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PERSPECTIVES AND POSITIONING OF THE UKRAINIAN INFORMATION TECHNOLOGY SECTOR AT GLOBAL DIGITALIZATION PROCESS

ПЕРСПЕКТИВИ ТА ПОЗИЦІОНУВАННЯ СЕКТОРУ ІНФОРМАЦІНИХ ТЕХНОЛОГІЙ УКРАЇНИ У ГЛОБАЛЬНОМУ ПРОЦЕСІ ЦИФРОВІЗАЦІЇ

ANNOTATION
The aim of the article is to determine perspectives of information technology sector in Ukraine and directions for strengthening its positions in the context of the global digitalization process. The authors carried out a detailed and specific analysis of the Ukrainian IT sector, which showed that it continued to grow up, engaging a lot of specialists and had a stable demand of its products and services. The latest trends of outsourcing business were summarized and the correspondence of the Ukrainian software companies' activity areas with latest trends of global IT market and outsourcing market was proved. The main factors of the positive impact on development of the national IT sector were formulated. With implementing defined key factors of the positive impact, Ukraine has high chance to become a regional leader in complex and high-tech engineering services and main driver of Ukrainian industrial modernization and one of the important players on global IT market.
Key words: IT sector, digitalization, Industry 4.0, outsourcing, software company, positioning, perspectives

АНОТАЦІЯ
На сучасному етапі розвитку компанії приділяють все більше уваги впровадженню інформаційних технологій у виробництво. Україна має усі ресурси для того, щоб посісти належне місце на глобальному ринку інформаційних технологій. Метою статті є визначення перспектив сектору інформаційних технологій України та напрямки зміцнення її позицій в контексті глобального процесу цифровізації. Авторами проведене детальне дослідження поточного стану українського ІТ-сектору, яке показало, що він продовжує зростати, залучаючи чимало фахівців та досяг зростаючого попиту на свою продукцію та послуги. Запорука успіху української ІТ-галузі, як і будь-якого іншого бізнесу, полягає у кваліфікованому персоналі, сприятливих умовах, належному управлінні та здатності управляти ресурсами. Окремо були проаналізовані сильні та слабкі позиції країни у міжнародних рейтингах щодо готовності країни до майбутніх трансформацій у виробництві а також щодо готовності ІТ сектору. Виявлено, що в останні роки Україна дещо поліпшила позиції у рейтингах, проте слабкими ланками залишаються слабке інституціональне середовище, неефективність регуляторної політики, слабка інвестиційна підтримка, неістотний вплив розвитку інформаційних технологій на появу на ринку нових товарів та послуг. Були визначені основні тенденції ринку аутсорсингу, що займає левову частку вітчизняного ринку ІТ, основні з яких: тренд на більш тісне та тривале співробітництво між головними компаніями та віддаленими офісами, зміщення акцентів з ціни на якість виконаних робіт, аутсорсинг основних видів бізнесу компанії, підвищена увага до кібербезпеки. Було доведено відповідність напрямків діяльності українських фірм зі створення програмних продуктів останнім тенденціям світового ринку ІТ. Були узагальнені основні фактори позитивного впливу на розвиток ІТ-сектору України. Більшість із них лежить у сфері регулювання підприємницької діяльності. Якщо вони працюватимуть, це може призвести до позитивних результатів не тільки в ІТ-галузі, але і в цілому в національній економіці. Практична цінність полягає у тому, що проведені дослідження: дозволяють зрозуміти поточні позиції, перспективи, виклики, подальшого розвитку ІТ в Україні; визначити основні конкурентні переваги українського ІТ-сектору; оцінити відповідність останніх ІТ-тенденцій сферам діяльності вітчизняних ІТ-фірм; розробити стратегічні напрямки для перетворення українського ІТ-сектору в одного з важливих гравців на світовому ринку ІТ.
Ключові слова: ІТ-сектор, цифровізація, Індустрія 4.0, аутсорсинг, компанії з виробництва програмного забезпечення, позиціонування, перспективи

АННОТАЦИЯ
Целью статьи является определение перспектив сектора информационных технологий Украины и направления укрепления ее позиций в контексте глобального процесса цифровизации. Авторами проведено детальный анализ текущего состояния украинского ИТ-сектора, который показал, что сектор продолжает расти, привлекая немало специалистов, и добился расту-

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щего спроса на свою продукцию и услуги. Обобщены последние тенденции развития рынка аутсорсинга в мире, и доказано соответствие направлений деятельности украинских компьютерных фирм последним тенденциям мирового рынка ИТ и ауcорсинга. Достигнув определенных ключевых факторов положительного влияния, Сформированы перечень факторов позитивного влияния на развитие ИТ рынка в Украине. При достижении этих факторов Украина имеет высокие шансы стать региональным лидером комплексных и высокотехнологичных инженерных услуг и одним из важных игроков на мировом рынке ИТ.

Ключевые слова: ИТ-сектор, цифровизация, Индустрия 4.0, аутсорсинг, компании по производству программного обеспечения, позиционирование, перспективы.

Problem statement. As the Fourth Industrial Revolution gathers momentum, decision-makers from the public and private sectors are confronted with a new set of uncertainties regarding the future of production. Rapidly emerging technologies, such as the Internet of Things, artificial intelligence, wearables, robotics and additive manufacturing, lead to the development of new production techniques and business models that will fundamentally transform global production. These technologies are also driving new, more distributed and connected value chains. Both the speed and scope of change add a layer of complexity to the already challenging task of developing and implementing industrial strategies that promote productivity and inclusive growth.

Ukraine has a lot of human, intellectual, educational and scientific resources with existent production basis to provide its own policy in sphere of digitalization. And one of the key elements of such policy is occupied by the Ukrainian IT sector. We have to provide such an investigation to understand its current positions, perspectives, challenges, benefits and risk of further IT development in Ukraine.

Analysis of recent research and publications. A lot of attention devotes to the development of the Ukrainian IT sector, because it is showing stable growth year in and year out. According to analysis in [1; 2; 3], the Ukrainian IT market has been recently increased by 2.5 times. In 2011-2015, it was increased by 150%, and it is predicted to reach $5.7 billion by 2020.

Thus, Ukraine became an important player on the global and European IT market. That is why nowadays a lot of reports, issues, investigations have been created, where the Ukrainian IT sector is analyzed.

According to the European Business Association (EBA) [2, p. 5], the IT industry takes third place in the export structure of Ukraine. Despite the growing number of startups in Ukraine, outsourcing takes the lion's share of the Ukrainian IT sector. In 2017, Ukraine has shown an 18% growth in computer and information services. Thus, we may say that Ukraine is becoming the "Silicone Valley" of Eastern Europe. Along with outsourcing, Ukraine has become home to over 100 R & D subsidiaries of global companies from a variety of industries including software development, the blockchain, gaming, and ecommerce.

Association of Industrial Automation of Ukraine (APPAU) in its Charter "Industry 4.0 in Ukraine" [4, pp. 10–13] proposes the main Framework of development and the path from 3.0 (technologies and approaches of the last century) to 4.0, that is, the state of the economy, which will be crucial for the competitiveness of industries in the next 3-5 years. The logic of interaction in dynamics is seen as «bottom-up-down»: industries become «smart» and develop their demand for «smart» products when the manufacturers of these products and solutions are in sufficient quantity and balance, but which, in turn, depend from the existing ecosystem. In other words, it is impossible to create «smart» products and solutions in Ukraine when technology 4.0 (already available) is not balanced with a higher corporate culture, is not based on advanced organizational capabilities and depends on the ecosystem. The role of the ecosystem is critical: it is the foundation.

Also, at [4, p. 48] a positioning of the Ukrainian Industry 4.0 in the Global World of Industrial High-tech Segments was provided. Authors made a conclusion, that "...The gap between manufacturing positions in Ukraine and most countries of the world is so large ... that any attempt to catch up with the world and occupy the leading positions in the production of high/medium-tech products should be excluded. ...Instead, Ukraine has every chance to repeat the success of the domestic IT sector and become at least a regional leader in complex and high-tech engineering services: programming in the field of industrial high-tech / creation of new software products, including new technologies 4.0; design (electrical, mechanical, electronic, technological, construction, etc.); industrial automation and integrated engineering (including the commissioning of complex industrial sites); development and production of complex, small-scale or unique products..." [4, p. 48]

Due to the Concept for the Development of the Digital Economy and Society of Ukraine for 2018-2020, the main goals of digital development are: accelerating economic growth and attracting investment; transformation of economic sectors into competitive and efficient ones; technological and digital modernization of industry and creation of high-tech industries; accessibility to citizens of the benefits and opportunities of the digital world; implementation of human resources, development of digital industries and digital entrepreneurship. As about infrastructure for digitalization, due to state Concept there are plans to implement solid infrastructure construction projects and create soft infrastructures: citizen ID, mobile ID, bank ID, open data, e-government, interoperability, e-commerce and e-business, transaction processing infrastructure, life-support infrastructure, geo-information infrastructure, blockchain infrastructure. But nowadays the main infrastructure problems of Ukraine are: low level of coverage of the territory of the country with digital infrastructures (for example, the

goal of the EU to cover 100% of the territory by broadband internet access by 2020, in Ukraine this figure is about 60%), absence of separate digital infrastructures (for example, the Internet of Things infrastructure, electronic identification and trust, etc.), unequal access for citizens to digital technologies and new opportunities (digital gaps). So, Ukraine has much to do to support digitalization on legislative, infrastructure and financial aspects.

M.Z. Zghurovskyi and others [5] made a prediction of future economy of Ukraine for mid-term (2015−2020) and long-term (2020−2030) time horizons. By using the Delphi method the main clusters of the new economy of Ukraine were identified. Applying the scenario planning methodology and SWOT-analysis has allowed to build up a group of scenarios for development of future economy in Ukraine up to 2030. As about the IT sector authors described industry as one of the main drivers of the national economy. Also they created SWOT-analysis table for the Ukrainian IT sector. As the main benefits authors defined the highly qualified IT staff, a strong position of engineering and technical university education, mobile and Internet implementation. But also authors pointed out factors of weakness: absence of government support of the IT sector development on legal, taxation, investment directions; existence of institutional gap between university education, academic science and needs of production sectors.

In the report, Deloitte described the outsourcing market and highlighted, that in the past, organizations typically used outsourcing to improve back-office operations through cost reduction and performance improvement. But today outsourcing solutions are enabling competitive advantage by accelerating changes within organizations. The focus has shifted from traditional work transfer to upfront transformation. Organizations are recognizing that disruptive solutions can revolutionize the way they do business, and that "buying" capabilities in the marketplace is generally faster and more scalable than developing capabilities internally. Emerging solutions incorporating cloud and automation are empowering organizations to work smarter, scale faster, reach new markets, increase productivity and, ultimately, to gain competitive advantage [6, pp. 2−3].

Also, there is a lot of reports, proposed by companies, worked in/with the Ukrainian IT sector [3; 7; 8], government agencies [1; 4; 9; 10; 11]. All of them mentioned the growth of the national IT industry, perspectives of further development and provided different scenario of future market positions of the Ukrainian hi-tech industry.

Unsolved aspects of the problem. Despite the large number of existent publications and studies about the Ukrainian IT sector, there is a lack of scientific works highlighting the market positions of the Ukrainian computer firms on the global and internal IT markets. This research further covers different aspects of the Ukrainian

tech market, such as science, technology, engineering and mathematics education, popular IT technologies, correspondence of them with main digital and outsourcing global trends.

The aim of the article is to determine perspectives of the information technology sector of Ukraine and directions for strengthen its positions in the context of the global digitalization process.

The main part. To achieve the aim of our investigation, at first, we have to describe the current state of the information technology sector in Ukraine and understand its role in economic development of the country.

The world has entered a new era in which impact of the digital technology is increasingly felt in all sectors of the economy. Digitalization is dramatically changing traditional industries and sectors. Over the past years, industries together with researchers and policy makers worldwide have increasingly advocated an upcoming fourth industrial revolution (Industry 4.0). Ukraine as the most countries in the world create an own strategy of new industrial policy Development. And the key role on movement of Ukraine to Industry 4.0 is being played by the information technology (IT) sector.

The Ukrainian software development market has enjoyed impressive growth in recent years and became one of the key sectors contributing to the country's economy. The statistics made by the World Bank, PwC, IT Ukraine Association, and State Statistics Service of Ukraine demonstrate steep growth of the sector. ICT became the 3rd largest export service industry, amounting to more than 20% of all Ukrainian service exports. Due to State Statistics Service of Ukraine, the dynamics of production in high-tech industries of Ukraine for 2011−2017 show the current development of the information and telecommunications technology industry of Ukraine as one of the high-tech industries [2]. In Ukraine, there is an increase in the volume of production of the IT sector (the volume of growth in 2014 was 8.9%, in 2015 it was 37.6%, in 2016 it was 24.1%), but the share of production of this sector remains low and makes no more than 3.9% of GDP. Compared to developed countries, this industry accounts for 50 to 70% of total value added annually [9].

The Ukrainian IT industry is growing at a 26% rate [3]. There are currently more than 4,000 tech companies operating on the market and over 1,600 IT companies in Ukraine [16]. Ukraine ranks 20th on 2019 A.T. Kearney Global Services Location Index of the most attractive outsourcing destinations [12]: over 60% of the Ukrainian IT professionals work in IT outsourcing companies [8; 9].

In 2017-2018, the number of employees in the 50 biggest Ukrainian IT companies grew by around 35%: from 43,000 to 58,000 specialists. Also, two companies surpassed 6,000 professionals. 25 biggest Ukrainian IT firms have demonstrated a re-

cord growth rate in the last 5 years. The most popular locations are Kyiv, Lviv, and Kharkiv [9, p. 24]. As for the global locations, the Ukrainian companies started operations in Malaga, Berlin, Warsaw, Krakow, Toronto, Turin, London, Bucharest, Eindhoven, Chicago, etc. [7].

As about different global ratings of the IT sector, the World Economic Forum, in collaboration with A.T. Kearney, has developed a new Rating of readiness for the future of production [13]. Of the 100 countries and economies included in the assessment, only 25 countries from Europe, North America and East Asia appear in the group of the Leading countries. These 25 countries already account for over 75% of global Manufacturing Value Added (MVA) and are well positioned to increase their share in the future. Approximately 90% of the countries from Latin America, Middle East, Africa and Eurasia included in the assessment are classified as Nascent countries, or the group least ready for the future of production. Ukraine appears in the group of Nascent countries.

But there are common challenges within each archetype. Leading countries need to convert readiness into actual transformation and push the frontier by designing, testing and pioneering emerging technologies. Nascent countries are an eclectic group with varying levels of industrial development. Their key challenge will be to determine whether to pursue advanced manufacturing or traditional manufacturing, and to what extent, as part of their overall economic strategy. Nascent countries seeking to accelerate readiness need to improve performance across all Drivers of Production, starting with improving the institutional framework. Attracting global investment will also be critical for knowledge and technology transfer [13, p. 11].

At Table 1 the data of different drivers inside rating of readiness for the future of production for Ukraine, Poland and Slovenia are represented [13, p. 211, 219, 240].

Table 1

**Comparison of levels of readiness
for the future of production at 2018 in Ukraine,
Poland and Slovenia**

Readiness Overall Assessment	Counties Rank		
	Ukraine	Poland	Slovenia
Drivers on Production			
Technology and Innovation	74	37	35
Human Capital	34	36	27
Global Trade&Investment	59	23	40
Institutional Framework	94	39	27
Sustainable Resources	88	25	5
Demand Environment	58	23	67
Structure of Production			
Complexity	41	21	12
Scale	57	15	39

The biggest Ukrainian problem is the "Institutional framework" driver. In particular, the report gives the following positions of Ukraine in this field (among 100 countries): the 99th is regulatory efficiency as the government's ability to promote and stimulate the implementation of technology into industry; 91st is future government orientation; 90th is the rule of law, 89th is corruption.

The "Technology and Innovation" driver also demonstrates low positions of Ukraine:9 8th is the LTE mobile coverage; 95th is investment and technology transfer; 92nd is the ICT's impact on new services and products. There are indicators such as employment of skilled workers, quality of education and science, accessibility of engineers and researchers (the "Human Capital" driver) and Trade in % of GDP (the "Global Trade&Investment" driver) on an appropriate level.

The World Economic Forum's Networked Readiness Index (NRI), also referred to as the Technology Readiness, measures the propensity for countries to exploit the opportunities offered by information and communications technology (ICT) [14]. At Table 2 the dynamics of NRI for analyzed countries is represented (maximum value that the country can achieve is 6.0).

Table 2

NRI dynamics for analyzed countries

Networked Readiness Index	2013	2013	2014	2015	2016
Ukraine	3,85	3,87	3,87	4,01	4,17
Poland	4,16	4,19	4,24	4,38	4,5
Slovenia	4,58	4,53	4,6	4,64	4,73

Due to data, Ukraine demonstrates the progress in the Networked Readiness during the analyzed period, but these positive changes are very slow. The Networked Readiness Index is calculated on the base of such pillars: political and regulatory environment, business and innovation environment (these two are included to the environment subindex); infrastructure, affordability and skills (readiness subindex); individual, business and government usage (usage subindex); economic and social impacts (impact subindex). Ukraine has the weakest position according to the environment subindex (94th position among 139 countries) and the usage subindex (especially government usage: 114th position among 139 countries) [14]. The state as the main regulator of the level of infrastructure has moved away from resolving problems of the IT infrastructure in previous years. This contrasts sharply with the best examples in the world, where the state ensures the accelerated development of systems that generate innovation.

To determine the perspectives of IT sector of Ukraine we have to pay attention to outsourcing schemes. IT outsourcing companies constitute the largest share of the Ukrainian IT service market. Although the number of startups (over

2,000 companies) and international R&D centers (over 100 companies) is growing, IT outsourcing companies employ more than 60% of all engineers who live in Ukraine [7].

The USA and Western European countries remain the largest target markets of the Ukrainian IT service companies. In 2012, the USA was the largest consumer of the Ukrainian IT service exports (81%). Recent research indicates that it is still the main market for the Ukrainian IT export, but the share of European businesses has grown significantly over the years.

If we look at the businesses that outsource software development to Ukrainian IT services companies, they range from growing startups to big enterprises. Cisco, IBM, Atlassian, Travelport, OpenText, Fluke Corporation and a lot of other global companies have partnered with the Ukrainian software development firms. Many such partnerships last for years and small outsourced teams grow into large development centres located in Ukraine. For instance, Anoto worked with N-iX, a Ukrainian IT company, for over 12 years. While Lebara, a UK telecom enterprise, expanded its development team at N-iX from 5 to over 100 software engineers [3].

Several IT outsourcing companies originating in Ukraine grew into technology giants with offices worldwide: Ciklum, DataArt, Infopulse, , Miratech and SoftServe. Impressive is the growth of AOG, an IT service company headquartered in Cherkasy (Central Ukraine), which accounts for 5,000 affiliated freelance engineers less than three years after company launch.

At the same time a number of foreign outsourcing companies like EPAM, GlobalLogic, Luxoft have multiple offices in Ukraine, which now stands as a major R&D hub for these global IT service providers [3; 7].

The Ukrainian software companies offer virtually every possible software services including, but not limited to, software development, web and mobile development, quality assurance and testing, business process outsourcing, dedicated team outsourcing, research and development services, IT consulting and IT security management. The majority of the country's large outsourcing companies offer full-stack solutions. Smaller software firms usually focus on a few services like web development and design, mobile applications development and testing, working across many industries [10; 11]. But to understand the future prospects of the IT industry we need to define the global trends of IT and IT outsourcing markets.

Experts of global IT market defined the main trends at IT outsourcing [2; 6]:

– *Shifting away from single-vendor outsourcing.* The IT outsourcing would have to move towards narrower specialization, instead of doing as much as possible. The companies that manage to gather a wider range of experts and increase the quality of their services at the same time will have a major advantage among competitors.

– *Outsourcing core business service.* Relationships between suppliers and customers are expected to become more trustworthy. Outsourcing moves from non-core services to core business operations.

– *Increasing focus on cybersecurity.* Some innovative IT companies are implementing multi-level security approaches with the help of outsourced cybersecurity services.

– *Automation of manual processes through Artificial Intelligence.* The intelligent automation is one of the key trends in IT outsourcing for 2019. Artificial Intelligence will be more and more used to streamline routine tasks in all industries.

– *Less focus on reducing costs.* Outsourcing development will always be about cost reduction. The thing is that it will no longer be a deciding factor when choosing an offshore IT partner. Instead, the relationship will be more experts and quality of service driven. The focus will shift from cutting costs to delivering value.

It needs to mention, that, due to opinion of the software development in Ukraine bases on six areas of expertise: software engineering; QA testing; testing automation; research & development; application support; architecture [2], but it is not the limit.

More than 100 companies on the Fortune 500 list are clients of the Ukrainian IT firms: Cisco, IBM, Atlassian, Travelport, OpenText, Fluke Corporation, Oracle, Boeing. Jooble, DepositPhotos, Grammarly, GitLab, PetCube, Mobalytics, Preply, Attendify are only some of the big names that got started in Ukraine. Global market leaders have already shown their interest in the Ukrainian startups which lead to a number of big acquisitions. For example, Google purchased Viewdle, which is a facial recognition company, Snapchat has acquired Looksery, which is a real-time facial modification app, and Oracle has bought Maxymiser, which is a Ukrainian provider of cloud-based software for marketers [15].

All this facts prove the demand for the Ukrainian IT products on the global market.

But inside Ukraine from the national business sector the demand of IT products from the Ukrainian firms is on low level. The experts of Digital agenda for Ukraine [1] and Industry 4.0 movement in Ukraine [4] explained that customers understand the modern IT products and systems as an «appendage» to technological equipment rather than a driver of development and competitiveness. Also, specialists in the IT sphere of Ukraine pointed out orientation of the Ukrainian customers on ready-made solutions and equipment as the main investment object. That is why a small part of total financing is directed towards products with the intelligent components, such as software and service, as well as innovative developments. At the same time most segments lack domestic suppliers of new products and solutions: the Ukrainian industrial enterprises are buying German or Japanese lines or the IT solutions because in some cases they cannot find similar quality solutions or products in Ukraine [4, p. 39].

On the basis of received results we can summarize the main factors of positive impact on IT sector (table 3). Most of them lie in the field of regulation of business activity. If they work, this can lead to positive results not only at the IT sector, but on the whole national economy due to Strategy on Sustainable Development «Ukraine – 2020» [11]. Such changes can transform IT sector to one of the important players on global IT market, not only outsourcing. Also, these changes can lead to driving IT sector from taxation shadow to legal basis.

We can summarize, that the key to the success of the Ukrainian IT industry, as well as any other business, lies in qualified personnel, favorable conditions, proper management and ability to manage resources.

Ukraine has high chance to become a regional leader in complex and high-tech engineering services as programming in the field of industrial high-tech, design (electrical, mechanical, electronic, technological, construction, etc.); industrial automation and integrated engineering (including the commissioning of complex industrial sites), development and production of complex, small-scale or unique products.

Ukraine already has numerous outstanding achievements and recognitions in segments of software development and design in aviation industry: Progresstech-Ukraine; aerospace design: Yuzhnoye State Design Office (Dnipro); ship design: MDEM (Mykolaiv); complex, low-volume or unique products: JSC "FED" (Kharkiv); industrial automation, engineering: Infocom Ltd., VG Techinservice [4]. The number of such organizations can be much larger; the major problems all engineering industries lose the «battle for talent» to IT outsourcers.

Concentrating on such areas makes the most of the existing strengths of Ukraine and preserves the engineering schools at the corporate level and the state system of technical higher education, which were created in the previous years and decades.

Conclusions. The article studies actual issues of perspectives, potential for further development of the information technology sector of Ukraine.

The authors carried out a detailed and concrete analysis of the Ukrainian IT sector, including outsourcing, partnership of Ukrainian software firms with foreign companies, correspondence of main areas of the T firms' activities with latest trends on IT global market and outsourcing business.

The results of the analysis of the Ukrainian IT show that sector continues to grow up, engaging a lot of specialists and has a stable demand of its products and services. The Ukrainian IT industry is growing at a rate of 26%. There are currently more than 4,000 tech companies operating on the market and over 1,600 software development service companies in Ukraine.

On the basis of the obtained results it will be possible to define perspectives of The Ukrainian IT sector on global digitalization process. Ukraine has high chance to repeat the success of the domestic IT sector and become at least a regional leader in complex and high-tech engineering services as programming in the field of industrial high-tech, design (electrical, mechanical, electronic, technological, construction, etc.); industrial automation and integrated engineering (including the commissioning of complex industrial sites), development and production of complex, small-scale or unique products. Concentrating on such areas makes the most of the existing strengths of Ukraine and preserves the engineering schools at the corporate level and the state system of technical higher education.

The scientific and practical value of this research makes possible: to understand Ukrainian IT sector current positions, perspectives, challenges, benefits and risk of further IT development in Ukraine; to determine main competitive advantages of the Ukrainian IT sector; to assess the correspondence of latest IT trends with areas of activity of national software firms; to elaborate strategic directions to transform Ukrainian IT sector into one of the important players on global IT market. The key to success of the Ukrainian IT industry, as well as any other business, lies in qualified personnel, favorable conditions, proper management and ability to manage resources.

Table 3

Key factors and Results of further development of the Ukrainian IT sector

Factors of positive impact on the IT sector	Political stability in Ukraine
	Better governance (rule of law, the fight against and reducing corruption)
	Linkages between university, academic science and production sectors
	Reforming of legislation and the taxation system in the way that improves investment attractiveness of IT and increases the volume of accumulated taxes.
	Activation of the state's role through the public-private partnership
If they work, the growth at IT sector can lead to:	Increasing of volume of industrial production, its development and competitiveness
	Increasing of foreign direct investments
	Improvement of investment attractiveness of Ukraine
	Increasing demand from Business Sector of Ukraine on products with intelligent components
All these results can transform IT sector into:	One of the important players on global IT market, not only outsourcing
	One of the main exporters of Ukraine
	The main driver of industry modernization
	Movement of IT-sector of Ukraine from taxation shadow to legal basis
	Basis for further improvement of technical and engineering education

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