# Analysis of Corporate Culture Development Parameters in the Telecommunication Enterprise Informations

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#### Abstract

The article deals with the phenomenon and managerial dimensions of the corporate culture of a modern enterprise. The views of different scientists and various theoretical approaches to understanding the essence of corporate culture are reconstructed and generalized. The object, subject and tasks of corporate culture of the enterprise are determined. The substantive and structural-functional characteristics of the corporate culture of the modern enterprise are revealed. The basic parameters of corporate culture development of a modern enterprise are characterized. Classification structure is performed and typological characteristics of corporate culture of modern enterprises are given. It is established that a combination of different theoretical approaches to understanding corporate culture can prove to be an effective factor in managing the corporate culture development of a modern enterprise. It is proved that using of the method of innovation-organizational transformations in the corporate culture of telecommunication enterprises will allow to direct intellectual and information resource to improving the mechanisms of management of functioning and development of enterprises, increasing their efficiency and competitiveness.

#### Keywords

Culture, corporation, corporate culture.

## 1. Introduction

Global challenges determine rapid changes in all areas of public life. In the context of the increased competition for global technical and economic leadership, enterprises are forced quickly and effectively respond to changes. These problems require the search for optimal management mechanisms and technologies based on corporate culture, which should be aimed at improving the innovation, efficiency and competitiveness of modern enterprises.

Knowledge and culture in the information society are the main factors of innovation, so management tools can be effective if it is directed to human resources. Today, it is not enough to be guided by economic or technical criteria alone, because in the context of cross-cultural cooperation and rapid information sharing in society, the performance of enterprises depends on the intellectual potential of staff and socio-cultural factors influencing its behavior.

Therefore, there is a significant re-evaluation of the role and importance of the human factor in the enterprise management system. An employee is considered as a member of a work collective with

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inherent values, traditions, goals, rules and norms of behavior. These values and goals under the influence of the human factor create a special kind of culture.

The realization of cultural opportunities in the interests of the modern enterprise, the use of powerful cultural potential for this purpose is called corporate culture.

Recently, the phenomenon of corporate culture has been increasingly regarded by scientists. However, typological criteria and parametric characteristics of the corporate culture development of a modern enterprise have not been sufficiently studied, which significantly limits the effectiveness of the mechanisms of corporate governance.

## 2. The Main Part

One of the most serious researchers of corporate culture, E. Shane, defines it as a set of basic concepts that have proven themselves to be reliable and correct, so these concepts can be taught to employees as a role model. E. Shane considered culture an integral part of the organization, which affects the effectiveness of its activities [11].

G. Hayet and G. Chaika consider corporate culture as a system of basic values, norms, traditions that provide social connections and affect the efficiency and competitiveness of the enterprise [2, 9].

Of particular interest is the original definition of S. Robbins: corporate culture is a special glue that helps to maintain the integrity of the organization by creating its own standards of thinking and behavior [5].

V. Spivak focuses on the psychological aspect of corporate culture and the priority importance of human resources in organizational and managerial sphere [6].

U. Ouchi describes the benefits of culture-based management. In a strong corporate culture, individuals and teams control themselves. [4].

Summarizing the theoretical interpretations of the concept, we can conclude that corporate culture is a system of values, beliefs, expectations, symbols, operating principles, norms of behavior, traditions and rituals that are formed in the organization and accepted by the majority.

Corporate culture is a vivid manifestation of the unified culture of a modern enterprise, which combines various types of people (shareholders, managers, production personnel).

The objects of formation and development of corporate culture are the socio-economic organizations (enterprises), and in their midst - the totality of structural units, and even deeper - employees, personnel. The subject of corporate culture are managers - executives of different levels, endowed with the relevant rights and responsibilities for the formation and development of corporate culture. The connection between the subject and the object is carried out using information flows, which are also included in the field of corporate culture. Thus, corporate culture reflects the interconnected unity of an object as a controlled part and the subject as a controlling part in the management system. Subject of corporate culture is the formation of the nature of harmonious relationships both within the enterprise and with the external environment, as well as the formation of the core values of the enterprise.

Corporate culture performs certain tasks, the main of which are: creating a favorable social and psychological climate in the company staff; systemic motivation of employees to effective business activity; the formation of a conscious attitude of each employee to his role and place in the enterprise; the formation of the type of relationship within the enterprise and beyond, built on ethical principles, moral principles and high responsibility; creating an appropriate enterprise philosophy that can balance the requirements of the internal and external environment.

It is the philosophy of the enterprise that acts as the fundamental basis in the development of the mission, goals, principles and rules of behavior, that is, the basis of the corporate culture of the enterprise.

Mission, goals, values, etc. are formed and realized in the human environment, which shapes the corporate culture of the enterprise. The human environment is a key concept of corporate culture because culture is seen as a product of the interactions that take place in that environment. These interactions occur between the company and its workforce as a whole; between the enterprise and the individual, a representative of the enterprise who possesses a specific spectrum of individual interests and needs; between the enterprise and the external environment, which puts forward its requirements for the life of the enterprise. Thus, corporate culture is a product of the interaction of the philosophy of the enterprise with individuals, with certain social groups and the external environment. A single

philosophy unites people of different social groups, nationalities, religious denominations; it acts as a cementing factor in times of crisis and unstable shifts. Ignoring corporate philosophy leads to the development of conflicts between administrators and employees, as well as to the negation of the image of the enterprise and in the future, to the crisis state of the enterprise.

The principles and philosophical attitudes of corporates culture, implemented within the framework of specific enterprises, become their own culture - the culture of the enterprise. On the one hand, the direct carriers of culture are the members of the organization themselves as carriers of ideas, goals, motives, traditions. On the other hand, corporate culture itself affects workers and modifies their behavior to generally accepted values.

Describing the importance of corporate culture for the development of an enterprise and its relations with individual and group behavior, the terms "effective corporate culture", "strong corporate culture", and "competitive corporate culture" are used. Strong cultures contain a well-defined value system that is shared by a significant percentage of employees and that has a direct and obvious link to the behavior of both individual workers and work teams, with a significant impact on behavior. Strong and effective cultures reflect the level of cultural development, but do not determine the direction of the influence of culture on the behavior of employees. The corporate culture can be strong and effective, shared by the majority of company personnel, but not direct employees' activities to enhance the enterprise's competitiveness. Competitive cultures determine both the level of development of corporate culture and its focus on strengthening the position of the enterprise in the market.

The visible presence of culture does not mean that workers are consistently adhere to its values. In the study of corporate culture, there is often the problem of linking the external manifestations of culture with its intrinsic values. Therefore, it is worth considering the method of comparative rating of enterprises based on finding the standard deviation from the reference level of corporate culture development.

Comparative rating of enterprises in terms of corporate culture development.

As a reference indicator of the level of corporate culture development, we will consider the maximum value of the indicator of a particular organization to be compared.

Finding a comparative rating of enterprises by the level of corporate culture development will be carried out in several stages:

1. At the first stage, we will create a table. In the lines of table we will write down enterprises whose corporate culture level is subject to comparison (j = 1, 2, 3, ..., m), in columns - indicators of the level of corporate culture (i = 1, 2, 3, ..., n) and their values ay.

As indicators of the level of development of corporate culture, we will offer the following characteristics: employees' awareness of the organization's common goals and commitment to them; democracy in managing the organization; internal integration; openness (transparency) of information, including financial. The number of features can be expanded.

The study is carried out by conducting a survey and testing of enterprise personnel on a point system in order to determine the values of indicators and their importance for the employee, as well as highlighting the most negative and positive moments in their work by the employees themselves, making suggestions for improving the current situation.

Each enterprise selects its own set of indicators, the values of which for third-party enterprises can be found using the method of benchmarking (Table 1).

Enterprises				
	Corporate Culture			
to be	Level Indicator (i)			
compared	Employees' awa-	Democracy	Internal	Openness
(J)	reness and com-	management	integra-tion	(transpa-rency)
	mitment to the	enterprise	-	information
	overall goals of			
	the			
Enterprise 1	320	260	270	210
Enterprise 2	290	230	240	190
Enterprise 3	360	240	310	240
Enterprise 4	270	210	190	250
Enterprise 5	260	200	175	240

Table 1
Indicators of the corporate culture development level of enterprises

Among the indicators can be selected the most significant for the studied enterprise. Each metric can be assigned a factor that reflects its importance to the corporate culture of the enterprise.

To determine the proportion of each indicator, we will use the method of expert evaluation. Experts can be experts of the company. We invite selected experts to evaluate the importance of each indicator (for example, on a scale from 1 to 4): extremely high contribution - 4 points, high contribution - 3 points, moderate contribution - 2 points, minor contribution - 1 point.

Next, the relative significance of all indicators is calculated separately for each expert. To this end, the estimates obtained from each expert are summarized (horizontally) and then normalized.

The average score of each factor is calculated. For this purpose, the normalized estimates obtained in the previous stage are summed up (vertically) and the arithmetic mean for each factor is calculated. Thus, the specific gravity of each indicator is determined (Table 2).

Table 2				
Share of indicators				
Specific weight Each	Indicators			
	1	2	3	4
Coefficient	0.33	0.25	0.30	0.12

The value of each indicator is multiplied by the corresponding coefficient and recorded in Table 3.

2. At the second stage, the maximum value of each indicator is selected (taking into account the coefficients) and written to the line of the conditional reference enterprise.

Find the  $X_{ij}$  value of the skin indicator to the maximum value of the indicator (benchmark enterprise) by the formula:

$$X_{ij} = y_{ij} / \max a_{ij} \tag{1}$$

Enterprises to be	Corporate culture level indicator (s) based on specific gravity				
compared (J)	Employees'	Democracy	Internal	Openness	
	awareness and	management	integration	(trans-parency)	
	commitment to	enterprise	8	information	
	the overall goals	0.100 p.100			
	•				
	of the company				
Enterprise 1	105.6	65.0	81.0	25.2	
Enterprise 2	95.7	57.5	72.0	22.8	
Enterprise 3	118.8	60.0	93.0	28.8	
Enterprise 4	89.1	52.5	57.0	30.0	
Enterprise 5	85.8	50.0	52.5	28.8	

 Table 3

 Indicators of the level of development of corporate culture of enterprises

3. At the third stage, the value of corporate culture rating for each enterprise  $(K_j)$  is determined by the formula:

$$K_{j} = \sqrt{(1 - x_{1j})^{2} + (1 - x_{2j})^{2} + \dots + (1 - x_{nj})^{2}}$$
(2)

where  $x_{1j}$ ,  $x_{2j}$ ,  $x_{nj}$  is the ratio of the values of the indicators of the studied enterprise with the indicators of the reference enterprises.

The values obtained are recorded in Table 4.

Organization by the minimum value of  $K_j$  - has the highest rating.

#### Table 4

Calculation of rating of organizations by the level of development of corporate culture

Enterprises to be compared	The relation of $X_y$ to the value of the corporate culture level indicator to the value of the indicator reference organization ( <i>ayl max</i> %)			Rating <i>K</i> j	Ranking of enterprises according	
(L)	Employees'	Democracy	Internal	Openness		to the
	awareness	management	integration	(transparency)		value
	and	enterprise		information		$K_{j}$
	commitment					
	to the					
	overall goals					
	of the					
	company					
Enterprise 1	0.88	1.00	0.87	0.84	0.2385	2
Enterprise 2	0.80	0.88	0.77	0.76	0.4060	3
Enterprise 3	1.00	0.92	1.00	0.96	0.0894	1
Enterprise 4	0.75	0.80	0.61	1.00	0.4382	4
Enterprise 5	0.72	0.76	0.56	0.96	0.5754	5
Conditional	118.8	65	93	30		
(reference)						
enterprise						

Examples of calculation of corporate culture ratings based on the results of five enterprises are presented in Tables 1–3.

Explanation for calculating the rating for organization 1:

$$K_1 = \sqrt{\left(1 - \frac{105,6}{118,8}\right)^2 + \left(1 - \frac{65}{65}\right)^2 + \left(1 - \frac{81}{93}\right)^2 + \left(1 - \frac{25,2}{30}\right)^2} = 0.2385$$

Corporate rating on the level of cultural development allows to carry out a comprehensive assessment of the corporate culture level of the enterprise. This can be used by the enterprise as a benchmark for improving corporate culture formation and management activities.

Effective management of a modern enterprise requires objective analysis and diagnosis of corporate culture, the study of various characteristics of the organization, staff, evaluation of the basic elements of culture in order to obtain an accurate description of the state of affairs at the enterprise [1].

Analyzing the classification features of corporate cultures, researchers offer various typologies depending on which aspect of culture is of most interest to them.

The essence of the T. Parsons typology (AGIL model) is that for success an enterprise must possess the such characteristics as adaptation to permanent changes in the external environment, achievement of goals and recognition from people and other enterprises [1].

T. Deal and A. Kennedy conclude that corporate culture is determined by two main attributes: the degree of risk and the speed of feedback (evaluation of decisions made). Based on these features, the following types of corporate culture are distinguished, depending on the high / low risk combination and rapid / slow feedback [3]:

#### Table 5

Analysis of the typology of corporative cultures by T. Dila and A. Kennedy

Risk	Feedback		
	Fast	Slow down	
High	Tough guy culture	Bet-your-company culture	
Low	Work hard, play hard culture	Process culture	

It should be noted that highly competent people in the technical field who work in the telecommunications services become heroes of the corporate culture of the Bet-your-company type, because the decisions they make and on which the future success of the company depends, are necessarily associated with increased attention to technical aspects.

In recent decades, a number of approaches have been developed that offer different techniques for diagnosing the corporate culture parameters of modern enterprises. The earliest of them can be identified as Survey Work Values (SWV), Meaning Value Work Scale (MVW), Human Value Index. The main approaches of the end of the last century, that considering the individual values of the employees of the enterprise, were generalized by D. Rosso: Norms Diagnostic Index, Organizational Culture Inventory, Organizational Culture Profile, Contemporary Culture Survey, etc. Among the techniques developed in the new millennium, we can note: Organizational Culture Scale, GLOBE, Cross-Cultural Upward Influence Ethics Scale [11].

Among the methods of corporate culture research, which have become most popular in the world and domestic practice, we will highlight and briefly consider the most acceptable for use by telecommunication companies: diagnostics of corporate culture by E. Shane method, OCAI Cameron and Quinn method, OCI Cook and Lafferty technique.

E. Shane's "clinical trial" technique is a prime example of a holistic method. The advantages of using this technique include high accuracy, reliability and the ability to use the results of the study in direct work. Orientation to a particular company allows you to take into account all the nuances that are relevant to its activities. Complexity is the relative length and complexity of the study, as well as the need for a large number of employees to be interested in the changes [12].

OCAI (Organizational Culture Assessment Instrument) by K. Cameron and R. Quinn, uses a quantitative method and provides an assessment of corporate culture by six indicators. It allows you to build an enterprise culture profile. The main advantages of the OCAI tool: the breadth of involvement of members of the organization, quantitative and qualitative assessment, availability of management - diagnosis can be performed by your own team. Disadvantages of the methodology: it is impossible to apply a correlation analysis based on the assumption of independence of the answers for each item [13-14].

Another example of using the quantitative method is the Organizational Culture Inventory (OCI) of Cook and Lafferty, which measures the behavioral values and expectations that can influence the behavior of members of the enterprise, their motivation, productivity, job satisfaction. Researchers identify three styles of culture: constructive—people seek to interact with each other; passive-protective—people act cautiously without breaking their security [15–18, 21, 22]. Aggressive defense—people actively fight, protecting their status. Each of the culture styles corresponds to approximately 10 statements. Responses are divided on a scale. The results are applied to a circle of human synergy that reflects both individual metrics and the organization as a whole (Fig. 1).

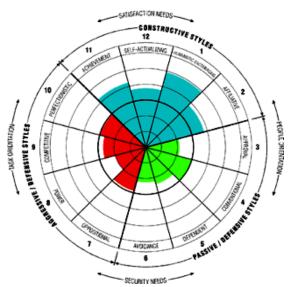


Figure 1: Profile of the ideal corporate culture according to the OCI metho-dology

The mentioned methodology is being intensively developed and actively used in the work of telecommunication enterprises. It is worth noting that when choosing a methodology for diagnosing the corporate culture of a particular telecommunication enterprise, its peculiarities, needs and degree of availability of information and communications should be taken into account, depending on the situation, several different techniques may be used, or one of the existing ones may be adapted within the set parameters of the studied corporate culture [19, 20].

Today's enterprises are facing a number of challenges, in response to which they are increasingly attracting a variety of technologies to evaluate the effectiveness of corporate culture management.

In order to understand the importance of the influence of the corporate culture on the efficiency of the enterprises, an analysis of the corporate culture of the telecommunication company TRK-Kyiv was carried out. Qualitative content analysis of available materials about the company allowed us to identify the core values of its corporate culture. The questionnaire of the company employees allowed us to assess the level of compliance of the company with the expectations of employees and to reveal the competitive advantages of the company.

In Fig. 2. We see that good financial rewards, financial stability of the company have become the main factor for choosing TRK-Kyiv as a company for work. A peculiarity of the corporate culture of the company is the parameter of having career prospects. The strong corporate culture of the company is important for a significant number of respondents.

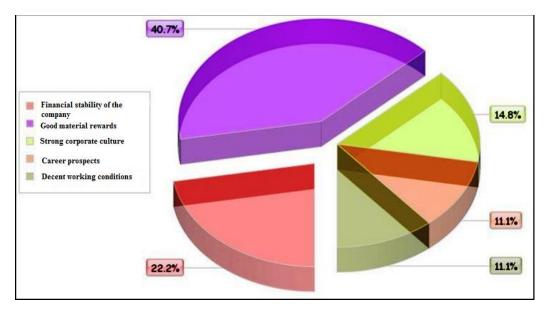


Figure 2: Company finance distribution

Confirmation that the company has properly built and managed its corporate culture is that 100% of respondents would advise working in the company and plan to continue working in the company next year.

So, we see that the company has a high level of corporate culture: the expectations of employees coincide with the real situation in the company; company structure allows employees to develop and interact closely; employees are ready to recommend the company for work. Quality communication through modern media has become the basis for building the right image that enables the company to be competitive in the telecommunications market.

# 3. Conclusions

The concept of corporate culture is relatively young in historical perspective. The emergence and development of corporate culture opens up new opportunities in the management of modern enterprises and therefore deserves separate consideration.

Corporate culture is one of the complex material-spiritual phenomena, the study of which faces a number of problems, that reinforces the growing interest in considering it as a finely planned tool for managing a modern enterprise. More and more scientists who have studied the success factors of well-known global companies, emphasize that the main secret lies in creating a successful corporate environment. Each successful company has its own corporate culture, which enables it to stand out among others, creates an atmosphere of individuality among its members.

Corporate culture is part of the cultural environment of a relevant society, capable of forming the specific socio-cultural field of the enterprise within which it exists. It helps to maintain stable relationships and interactions both within the enterprise itself and its relationship with the external environment. Corporate culture is at the same time a psychological asset of the enterprise, that stimulates efficiency and competitiveness.

The role of corporate culture in the mechanism of enterprise management is manifested through the system of all its components and parameters, that may become the subject of further study of corporate culture of the enterprise.

## 4. References

- [1] O. Apostolyuk, Corporate Culture as an Instrument for Effective Enterprise Management in Improving Its Competitiveness, Economic Journal of the Lesia Ukrainka Eastern European National University 2 (2016) 68–73.
- [2] H. L. Haita (Ed.), Corporate culture: Teaching. manual under the congregation, Center for Teachers literature, Kyiv, 2003. ; Koch R. Management and Finance from A to Z. St. Petersburg, 1999.
- [3] T. Deal, A. Kennedy, Corporate Cultures: The Rites and Rituals of Organizational Life, Addison-Wesley, 1982.
- [4] S. P. Robbins, M. Coletter, Management, 8th ed., Published. House Williams, 2007.
- [5] V. A. Spivak, Corporate Culture, Peter, St. Petersburg, 2001.
- [6] M. Trush, The phenomenon of corporate culture: the genesis, the evolution, the terminology and the interpretation concept, Ekonomika. Management. Business 3 (2018) 103–109.
- [7] M. Trush, Socio-economic parameters of corporate culture of modern enterprise. Ekonomika. Menedzhment. Biznes 4 (2018) 10–106.
- [8] B. Zhurakovskyi, S. Toliupa, S. Otrokh, V. Kuzminykh, H. Dudarieva, Coding for information systems security and viability, in: 20th International Scientific and Practical Conference, Information Technologies and Security, ITS 2020, CEUR-WS.org, online CEUR-WS.ORG/Vol-2859/paper7.pdf
- [9] G. P. Chaikaya, Culture of business communication manager: teaching staff, Knowledge, 2005.
- [10] T. O. Chernyshova, T. A. Nemchenko, Some aspects of the corporate culture of the organization, Scientific works of KNTU 17 (2010) 328–330.
- [11] S. Toliupa, T. Babenko, A. Trush, The building of a security strategy based on the model of game management, in: 4th International Scientific-Practical Conference Problems of Infocommunications Science and Technology (PIC S&T), 2017, pp. 57–60. doi: 10.1109/infocommst.2017.8246349
- [12] M. Rakushev, Y. Kravchenko, S. Kovbasiuk, O. Pliushch, Robustness evaluation of differential spectrum of integration computational algorithms, in: 4th International Scientific-Practical Conference Problems of Infocommunications Science and Technology (PIC S&T), 2017, pp. 21– 24.
- [13] Y. Kravchenko, V. Bondarenko, M. Tyshchenko, K. Herasymenko, O. Trush, O. Starkova, Model of Information Protection System Database of the Mobile Terminals Information System on the Territory of Ukraine (ISPMTU), in: International Conference on Problems of Infocommunications. Science and Technology (PIC S&T), 2020, pp. 785–790. doi: 10.1109/PICST51311.2020.9468092
- [14] A.Trush, Y. Kravchenko, O. Barabash, O. Leshchenko, O. Herasymenko, The Ideology of Building Functionally Stable Telecommunication Systems, CADSM 2017, 21-25 February, 2017, Polyana-Svalyava (Zakarpattya), Ukraine.
- [15] S. Toliupa, I. Parkhomenko, H. Shvedova, Security and regulatory aspects of the critical infrastructure objects functioning and cyberpower level assessment, in: 3rd International Conference on Advanced Information and Communications Technologies (AICT), 2019, pp. 463– 468. doi: 10.1109/AIACT.2019.8847746
- [16] M. Vladymyrenko, et al., Analysis of Implementation Results of the Distributed Access Control System. 2019 IEEE International Scientific-Practical Conference Problems of Infocommunications, Science and Technology, PICS&T, 2019. https://doi.org/10.1109/ picst47496.2019.9061376
- [17] Z. Hu, et al., Bandwidth Research of Wireless IoT Switches. In 2020 IEEE 15th International Conference on Advanced Trends in Radioelectronics, Telecommunications and Computer Engineering (TCSET). IEEE, 2020. https://doi.org/10.1109/tcset49122.2020.2354922
- [18] V. Astapenya, et al., Analysis of Ways and Methods of Increasing the Availability of Information in Distributed Information Systems. In 2021 IEEE 8th International Conference on Problems of

Infocommunications, Science and Technology, PICST, 2021. IEEE. https://doi.org/10.1109/ picst54195.2021.9772161

- [19] H. Hnatiienko, Choice Manipulation in Multicriteria Optimization Problems, in: 19th International Scientific and Practical Conference, Information Technologies and Security (ITS) 2019, pp. 234– 245.
- [20] H. M. Hnatiienko, O. O. Suprun, Fuzzy Set Objects Clustering Method Using Evolution Technologies, in: 18th International Scientific and Practical Conference, Information Technologies and Security (ITS), 2018, pp. 330–337.
- [21] S. Toliupa, I. Parkhomenko The development of a process planning model of rational modular composition of the information protection systems, in: International Scientific-Practical Conference Problems of Infocommunications Science and Technology, (PIC S&T), 2016, pp. 159– 162.
- [22] I. Tereikovskiy, I. Parkhomenko, S. Toliupa, L. Tereikovska, Markov model of normal conduct template of computer systems network objects, in: 14th International Conference on Advanced Trends in Radioelectronics, Telecommunications and Computer Engineering (TCSET), 2018, pp. 498–501.