochyska fabrika plastmasovych viribiv " JSC ', a_9 = ' "Vtorpolimermash" JSC '.

According to local indicators which characterize the professional component of enterprises business culture, the highest levels are "Ukrplastik" (0.41) and "Planeta plastik" (0.39), with the lowest value of this indicator in "Budplastik" (0, 30). This indicates that all enterprises the selection of personnel is carried out in accordance with the requirements of production technological processes, but does not pay attention to training of personnel (prf_4 = 0 in all enterprisey) .

The intellectual component of business culture characterizes the capability of enterprise staff to apply their skills and abilities in the use of new technologies, the ability to implement new organizational and managerial decisions in their work activities; the skills to model, develop, manufacture and sell new and existing products, that is show the high professional training of the personnel. It also allows to assess the potential of the management apparatus and enterprise management system, its flexibility and adaptability to change. The research of business culture intellectual cluster parameters allowed to establish that their geometric average has the value 0.27 and averages for enterprises are on the borders from 0.22 to 0.33. They are almost uniformly away from the middle. The results of calculations are presented in Table 2.

Table 2. Specific and averages indicators of companies' business culture intellectual component cluster

Indicators	a_1	a_2	a_3	a_4	a_5	a_6	a_7	a_8	a_9
itc_1	0,41	0,34	0,20	0,21	0,40	0,21	0,33	0,34	0,20
itc_2	0,35	0,40	0,11	0,50	0,34	0,46	0,37	0,41	0,11
itc_3	0,33	0,33	0,24	0,33	0,34	0,32	0,30	0,35	0,24
itc_4	0,37	0,20	0,27	0,41	0,32	0,38	0,24	0,22	0,27
itc_5	0,24	0,14	0,20	0,15	0,26	0,14	0,13	0,19	0,20
itc_6	0,26	0,26	0,30	0,26	0,26	0,23	0,25	0,23	0,30
ITC_j	**0,33**	**0,28**	**0,22**	**0,31**	**0,32**	**0,29**	**0,27**	**0,29**	**0,22**

Note. See item 2 of the notes to table 1.

The maximum value of the business culture intellectual component index in the selected group of enterprises have "Ukrplastik" (0.33) and "Zavod pobutovoi ta promislovoi chimii" (0.32), the minimum "Brovarskiy Zavod Plastmas" and "Vtorpolimermash" (0.22 for each). The enterprises producers of plastic have a rather low overall level of intellectual component, which is formed from the insufficient educated staff and low skill workers, that is the hallmark of missing the personnel policy at enterprises.

During super active informatization of public relations of *enterprise business culture information component* must perform carry on an important role. It defines the information security of the enterprise, the level of completeness, accuracy and contradiction of the information necessary for making productive innovative

decisions. The calculation of the evaluation indicators revealed that the average level (0,21) with the fluctuations within 0,17-0,27 is too low relative to other indicators (the results are presented in Table 3).

Table 3. Specific and averages indicators of companies' business culture information component cluster

Indicators	a_1	a_2	a_3	a_4	a_5	a_6	a_7	a_8	a_9
inf_1	0,50	0,28	0,20	0,15	0,12	0,13	0,20	0,14	0,32
inf_2	0,30	0,22	0,23	0,21	0,22	0,19	0,11	0,21	0,28
inf_3	0,28	0,33	0,30	0,30	0,31	0,23	0,24	0,33	0,28
inf_4	0,27	0,27	0,31	0,20	0,18	0,19	0,27	0,23	0,28
inf_5	0,20	0,14	0,25	0,15	0,14	0,12	0,20	0,16	0,21
inf_6	0,09	0,15	0,20	0,18	0,17	0,16	0,30	0,19	0,13
INF_k	**0,27**	**0,23**	**0,25**	**0,20**	**0,19**	**0,17**	**0,22**	**0,21**	**0,25**

Note. See item 2 of the notes to table 1.

The leader in the characteristic of the state of the information cluster of business culture of enterprises is "Ukrplastik" (0.27), the lowest position occupied by "Plastmodern" (0.17) and "Zavod pobutovoi ta promislovoi chimii" (0.19). Low level indicators for this cluster indicates a lack of reliable and appropriate request information, making it impossible to use the strategy of constant innovation.

Equally important in the business culture of the enterprise is the social component. It describes activities aimed at improving the working conditions of staff, increasing the motivation of their employees, as to improving their own level of competitiveness and productivity. The geometric average of this cluster has a level of 0.21 with deviations within 0.17-0.28 (the results are presented in Table 4).

Table 4. Specific and averages indicators of companies' business culture social component cluster

Indicators	a_1	a_2	a_3	a_4	a_5	a_6	a_7	a_8	a_9
soc_1	0,37	0,10	0,35	0,23	0,27	0,15	0,14	0,20	0,12
soc_2	0,22	0,19	0,35	0,20	0,22	0,20	0,21	0,11	0,20
soc_3	0,28	0,11	0,25	0,22	0,33	0,27	0,33	0,24	0,31
soc_4	0,25	0,27	0,20	0,20	0,27	0,19	0,23	0,27	0,18
soc_5	0,30	0,20	0,10	0,14	0,14	0,15	0,16	0,20	0,13
soc_6	0,28	0,17	0,19	0,19	0,15	0,18	0,19	0,30	0,14
SOC_m	**0,28**	**0,17**	**0,24**	**0,22**	**0,23**	**0,19**	**0,21**	**0,22**	**0,18**

Note. See item 2 of the notes to table 1.

According to the social component of the business culture of the enterprise the highest level has "Ukrplastik" (0.28), the lowest "Planeta plastik" (0.17). Enterprises that have the low levels of business culture in the social cluster on the basis of organizational-technical and socio-psychological levers of influence, which do not correspond to the modern development of social relations, biological features of human development, stages of its life cycle.

Regulatory component of business culture describes the organizational and functional systems of internal self-government in the company, unfortunately investigated enterprises have the low rates. So the average overall index is 0.21 in cluster 8 at values from 0.20 to 0.30 (the results are presented in Table 5).

Table 5. Specific and averages indicators of companies' business culture regulatory component cluster

Indicators	a_1	a_2	a_3	a_4	a_5	a_6	a_7	a_8	a_9
lwi_1	0,27	0,20	0,12	0,20	0,23	0,20	0,16	0,19	0,13
lwi_2	0,35	0,19	0,20	0,12	0,20	0,23	0,21	0,18	0,19
lwi_3	0,12	0,24	0,15	0,20	0,22	0,38	0,30	0,33	0,21
lwi_4	0,43	0,43	0,49	0,25	0,21	0,30	0,20	0,17	0,16
lwi_5	0,28	0,14	0,15	0,24	0,15	0,25	0,15	0,16	0,12
lwi_6	0,37	0,22	0,14	0,30	0,19	0,20	0,18	0,17	0,15
LWI_p	**0,30**	**0,24**	**0,21**	**0,22**	**0,20**	**0,26**	**0,20**	**0,20**	**0,16**

Note. See item 2 of the notes to table 1.

The indicators of the enterprises business culture regulatory components have their leaders ("Plastmodern" (0.26) and "Ukrplastik" (0.30)) and outsider ("Vtorpolimermash" (0.16)). This indicates in the selected group of enterprises is not provided with the appropriate guidance materials and tools at the level of the relevant units. Improve performance by making possible improvements of relevant local regulatory - legal acts at the enterprise level.

The techno-technological component of business culture describes the material, technical and technological state of the organization, availability of reserves and opportunities for their prompt receipt, flexibility of equipment and technologies, rapid work of design and technological services. Its performance is determined by the ability to quickly respond to changes in the environment, technologies, innovations at the rebuilding and the reorientation of producing capacity and also setting up production of new products. The geometric average of the total index per enterprise group is 0.32 at absolute average from 0.21 to 0.43 (the results are presented in Table 6).

According to the parameters of the business culture techno-technological component among the group's enterprises the most important is "Ukrplastik" (0.43), almost next to it "Planeta Plastik" (0.38). The lowest indicators have enterprise is

"Zavod pobutovoi ta promislovoi chimii" (0.21). The low level of values of the parameters of the techno-technological component indicates the low efficiency of the reproduction processes, namely the imperfection of the mechanisms of internal transfer of technologies; technical and technological backwardness of production and management processes; ineffective in depreciation on policies in these businesses.

Table 6. Specific and averages indicators of companies' business culture technological component cluster

Indicators	a_1	a_2	a_3	a_4	a_5	a_6	a_7	a_8	a_9
$tech_1$	0,37	0,53	0,40	0,36	0,17	0,22	0,18	0,22	0,36
$tech_2$	0,38	0,37	0,30	0,40	0,10	0,09	0,11	0,15	0,38
$tech_3$	0,45	0,20	0,42	0,32	0,27	0,31	0,52	0,42	0,30
$tech_4$	0,55	0,58	0,45	0,33	0,29	0,34	0,42	0,46	0,32
$tech_5$	0,39	0,20	0,25	0,35	0,22	0,24	0,37	0,35	0,34
$TECH_q$	**0,43**	**0,38**	**0,36**	**0,35**	**0,21**	**0,24**	**0,32**	**0,31**	**0,34**

Note. See item 2 of the notes to table 1.

Specific indicators of communicative component of the business culture characterize volumes and directions of information exchange between employees of the enterprise. In the context of high communication between staff, information is not only transmitted but also formed, refined, developed and interpreted in the desired result depending on the quality of communication skills of each employee. The current average values of the communicative component of the business culture for the selected group of enterprises are 0.25 with absolute values ranging from 0.21 to 0.32 (the results are presented in Table 7).

Table 7. Specific and averages indicators of companies' business culture communication component cluster

Indicators	a_1	a_2	a_3	a_4	a_5	a_6	a_7	a_8	a_9
com_1	0,42	0,30	0,20	0,18	0,30	0,34	0,43	0,30	0,38
com_2	0,38	0,43	0,30	0,27	0,33	0,31	0,28	0,31	0,43
com_3	0,45	0,20	0,32	0,22	0,19	0,31	0,25	0,32	0,19
com_4	0,15	0,28	0,15	0,20	0,26	0,16	0,14	0,16	0,18
com_5	0,27	0,28	0,11	0,22	0,28	0,10	0,27	0,23	0,38
com_6	0,35	0,28	0,23	0,21	0,25	0,24	0,28	0,21	0,27
com_7	0,20	0,18	0,25	0,18	0,14	0,15	0,10	0,15	0,13
COM_r	**0,32**	**0,28**	**0,22**	**0,21**	**0,25**	**0,23**	**0,25**	**0,24**	**0,28**

Note. See item 2 of the notes to table 1.

Top business group settings for communicative component of the business culture is "Ukrplastik" (0.32), "Planeta Plastik" and «Vtorpolimermash" (to 0.28), and the last rung of the rating takes "Zdolbunivskiy zavod plastmasovych viribiv "ISKRA" (0.21). The results of the analysis of the status of parameters of the communicative component of the business culture of these enterprises indicate a low level of communication between employees, departments and management, which has negatively affects to the activity of enterprises (decreases productivity, increases the level of downtime), a number of measures need to be taken to improve communication at the enterprises of the industry.

According formula 8 was calculated total levels of business culture for each enterprise of the group (see Fig 1).
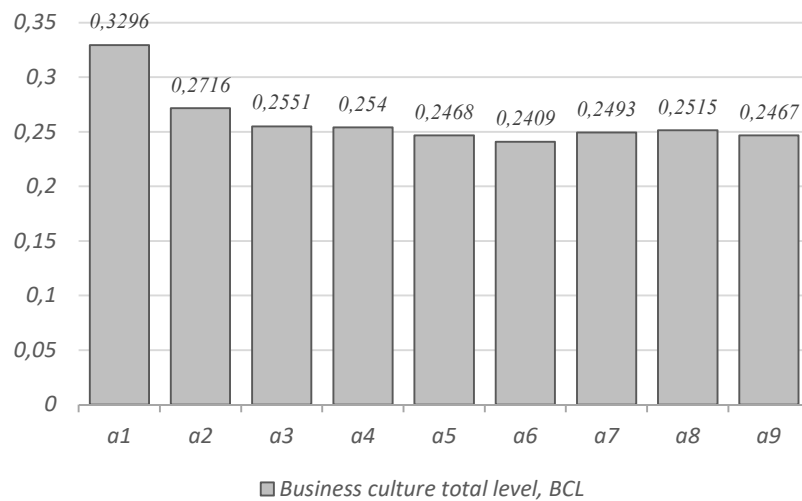
$a_1.$ = ' "Ukrplastik" JSC ' , a_2= ' "Planeta Plastik" Ltd. ' , a_3= ' "Brovarskiy Zavod Plastmas" JSC ' , a_4 = ' "Zdolbunivskiy zavod plastmasovych viribiv "ISKRA" JSC ' , a_5= ' "Zavod pobutovoi ta promislovoi chimii" JSC ' , a_6 = ' "Plastmodern" JSC ' , a_7 = ' "Budplastyk" JSC ' , a_8 = ' "Pidvolochyska fabrika plastmasovych viribiv " JSC ', a_9 = ' "Vtorpolimermash" JSC '.

Fig. 1. Total Business culture levels of enterprises

Among that group of enterprises, the top range of business culture total level has "Ukrplastik" (0.3296), the last stage of the rating takes "Plastmodern" (0.2409). As maximum value of the calculated indicators for each of the enterprises must be 1,0 (equation 9), we can state that the most part of enterprises has a low level of business culture (less than 30%).

5. Conclusion

Business culture should be considered as an important intangible resource capable of significantly influencing the efficiency of the enterprise functioning and the formation of its market value. It regulates many corporate relations between participants of economic activities and their business activity, as realized in the process of interaction between a business entity with various objects: people - employees, partners, customers, public authorities, public opinion, social groups. Therefore, its main function is to create a sense of integrity of counterparties in the business of internal and external images of the entity in its relations with partners. In view of this, the formation of a favorable business culture is one of the main tasks of managing the enterprises producers of plastic, the solution of which is a mandatory requirement to take into account industry specificity. As an integral evaluation feature, it characterizes the internal state of the firm on the basis of values, rules and norms. It describes an enterprise-specific system of connections, actions, relationships and interactions between employees and the company as a whole. Therefore, business culture is of great importance for the enterprise, and further research will allow to form new methodological approaches for increasing the efficiency of the enterprise.

That is why the proposed method of quantitative assessment of the enterprises business culture level in its form and approaches to parameter determination is fundamentally different from the existing [3; 5; 6; 10; 12] ones, which focuses on identifying and differentiating the parameters of business culture of enterprises and allows to establish causal relationships with indicators the level of business culture and the performance of business entities. It is advisable to carry out deeper probing of the state and directions of change of business culture of the firm on the basis of the sums of savings from the use by the personnel of the competencies obtained during the period of performance of business culture development, as well as changes of the primary evaluation indicators of business culture in each of its components. Performing such calculations requires additional differentiated research, which may be the basis for new research work in the near future.

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