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WEB-CULTURE AS A FACTOR OF COMPANY'S COMPETITIVENESS ENHANCEMENT

The analysis of the place and the role of the Web-culture as a component of the company's intellectual capital were performed. The structure of the company's Web-culture was refined. The competitive advantages of the Internet-active company were highlighted. The systematization of the main methods of company's Internet activity was performed. A formal assessment according to the competitive advantages of the company, depending on the level of development of its Web-culture was developed.

Keywords: Web-culture, competitiveness, internet business, competitive advantages, intellectual capital.

Formulation of the problem. Formation of the information economy (knowledge economy, or post-industrial economy) is accompanied by transferring the company's activities in the Internet environment. It is hard to imagine a successful present-day company or institution which would not have, as a minimum, its own Web-site. Many companies transfer their separate transactions (payments, paperwork, contacts with economic contractors), activities (marketing, consulting, recruitment) to the Internet or work in the Internet (on-line shopping, distance learning, virtual enterprises). Practice has shown that the production and sales and other activities in a virtual environment, as well as traditional business are increasingly dependent on intangible factors: corporate culture, image, patents and technology know-how, etc. Companies of the economically developed countries ensure their competitiveness by intangible factors. One of these factors is a Web-culture of the enterprise, which should be considered as an integral part of its corporate culture, and that provides a consistent and effective cooperation within the company in a virtual environment [1].

For companies of the second tier countries, which are not the leaders of socio-economic development, revitalization of commercial and other activities in the Internet gives the chance to improve their competitiveness, penetrate the most separated markets quickly adapt to changes in the macro-and micro-environment. Indeed, the use of Internet technologies and tools equalize the chances on market success of small and large companies and institutions, since they both use relatively inexpensive, widely available, in fact, standardized instruments. In this regard, the problem of formation and development of Web-culture is actualized as a

motivational, behavioral and cultural revitalization of the activity mechanism in the Internet environment.

Analysis of recent research and publications. Ways of improving the competitiveness of the company through the use of computer and Internet technologies have been investigated by domestic and foreign scholars. In studies [2; 3] it is shown that the Internet has helped to enhance the level of communication between the market subjects – economic enterprises counterparts. They allow to optimize the information and material flows, manage all aspects of production and marketing activities of enterprises, and as a result improve their competitiveness and efficiency.

In studies [4-7] the features of the use of the Internet and Web-technologies to enhance the competitiveness of enterprises and institutions in various industries are described. In particular, in study [4] indicators to assess the competitiveness of the venture enterprise in the Internet were proposed. It is also shown that the effectiveness of an innovative business depends on the use of Internet technologies and tools proposed. In study [5] the features of the use of Internet to enhance the competitiveness of the tourism business, in particular by improving the system of promotion and marketing of tourism services. In studies [6; 7] the practical aspects of the Internet technologies usage are highlighted to improve the production and marketing activities and improve the competitiveness of machine-building enterprises (including, for example, Russia, Japan, Belarus).

However, Web-culture, as a part of the corporate culture of the company, which determines the specificity of its activity in the virtual environment and creates a favorable innovation environment is investigated in a few papers, in particular [1; 8; 9].

Previously unresolved issues that are part of the problem. The role and place of WEB-culture in the structure of the intellectual capital of the company are insufficiently disclosed in the available publications. The effect of Web-culture as an intangible factor in the competitiveness of an company that is actively working on the Internet is also insufficiently studied.

The aim of the article is to analyze the role and place of Web-culture as a component of intellectual capital of the company that actively works in the Internet environment.

The main material of the study. Based on the analysis of approaches to the definition of the structure of the company's intellectual capital, described in [10], as well as the determination of its Web-culture [1], a scheme that illustrates the place of Web-culture in the structure of the intellectual capital of the company (Fig. 1).

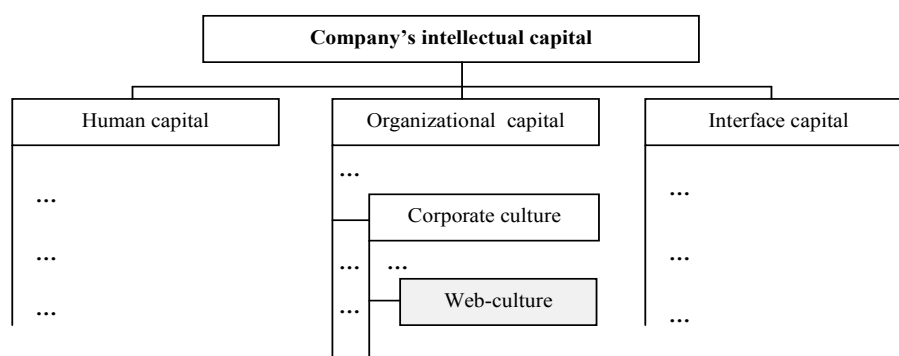


Figure 1 – The place of the WEB-culture in the structure of the intellectual capital of the company, (authoring)

The diagram in Fig. 1 shows that the Web-culture is an integral part of the corporate culture, which, in turn, is a component of organizational capital, which in its turn is the part of the intellectual capital of the company (Fig. 2). A systematic analysis of companies' activity in the Internet was carried out to investigate the phenomenon of Web-culture. According to the results a diagram of the company's Web-culture was developed (Fig. 3). Let's view its components.

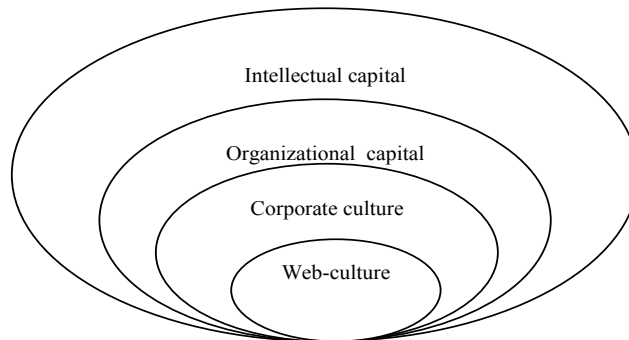


Figure 2 – The relationship of the components of the intellectual capital of the company, (authoring)

Knowledge, skills and experience of usage the Internet technologies by the staff while performing professional tasks largely forms the Web-culture of the company. Personnel structure (in terms of age, sex, knowledge, experience, skills, personality, temperament, etc.) also determines the effectiveness of company's coordinated work in the Internet, affects the state of company's Web-culture.

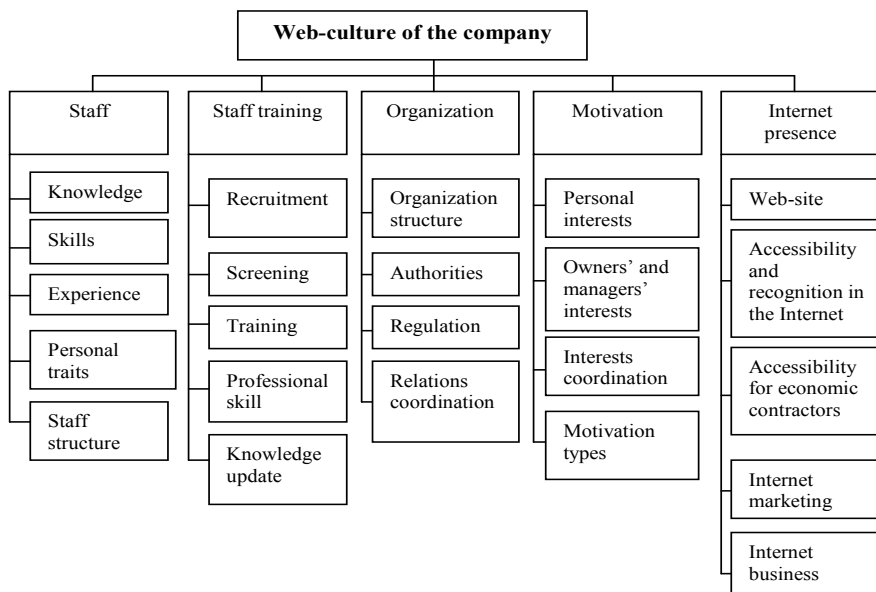


Figure 3 – Structure of Web-culture of the company, (authoring)

Closely related to the previous component is the system of selection, training and retraining. It provides the optimal structure of the staff both in the process of its training, and maintain a high degree of actualization of its knowledge (in accordance with international best practices) in the field of Internet technologies. The activities of the company or company in the local and (or) the global Internet provides a rational organization of many types of work, which include:

- electronic document in the internal network, external (e-mail), websites and organizations, etc.;
- implementation of the production (as well as engineering, providing, supporting) activities by means of computer programs: calculations, drawings; process control, for example, the operations performed by the machine, or other technological equipment; warehouse management and accounting, etc.;
- running commercial and marketing activities through the Internet: purchase, sales, monitoring of payments, promotion of goods and good-producers (seller), on-line and off-line market research, and more [11];
- maintenance of databases containing information relating to the work performed (final or intermediate);
- creation and administrating personal sites, web-pages, blogs, social networks and so forth. This is necessary for the formation and promotion of separate employees' personal image, and at the same time, the image of the company on the whole (in particular, scientists, teachers, lawyers, doctors and other employees of the liberal professions);
- administrating specific pages or sites sections of the company by particular employees;
- modification sites, optimization their structure and content, and so forth.

Rational organizational structure, regulation of relations and responsibilities of particular employees and departments, the optimal schedule, etc. are necessary for coordinated interaction of personnel during the execution of their responsibilities and obtaining a synergetic effect.

The motivation for the use of Internet technologies (Web-technologies) should take into account:

- personal interests of staff (self-realization, comfortable conditions of work and leisure, work schedule, etc.);
- the interests of managers and owners of the company (economic efficiency, market share, growth rates, etc.);
- common interests (as a compromise of the first two groups): survival of the company, high level of competitiveness at the market (company adaptability, flexibility of organizational management structures, the practical activity focusing, mobility in vertical and horizontal linkages and staff movement, the democratic style of management, corporate culture, etc. [12]). The level of the Internet activity of the company directly characterizes its Web-culture. Elements characterizing the Internet activity:
- web-site of the company, that is regularly updated;
- accessibility and popularity of the company (its website) in the Internet: for search engines, social networks, specialized Internet resources (analytical, statistical, etc.)
- the possibility of economic contractors address to the company directly through the Internet, to get answers to their questions, solve problems and so forth;
- marketing activities in the Internet (research, communication, marketing);
- industrial, financial and commercial activities on the Internet.

Here, in Fig. 4 is a hierarchical scheme, which characterizes the degree of penetration of the company (the various aspects of its activities) to the Internet.

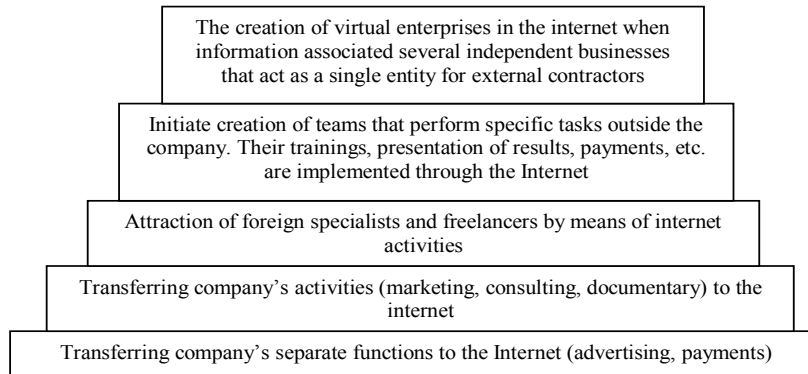


Figure 4 – “Pyramid” of ways of the organization's activities in the Internet, (authoring)

Next, let's view the role of the Web-culture in enhancing the competitiveness of a company that is actively working in the Internet.

Web-culture of the organization is considered [1] as a set of knowledge, skills, experience, beliefs, behavioral characteristics and relationships of staff, motivation of their behavior, organization and management, which determine the nature and extent of perception of Internet technologies (Web-technologies) by members of the staff, offices and the company on the whole. It is also an indicator of the willingness and ability to effectively use them in various aspects of production and marketing and other activities, to transfer company's activities (fully or partially) to the Internet environment in order to obtain economic or other benefit.

The high level of the company's Web-culture enables creation and development of a competitive advantage for the business by transferring its activities (partly or wholly) to the Internet. These benefits include:

1. Cost reduction: in financial transactions, preparation accounting documentation; the internal and external documentation (communication in general); for industrial, warehouse and other areas upkeep; staff; marketing (for promotion to the national and international markets, the image making, marketing communications, market research, products sales, etc.).
2. Fast and relatively cheap entrance (promotion) to domestic and foreign markets, and operation in these markets.
3. Maintaining a high level of communication with the economic counterparts: forward and backward linkages.
4. Rapid response to changes in the macro-and micro-environment, which are monitored on the Internet.
5. Attraction of qualified professionals, both domestic and foreign (such as freelancers).
6. The ability to form flexible, adaptive organizational structure of the company (management, operation), including the creation of virtual enterprises.
7. Formation of company's image on the whole and its individual components: the image of the product; image of consumers; image of the staff; image of the head (heads) of the organization; visual, social, business-image, and so on [13].

Naturally, this is not a complete list of the competitive advantages of a company actively working in the Internet environment. It can be updated and completed.

Analysis of the companies' activity in the Internet shows that the level of their competitive

advantages, initiated due to their Internet activity, depends on their Web-culture development level. Initially, it can be written as the following functional dependence:

$$K=f(W)+K_0, \tag{1}$$

where K – the level of the competitive advantages of the company; W – Web-culture level; K_0 – the level of the competitive advantages of the company, which is provided by other factors (not Web-culture elements).

In its turn:

$$W=f(F_1, F_2, \dots, F_n), \tag{2}$$

where F_i – state (level of development) of the i -st element of Web-culture of the company.

Dependence (1) can be used to estimate each competitive advantage separately from among listed before, as well as their entirety. Version of the methodology and the criterion base for enlarging the assessment of the company’s Web-culture level (W) was proposed in [1].

According to [1]: $0 \leq W \leq 10$. To identify the level of Web-culture depending on the values of W the following scale is proposed:

- web-culture is missing: $W = 0$;
- minimum level: $0 < W \leq 2$;
- low level: $2 < W \leq 5$;
- medium level: $5 < W \leq 8$;
- high level: $8 < W \leq 10$.

To enlarge the level of assessment of the competitive advantages (K) the formula [14] was proposed to use. It is based on fuzzy logic and considers assessments K_0 and W as evidence for the existence of the competitive advantages of the company K [15]:

$$K = K_0 + W \cdot \left(\frac{10 - K_0}{10} \right). \tag{3}$$

Values K , K_0 , W vary from 0-10. The values K and K_0 are measured by an ordinal scale similar to the value of W (see above). Assessments of the elements and components of the subsystems of the company’s Web-culture (see Fig. 3), as well as indicators of competitive advantage K_0 are determined on the basis of experience or by expert method. The experts will be leading specialists and managers of the companies, as well as qualified foreign specialists. With the purpose of practical testing assessment of competitive advantages of the company was performed. The formation of these advantages was initiated due to the active usage of the Internet. As the object of investigation the department of marketing and innovation activity management (Marketing and MIA) of the Sumy State University (SSU) was taken [16]. Baseline data and calculation results are presented in Table. 1.

Table 1 – Assessment of the competitive advantages of the Department of Marketing and MIA SSU, (authoring)

Evaluation period (year beginning)	Evaluation rates		
	K_0 (expert evaluation)	W (expert evaluation)	K (formula (3))
2013	6,1	7,2 (see [1])	8,9
2014	6,2	7,8	9,1

The results show that due to the component of the Web-culture the competitive

advantage (K) of the department increased from an average level to high level. Naturally, this assessment coarsened. For exact calculations it is necessary to determine the functional dependence of $f(W)$, to refine the form (1).

Conclusions:

1. The place of Web-culture in the structure of the intellectual capital of the company specified. Components of the Web-culture subsystem and their elements are highlighted.

2. The author's classification of methods of the company's activities in the Internet was proposed. The hierarchy of methods of using Internet in company's business was developed.

3. Web-culture was revealed to be one of the factors that enable to create and develop a competitive advantage of the company by means of transferring its activities (partially or completely) to the Internet.

4. The basic competitive advantages were defined for a company that is actively working in the Internet.

5. A methodical approach was developed and tested in practice, which allows evaluating the competitive advantages of the company, depending on the level of its Web-culture.

The results obtained reveal the role and place of Web-culture in the competitiveness of a company that is actively working in the Internet.

Future research should be directed towards the development of organizational and economic mechanism for managing the Web-culture of the company as an intangible factor of improving its competitiveness in the formation and development of the information economy.

1. Ильяшенко С.Н. WEB-культура как составляющая устойчивого развития организации / С.Н. Ильяшенко, Ю.С. Шипулина // Устойчиво развитие. – 2013. – Вып. 8. – С. 32-36.

2. Measuring the Information Society 2012, ITU [Electronic resource]. – Access mode: http://www.itu.int/ITU-D/ict/publications/idi/material/2011/MIS_2011_without_annex_5.pdf.

3. Study on the Social Impact of ICT. (CPP №55A – SMART №2007/0068). Final Report D7.1. 30 April 2010 [Electronic resource]. – Access mode: http://ec.europa.eu/information_society/europe/i2010/docs/eda/social_impact_of_ict_exec_sum.pdf.

4. Орехов С.А. Повышение конкурентоспособности в интернете как важнейший фактор повышения эффективности в бизнесе [Электронный ресурс] / С.А. Орехов, А.О. Бебрис // Интернет-журнал «Науковедение». – 2013. – №6. – Режим доступа : <http://naukovedenie.ru/PDF/57EVEN613.pdf>.

5. Смолокуров Е.В. Информационные технологии как фактор повышения конкурентоспособности туристских фирм [Электронный ресурс] / Е.В. Смолокуров // Журнал университета водных коммуникаций. – 2009. – №3. – Режим доступа : <http://socionet.ru/publication.xml?h=sprz:cyberleninka:14885:7680754>.

6. Захарченко Д.В. Информационно-сетевые технологии как фактор конкурентоспособности компаний [Электронный ресурс] // Д.В. Захарченко/ Вопросы экономики и права. – 2011. – №4 – Режим доступа: <http://ecsocman.hse.ru/data/2012/03/18/1269116189/Zaharchenko.pdf>.

7. Енин С.В. Информационные технологии как фактор инновационного развития и повышения конкурентоспособности [Электронный ресурс] / С.В. Енин // Веснік зв'язі. – 2012. – №5(115). – Режим доступа: http://www.vsbel.by/File/2012_5/enin.pdf.

8. Ильяшенко С.М. Роль web-культуры в формировании устойчивого развития организации / С.М. Ильяшенко, Ю.С. Шипулина // Економічні проблеми сталого розвитку : Матеріали Міжнародної науково-практичної конференції присвяченої пам'яті проф. О.Ф. Балацького (м. Суми, 24-26 квітня 2013 р.) : у 4 т. / за заг. ред. О.В. Прокопенко. – Суми : Сумський державний університет, 2013. – Т. 1. – С. 109-111.

9. Шипуліна Ю.С. Інноваційна культура як складова інноваційно-сприятливого середовища на сучасному підприємстві / Ю.С. Шипуліна // Інновації у маркетингу і менеджменті : монографія ; за ред. д-ра екон. наук, проф. С.М. Ілляшенка. – Суми : ТОВ «Друкарський дім «Папірус», 2013. – С. 132-140.

10. Ильяшенко С.М. Сутність, структура і методичні основи оцінки інтелектуального капіталу

підприємства // Економіка України. – 2008. – №11. – С. 16-26.

11. Ілляшенко С.М. Сучасні тенденції застосування Інтернет-технологій у маркетингу / С.М. Ілляшенко // Маркетинг і менеджмент інновацій. – 2011. – №4, Т. 2. – С. 64-74.

12. Прокопенко О.В. Мотивація персоналу і інноваційна культура підприємства / О.В. Прокопенко, Ю.С. Шипуліна // Маркетинг: теорія і практика. Збірник наукових праць Східноукраїнського національного університету ім. В. Даля ; ред. кол.: Т.С. Максимова (гол. ред.) – Луганськ, вид-во СНУ ім. В. Даля, 2014. – №21. – С. 134-142.

13. Ілляшенко С.М. Сайт організації як інструмент формування її іміджу / С.М. Ілляшенко // Інновації у маркетингу і менеджменті : монографія ; за ред. д-ра екон. наук, проф. С.М. Ілляшенка. – Суми : ТОВ «Друкарський дім «Папірус», 2013. – С. 414-428.

14. Ильяшенко С.Н. Анализ рыночных возможностей инновационного развития предприятия в условиях нечеткой оценки факторов внешней и внутренней среды / С.Н. Ильяшенко, Ю.С. Шипулина // Вісник СумДУ. Серія Економіка. – 2010. – №1. – С. 97-102.

15. Бакаев А.А. Экспертные системы и логическое программирование / А.А. Бакаев, В.И. Гриценко, Д.Н. Козлов. – К. : Наукова думка, 1992. – 220 с.

16. Официальный сайт кафедры маркетинга и управления инновационной деятельностью СумГУ [Электронный ресурс]. – Режим доступа : <http://km.fem.sumdu.edu.ua>.

1. Illiashenko, S.M. (2013). WEB-kultura kak sostavliaiushhaia ustoichivoho razvitiia orhanizatsii [WEB-culture as a component of the sustainable development of the organization]. *Ustoichivo razvitie – Sustainable development*, 8, 32-36 [in Russian].

2. Measuring the Information Society 2012 ITU. (n.d.). www.itu.int. Retrieved from http://www.itu.int/ITU-D/ict/publications/idi/mrial/2011/MIS_2011_without_annex_5.pdf [in English].

3. Study on the social impact of ICT. Final Report D7.1. 30 April 2010. (n.d.). ec.europa.eu. Retrieved from http://ec.europa.eu/information_society/eeurope/i2010/docs/eda/social_impact_of_ict_exec_sum.pdf [in English].

4. Orekhov, S.A., & Bebris, A.O. (2013). Povyshenie konkurentosposobnosti v internete kak vazhneishii faktor povysheniia effektivnosti v biznese [Improving the competitiveness of the Internet as the most important factor in increasing the efficiency of business]. *Naukovedenie – Science of Science*, 6. Retrieved from <http://naukovedenie.ru/PDF/57EVN613.pdf> [in Russian].

5. Smolokurov, Ye.V. (2009). Informatsionnye tekhnologii kak faktor povysheniia konkurentosposobnosti turistских firm [Information technology as factor of improving the competitiveness of tourist enterprises]. *Zhurnal universiteta vodnykh kommunikatsii – Journal of University of Water Communications*, 3. Retrieved from <http://socionet.ru/publication.xml?h=spz:cyberleninka:14885:7680754> [in Russian].

6. Zakharchenko, D.V. (2011). Informatsionno-setevye tekhnologii kak faktor konkurentosposobnosti kompanii [Information and network technologies as factor of the companies' competitiveness]. *Voprosy ekonomiki i prava – Questions of economics and law*, 4. Retrieved from <http://ecsocman.hse.ru/data/2012/03/18/1269116189/Zaharchenko.pdf> [in Russian].

7. Yenin, S.V. (2012). Informatsionnye tekhnologii kak faktor innovatsionnogo razvitiia i povysheniia konkurentosposobnosti [Information technologies as factor of innovative development and competitiveness]. *Vesnik cuviazi – Bulletin of communications*, 5(115). Retrieved from http://www.vsbel.by/File/2012_5/enin.pdf [in Russian].

8. Illiashenko, S.M., & Shypulina, Yu.S. (2013). Rol web-kultury v formirovanii ustoichivoho razvitiia orhanizatsii [The role of web-culture in setting the sustainable development of the organization]. Proceedings from *Mizhnarodna naukovo-praktychna konferentsiia «Ekonomiczni problemy staloho rozvytku» – International Scientific and Practical Conference «Economic Problems of Sustainable Development»*. (pp. 109-111). Sumy: Sumskiy derzhavnyi universytet [in Russian].

9. Shypulina, Yu.S. (2013). Innovaciina kultura yak skladova innovatsiino-spriiatlyvoho seredovyshha na suchasnomu pidpriemstvi [Innovation culture as a part of the innovative and supportive environment for the modern enterprise]. S.M. Illiashenko (Eds.). *Innovatsii u marketynhu i menedzhmenti – Innovations in marketing and management* (pp. 132-140). Sumy: TOV «Drukarskyi dim «Papirus» [in Ukrainian].

10. Illiashenko, S.M. (2008). Sutnist, struktura i metodychni osnovy otsinky intelektualnogo kapitalu pidpriemstva [The essence, structure and methodological foundations of evaluation of intellectual

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capital company]. *Ekonomika Ukrainy – Economics of Ukraine*, 11, 16-26 [in Ukrainian].

11. Illiashenko, S.M. (2011). Suchasni tendentsii zastosuvannia Internet-tehnolohii u marketynhu [Modern trends in the use of Internet technologies in marketing]. *Marketynh i menedzhment innovatsii – Marketing and Management of Innovations*, 4, 64-74 [in Ukrainian].

12. Prokopenko, O.V., & Shypulina, Yu.S. (2014). Motyvatsiia personalu i innovaciina kultura pidpriemstva [Motivation of staff and innovative enterprise culture]. Maksymova, T.S. (Eds.). *Marketynh: teoriia i praktyka – Marketing: theory and practice* (pp. 134-142). Luhansk: Vyd-vo SNU im. V. Dalia [in Ukrainian].

13. Illiashenko, S.M. (2013). Sait orhanizatsii yak instrument formuvannia ii imidzhu [Site of organization as tool for its image formation]. Illiashenko, S.M. (Eds.). *Innovatsii u marketynhu i menedzhment – Innovations in marketing and management* (pp. 414-428). Sumy: TOV «Drukarskyi dim «Papyrus» [in Ukrainian].

14. Illiashenko, S.N., & Shypulina, Yu.S. (2010). Analiz rynochnykh vozmozhnosti innovatsyonnoho razvitiia predpriatia v usloviiah nechetkoї otsenki faktorov vneshnei i vnutrennei sredy [Analysis of market opportunities, innovative development of enterprise in terms of fuzzy evaluation factors in the external and internal environment]. *Visnyk SumDU. Seriia Ekonomika – Bulletin of SumSU. Economic Series*, 1, 97-102 [in Russian].

15. Bakaev, A.A., Hritsenko, V.I., & Kozlov, D.N. (1992). *Ekspertnye sistemy i lohicheskoe prohrammirovanie [Expert systems and logic programming]*. Kiev: Naukova dumka [in Russian].

16. Sait kafedry marketinha i upravleniia innovatsyonnoi deiatelnosti SumHU [Website of the department of marketing and innovation activity management of SSU]. *km.fem.sumdu.edu.ua*. Retrieved from <http://km.fem.sumdu.edu.ua> [in Russian].

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Web-культура як фактор підвищення конкурентоспроможності організації

У статті здійснено аналіз місця і ролі Web-культури як складової інтелектуального капіталу організації, що активно працює в інтернет, з позицій підвищення її конкурентоспроможності. Уточнено структуру Web-культури організації. Виділені конкурентні переваги організації, що активно працює в інтернет. Виконано систематизацію основних методів діяльності організації в інтернет. Запропоновано формальні залежності для оцінки конкурентних переваг організації в залежності від стану (рівня розвитку) її Web-культури.

Ключові слова: Web-культура, конкурентоспроможність, інтернет-бізнес, конкурентні переваги, інтелектуальний капітал.

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Web-культура как фактор повышения конкурентоспособности организации

В статье выполнен анализ места и роли Web-культуры, как составляющей интеллектуального капитала активно работающей в интернет-среде организации, в повышении ее конкурентоспособности. Уточнена структура Web-культуры организации. Выделены конкурентные преимущества организации активно работающей в интернет. Выполнена систематизация основных методов работы организации в интернет. Предложены формальные зависимости для оценки конкурентных преимуществ организации в зависимости от состояния (уровня развития) ее Web-культуры.

Ключевые слова: Web-культура, конкурентоспособность, интернет-бизнес, конкурентные преимущества, интеллектуальный капитал.

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