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Problems and peculiarities of the formation of intellectual capital of Ukrainian business

Abstract
The article investigates the current trends in the formation and implementation of intellectual capital in the corporate sector of the Ukrainian economy. The system of personnel training in large corporations is developing and gaining new features in the context of globalization and the spread of information and communication technologies (ICTs). Using the methods of comparative, quantitative and qualitative analysis empirically analyzed the general indicators of the development of corporate universities in the Ukrainian economy. Under the influence of the dissemination of information and communication technologies, the latest active forms and technologies of educational activity are emerging, corporate training in Ukraine is spreading, including the innovative Unit Factory training system. The dynamics and peculiarities of the human capital preparation process in Ukrainian corporate universities are revealed; the dynamics of business expenses for research and development are analyzed. The significant potential of the Ukrainian economy in the development of the IT sector, the accumulation of highly skilled human capital, and the expansion of outsourcing activities have been demonstrated. The main problems of financing the intellectual capital of the corporate sector in Ukraine are revealed: small scale of Ukrainian business; a low level of activity of Ukrainian business in the M & A market, low level of innovation activity, development of predominantly low technological sectors of industry. At the same time, the availability of human capital and scientific potential in the country creates real opportunities for the successful development and accumulation of corporate intellectual capital.

Keywords
transnational corporations, intellectual capital, human capital, corporate university, outsourcing, mergers and acquisitions

1 Relevance of research

Formation and realization of intellectual capital becomes especially important in the conditions of formation of the knowledge economy and changes in the technological structure, cipherization and the spread of artificial intelligence (intellectual robots). According to the director of the Dow Chemical Company, "our time can be equated to 1918 - the time of industrialization, and now we are experiencing a turning point when reconsidering the concept of" work "and what will work in the future" [5]. For the Ukrainian economy, the actuality of the problem of accumulation of intellectual capital is conditioned by several diverse trends. Firstly, this is a low participation of high-tech sectors in the creation of Ukraine's GDP. Secondly, this is a high level of intellectual potential of the Ukrainian economy, which does not turn into capital. Thus, the key trends in the development of the intellectual capital of Ukrainian business and the identification of its basic problems, which hinder its implementation, are needed.

2 Analysis of recent research and publications

Issues of development and formation of intellectual capital are key in the scientific search for a large number of scientists. Thus, the theoretical and practical aspects of the study of human capital as a source of intellectual are determined and its role in the development of society in the works of Grishnova O., Libanova E., Kanigina M., Malitsky B.A., and others. Fundamentals of the functioning of corporate

universities are researched in a large number of scientific works of both domestic and foreign researchers. The role of universities at the stage of the formation of corporate education in high-quality staffing is researched in the works of Meyser J. and Rademakers M., the comparative characteristic of classical and corporate universities was carried out in the work of Blass E. Corporate universities are very active and flexible in responding to changes in the external environment, which led to the formation of new forms of training or retraining of specialists through the system of business education. However, the dynamism of the functioning of the economy leads to the need for continuous improvement of the mechanisms and forms of accumulation of intellectual capital of business and increase the efficiency of its implementation.

The purpose of the article is to identify and analyze key problems of the formation of intellectual capital of Ukrainian companies.

3 The results of the research

The talents and personality in modern conditions become the basis of the company's value, its most important asset, which is at least 50% of its financial value. It is these factors that focus attention on the intellectual capital of the company in the formation of industry 4.0, because only they can lead to an exponential growth of the company and its competitiveness in the market. These processes are manifested in two main areas: first, it is the formation and growth of its own intellectual capital of the company, and secondly, the formation of a completely new market of intellectual capital, operating on the basis of outsourcing, leasing or consulting.

Lack of human and intellectual potential is estimated as one of the biggest challenges for company development [5]. It is believed that the development of artificial intelligence (AI) technology will create more jobs than will be eliminated. In light of these trends, Ukraine can find its place, taking into account the existing intellectual potential. The activation of these processes and their proliferation have become manifestations through the formation of the Intellectual Capital of Companies, while the increase of attention to the intellectual capital of companies is followed primarily through the financial performance of companies. Overall, the companies that ranked the highest in the Intellectual Capital Index ranked R & D spending in 2016 at 9% compared to 2015 [4].

The Ukrainian market is not characterized by high indicators of development dynamism or generally large volumes, besides, in the Ukrainian market, there is a significant predominance of large business, which, however, does not become a form of transnational corporations, because according to international classifications, Ukrainian companies can claim only companies with signs of TNCs. Thus, the aggregate income of the two hundred largest Ukrainian companies is 2.3 trillion. in 2016, which is practically equal to Ukraine's GDP, but even such a significant figure compared to the world's giants is quite small. So, in dollar terms, by 2016, this amount is $ 85 billion, which is less than the revenue of Alphabet (managing Google), which amounted to $ 90.3 billion, and the revenue of the world-famous gadget manufacturer (Apple) - $ 215 billion [2].

At the same time, leading companies in the Ukrainian rating are owned by state companies, in particular NJSC Naftogaz of Ukraine (UAH 161 billion) and SE Energorynok (UAH 131 billion). However, the third place is Arcelor Mittal Kryviy Rih Mining and Metallurgical Plant (UAH 53 bln.), Which is in the structure of the international corporation ArcelorMittal, except that only BNK (Belorussia) is among the leaders of Ukrainian production with foreign capital.

In 2017, the situation did not change much, and the 200 largest Ukrainian companies together received 2.8 trillion. of income, which is 200 billion less than the nominal gross income of the country, but relative to 2016, this figure increased by 22%. At the rate of the National Bank of Ukraine, this amount is $ 98 billion, while the revenue of Samsung Corporation in 2017 is 225.2 billion dollars, and the concern Daimler AG, which owns Mercedes-Benz brand 174.3 billion euros [3] .

In general, analyzing the activities of the largest Ukrainian companies, it should be noted that the largest business is concentrated in the low-tech sectors of the economy, while foreign investors concentrate their activities in the agro-industrial sector (mainly cereal exports and imports of tobacco products and beverages) and become more active in retail and distribution. In general, among the largest Ukrainian companies, most operate in low-tech sectors that do not require a high level of training for a significant number of employees. In fact, Ukraine exports cheap raw materials, giving other countries the opportunity to produce products with a higher value added. In sectors with high added value (mechanical engineering, chemical industry, IT sector), the income level is extremely small.

Among the 200 companies, the largest number of companies is concentrated in the agroindustrial complex (23 companies, most of them are exporters of grain and sales of tobacco and tobacco products), 5 companies work in retail, 4 companies work in the energy sector, 4 in distribution (3 specialize in the sale of cars and 1 for household chemicals sales), 2 companies work in IT sector, 1 in mining and metallurgy and 1 in chemical industry [3]. However, the company operating in the mining and metallurgical complex is among the TOP-10 largest

companies in Ukraine. In general, foreign companies are concentrated in sectors with low value added, which allows them to attract resources from other countries, on the other - to save on transactions. Taking into account the global technological technologies of the low-tech sectors of economy in Ukraine we can observe the weak manifestations of these processes, as most companies are trying to sell their own product in Ukraine, and research is conducted mainly in European companies.

Taking into account the above-mentioned key trends in the development of the Ukrainian market, it is worth analyzing the main mechanisms for the formation of intellectual capital of Ukrainian companies. Several mechanisms are distinguished in two key areas: the formation of equity and attraction from external sources. Formation of own capital takes place in the system of corporate universities and through its own scientific and research activity, attraction through the system of staffing, leasing, or through mergers and acquisitions.

Formation of own capital takes place in the system of corporate training and advanced training of existing staff. It basically takes the form of either a corporate university or an approximate type structure. Corporate universities of Ukraine have not become widely distributed as institutions of such a plan abroad. The first corporate university was opened only in the early 2000's and was founded in a collaboration between PrivatBank and the Kyiv-Mohyla Business School. In addition to the university, DTEK Academy, Ukrainian Agrarian School, EPAM Systems University, Ernst & Young Academy of Business, Deloitte Academy, Metinvest and others operate. [9] For example, Metinvest offers three training programs: Human Resource, Metinvest Management DNA and Leadership Academy, which in the vast majority have a classical nature of preparation [12].

Ukrainian Academy of Deloitte operates within the University Center for Leadership, which in turn is global. This center was established for understanding the "workplace of the 21st century" [13] and in Ukraine manifested through the training programs of the fundamental business disciplines, conducting educational seminars, organizing certification programs (with the possibility of obtaining international certificates in various fields) [11]. DTEK Academy also offers a more classical forms of training, including long-term programs (focused on management and last up to 1 year), training (team and individual development) and teambuilding (motivational games aimed at improving team collaboration and efficiency) [7]. However DTEK actively implement short e-courses to get acquainted with some activities, such as "lean production" [8]. On the basis of DTEK, more than 92 thousand employees study more than 1000 programs a year. In addition to leadership training programs conducted 128 trades in 13 branches of the Academy. Along with clean corporate universities in Ukraine also introduced innovative forms of training and retraining, for example, UNIT Factory, which offers fully heymyfikovane learning [6].

In addition to corporate universities, the formation of intellectual capital of companies and its implementation is through scientific activity. It is worth noting that the research activity of Ukrainian enterprises is gradually decreasing [10]. The number of research and development institutions is gradually declining, in particular since 2010, it has decreased by 25%, while the scientific activity of the business sector has decreased by 40%, which indicates negative trends in the innovation activity of enterprises (Figure 1).

The number of academic institutions in the business sector is gradually decreasing in absolute and relative terms, over the last 6 years its share has decreased by almost 10%. At the same time, the reduction in the number of researchers in the business sector for the period is almost double, and

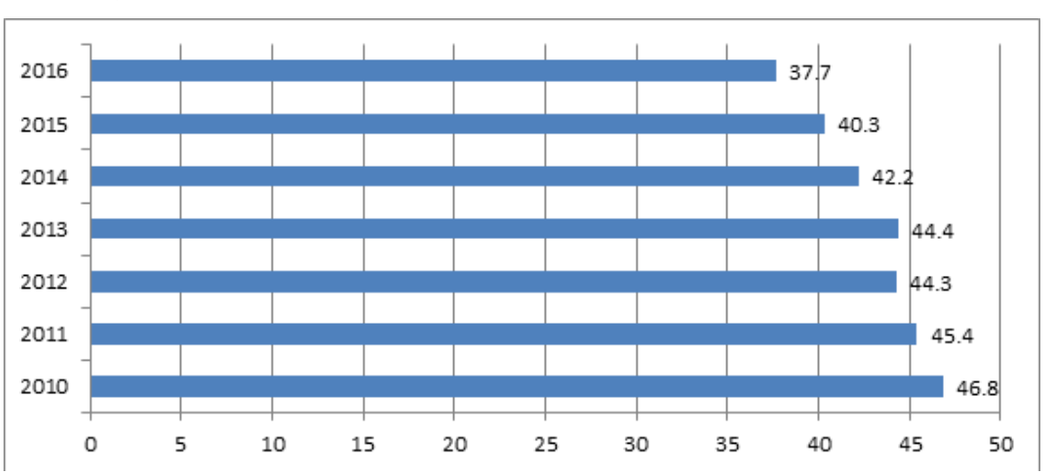

Figure 1 The dynamics of the number of enterprises that carried out scientific research,% of the total number of scientific institutions [10]

the largest decrease was observed among researchers (49%), the number of technicians decreased by 48%, and support staff by almost 15% [10].

Analyzing the structure of the employees engaged in research in the entrepreneurial sector, it can be noted that it corresponds to the overall structure of the economy and indicates the low level of Ukrainian business to high-tech sectors of economic activity. In general, the innovative activity of the industrial sector of Ukraine is concentrated on internal research (Table 1).

As you can see, the maximum amount of attention is focused on the purchase of machines, equipment and software. At the same time, more companies realize their own research work, attracting external sources at least twice as low.

Leading among companies that not only make significant efforts to their own research work, but also their involvement from external sources are enterprises engaged in the production of machinery and equipment, pharmaceutical research and work in food technologies (Table 2).

TABLE 1 Innovative activity of industrial enterprises in the directions of innovations [10]

	2015		2016	
	Total	As a percentage of the total number of industrial enterprises	Total	As a percentage of the total number of industrial enterprises
Number of enterprises engagedinnovative activity	824	17,3	834	18,9
including spending on				
internal research s	151	3,2	232	5,2
External research	70	1,5	103	2,3
the purchase of machines, equipment and software	467	9,8	590	13,3
acquisition of other external knowledge	32	0,7	74	1,7
others	210	4,4	368	8,3

The leaders among the companies are low and medium-tech companies. However, the number of companies operating in the leading global industries by the level of technology (pharmacy, chemical industry, etc.) is also increasing. The number of these companies is negligible. However, in recent years, the number of companies involved in high-tech sectors (computer and electronic equipment production, the number of innovative companies in this sector has grown by almost 70%, but these companies focus mainly on their own research). As the analysis shows, financing is almost entirely due to their own sources of companies, less than 0.5% of them are executed at the expense of investments and only 0.1 at the expense of investments of foreign companies.

TABLE 2 Industry-leaders of Ukraine, regarding the attraction of their own GDR and GDR from external sources, the number of companies, 2015-2016 [10]

Sphere activities	Internal research		External research		Other external knowledge	
	2015	2016	2015	2016	2015	2016
Food industry, beverage and tobacco production	13	19	7	11	6	14
Pharmacy	13	16	9	13	2	2
Metallurgy	13	21	11	18	1	10
Production of machinery and equipment	25	21	10	18	3	10
Electricity supply	3	11	4	4	4	6
Chemistry	9	17	4	8	2	8
Production of computer and electronic equipment	1	28	2	3	-	2

At the same time, the largest financial resources of foreign investors are concentrated in the chemical industry, the production of chemicals and chemical products, computer manufacturing, electronic and optical products, machinery and equipment, food products, beverages and tobacco products. That is, foreign investors are concentrated in high-tech sectors.

In addition to the mechanisms for the formation of intellectual capital, their own efforts are quite common mechanisms for attracting intellectual capital from external sources. One of the forms is to attract licenses and property rights of other companies, which often takes the form of licensing (non-exclusive and exclusive licenses, single licenses, transfer of rights and "open licenses").

The attraction of intellectual potential from external sources is also through M & A mechanisms. Ukraine is on the M & A market in the regional system of the countries of Central

and Eastern Europe, and this group includes Russia as a very active player in the market of this region. Although in Ukraine the practice of mergers and acquisitions is presented fairly widely, however, mainly on the domestic market and in general, shows a gradual reduction both the number of transactions and their value.

It is worth noting that the largest deal in Ukraine in 2018 occurred in the sector of production of low-alcohol beverages, which does not belong to high-tech products. In general, in Central and Eastern Europe, most transactions are concentrated in the telecommunications sector, and in the first half of 2018, deals worth $ 25.173 million were concentrated in this sector. The financial sector is ranked second with an amount of 7.668 million dollars. In the wholesale and retail sector, transactions worth $ 5.458 million, $ 4.603 million were registered. concentrated in the food, beverage and tobacco sector, 4.466 million dollars. in the gas, water and electricity sector. It is worth noting that high and medium technology industries have rather high positions in the field of mergers and acquisitions. A geographic structure of companies-buyers is represented mainly by European countries (except Russia, where a significant number of operations is a kind of nationalization of companies). Thus, European companies involve technology and manufacturing in the countries of Central and Eastern Europe.

In the context of modern challenges, one of the key benefits of the Ukrainian economy is the presence of a sufficient number of highly skilled staff, especially young people with higher education (according to the State Statistics Committee, only 1.7% of young people under 29 years of age do not have higher education). In general, education costs make up 6.2% of GDP (2014-2016), which is higher than the average for the OECD countries (4.8%). The number of graduates per year in Ukraine is more than 400 thousand people, which together with the total number of students bring Ukraine to the 4th place in Europe by the number of graduates. At the same time in Ukraine 64 thousand foreign students from 148 countries. In addition, a significant proportion of young people speak fluent English.

Unfortunately, one of the key benefits of Ukraine in the global market is low wages (the average monthly wage in 2016 was not much more than $ 200 (the IT sector is twice as high), and the minimum wage is $ 125, while Social insurance contributions do not exceed 22% (Table 3).

All this led to the involvement of a large number of investors (TNKs) in the Ukrainian economy, among them Sumitomo Corporation, Bunge, Cargill, Electrolux, Leoni, Kromberg and Schubert, Bader, Pepsi-Cola and Coca-Cola. According to the State Statistics Committee, foreign direct

TABLE 2 Salary costs in Ukraine

	2014	2015	2016
Average monthly salary (USD)	250	190	220
Annual salary changes per unit of production (%)	-24	-24	+16
Salary costs per hour (USD)	1,56	1,18	1,38

investment in Ukraine is estimated at more than $ 37 billion. at the end of 2016.

Ukraine is relatively well represented on the global outsourcing market. So, according to experts of A.T. Kearney Ukraine climbed to 17 positions in the global outsourcing attractiveness rating, driven by both previous factors and currency depreciation, which in turn resulted in significant savings due to labor costs and tax (regulatory payments). As a result, the IT industry of Ukraine is represented by more than 500 outsourcing companies and 100 global research and development centers, and more than 50 thousand specialists are involved in it [14].

Ukrainian business is actively developing its own strategies for developing intellectual potential, concentrating both on its formation and on attracting from external sources. Especially active in this type of activity is the IT sector, in which the centers of scientific research are actively being created. The following seven companies focus on research: SoftServe, which has more than 3,000 engineers in Ukraine, is headquartered in Lviv; Eleks, numbering more than 1 100 engineering workers, the head office is located in Lviv; Miratech, more than 800 engineers in Ukraine, central office in Kiev; Sigma Software, nearly 600 engineers in Ukraine, a central office in Kharkiv (the company is an affiliate of the Swedish consulting group Sigma); N-IX, almost 300 engineering workers in Ukraine, the central office is located in Lviv; Softengi, 200 engineers, the central office is divided between Kiev and Kharkov; Program-Ace, 70 engineers in Ukraine, central office in Kharkiv; Infopulse, more than 1300 engineers in Ukraine, a central office in Kiev; Innovecs, more than 250 engineers, head office in Kiev; Itera, 130 engineers, the central office is located in Kiev; Intellias, 980 engineers, the central office is located in Kyiv. As you can see, most of the large companies of this sector are located in Lviv and Kiev, two companies are based in Kharkiv. Thus, among the 11 companies listed on the list of the largest IT companies, 3 are based in Lviv and 6 in Kyiv.

However, foreign companies quite actively use the intellectual potential of Ukraine for their companies and open their own research centers in

the territory of our country, the results of which become the property of foreign companies: EPAM, almost 4,000 engineers in Ukraine, the central office is located in the United States; Luxoft, with nearly 4,000 engineers in Ukraine, is headquartered in Switzerland; Ciklum, nearly 2,000 engineers in Ukraine, headquarters in Denmark; TEAM International Services, with more than 200 engineers in Ukraine, the central office is based in the USA; Softjourn, with almost 100 engineers in Ukraine, is headquartered in the United States; AMC Bridge, 250 engineers in Ukraine, headquartered in the United States; Artezio, the total number of engineers is unavailable, based in Kharkov, the central office is located in Russia [1]. All of these companies are also active in the outsourcing market, providing a full range of services in this sector.

4 Conclusions

Thus, the key problems of the formation of intellectual capital of both Ukrainian enterprises and foreign multinational companies are: the small scale of Ukrainian business even in comparison with large companies; a low level of activity of Ukrainian business in the M & A market, although Ukraine is among the leaders in the region of Central and Eastern Europe; the richest Ukrainian business entities are owned by the state or a limited number of individuals, while the gap between the incomes of companies is significant. The largest and most profitable companies operate in low-tech sectors with a low-cost economy; relatively small amount of financial resources involved in the national economy; the largest foreign companies represented in Ukraine are working in the low-tech sectors (energy, retail, agro-industrial complex, distribution); low motivation of Ukrainian business structures to create efficient and branched corporate training structures.

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