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# Chapter 1
# ENTERPRISE DEVELOPMENT ASYMMETRY DURING THE TECHNOLOGICAL CHANGES

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## INTRODUCTION

Process to improve and transform the models of enterprise development is natural in the context of the world community transition to the principles of the digital economy. Significant changes in the macroenvironment dictate companies the criteria for development success, specially the availability of such characteristics as innovation and adaptability. Top management of companies make business decisions more difficult because of the scientific and technological progress dynamics, the rapid loss of relevance, the emergence of new spheres of economics, the strengthening of integration processes, changes in production methods. Thus, volatile market positions and new daily challenges become the realities of modern business.

It is worth noting that the situation in developing countries is complicated by problems such as property divestiture, globalization, a shaky system of financial institutions and lack of them, increased competition between national and transnational companies, lack of resources, a number of internal economic and environmental problems, outdated business, low cost of intellectual labor, etc. Such problems are the reason for the most enterprises of those countries to be the outsiders of the world market and to have little use of their potential.

That is not enough for modern companies to adapt to the changes that the world community dictates, it is necessary to be ahead of them, find ways to overcome difficulties and barriers. There are different views on the behavior patterns of modern businesses. The scientists consider about the adaptive behavior model. In environments with the constant changes in the economy, the company adopts the game rules of the market, it changes approaches to production, product quality, customers or competitors. Such views were also maintained by I. Ansoff, who considered the levels of turbulence of the external

environment and the corresponding necessary actions of the enterprise.[1] Despite the obvious obsolescence of such approaches, most companies still adhere to this type of behavior. More flexible companies manage to keep their business, but most remain unchanged and, after losing their positions, go bankrupt. Therefore, we think of an innovative enterprise development model that will allow companies not only to adapt to changes in the external environment, but to anticipate them. In order to approach the principles of creating an innovative model more abstractly and to build it, it is necessary to consider the concept of enterprise development, its types, features, etc.

The enterprise development is a research interest of economists of different disciplines. Therefore, approaches to the subject content of this concept and its synthesis with the other terms of the business environment are diverse and multifaceted. The analysis of the concept of "enterprise development" particularly such as A. Pakrukhin, T. Nadtok, S. Dund, Y. Pogorelov, G. Kakunina, B. Tviss, Y. Shumpeter, O. Pushkar, V. Tridid, P. Herbert, M. Lorenz, V. Isaacson, K. Schwab, A. Loleo, B. Gates, K. Moeller, G. Seliger, T. Stock, M. Albert, M. Timmer, B. Van Ark, E. Peters, J. Barney, J. Collins, P. Drucker, F. Lalu, J. Weils, N. Meshko, I. Malik, S. Kolyadenko, S.V. Mocherniy, A.V. Chernykh, F.I. Khmil, OD Korshunova, V.S. Ponomarenko made it possible to formulate a definition that fundamentally illustrates the key nature of the term. In the narrower aspect, we understand the enterprise development as a state of the company's activity change in terms of qualitative and quantitative parameters under the influence of external and internal factors, and broadly it is defined as an irreversible, regular process of a consistent continuous change of quantitative and qualitative states of the enterprise in time and space.

In general, development is a fundamental and broad concept. In the process of categorical-conceptual analysis of this term it is necessary to pay attention to the philosophically accepted interpretation of the term, as well as, in the context of the described problem, its derivatives. Particular attention should be paid to consideration of such tandems of concepts as enterprise development asymmetry, company development management, firm innovation development, development management modeling, development strategy, etc. If we follow the scientific heritage,

[1] Ansoff, I. (1999). Novaja korporativnaja strategija. [New corporate strategy]. St. Petersburg: PETER. [in Russian]

it can be noted that the typology of development in research has received little attention. Predominantly, scientists maintain a focus on the development management and strategies without understanding depth of the development issues. Since in order to build an effective company development management model (we regard company as an open, flexible, economic system) in the context of modern business realities, the issue of relations between the entity (company) and the management object (development) must be preceded by a detailed study of the object essence, because the development has an inherent high level of complexity and internal structure.

Thus, the main purpose of the article is to study in depth the concept of development and its types in order to create an effective model of development management in the context of technological change and modern realities of the world business.

### 1.1. The essence of enterprise development asymmetry

According to the academic dictionary of Ukrainian, development is a process that results in a quality change of something or a transition from one qualitative state to another.[2] In other words, development is irreversible, purposeful, regular change of tangible and intangible objects. The definition of "enterprise development" means qualitative changes and updating of its economic system and organizational structure, improving the efficiency of functioning on the basis of upgrading of technology, equipment and organization of work in all structural units, increasing the quality of products and provided services.[3]

Let us analyze each of the selected components of the enterprise development concept (Figure 1).

By most definitions, development means quantitative and qualitative changes that bring about positive effects. Of course, the effect of change is a relative characteristic, so it requires some concretization. It is sufficient to state the company development, if the changes brought a certain improvement for the company. We consider the development of the enterprise distributed in time as a process. Development is a process that has a certain duration. A company needs a period between

[2] Velykyy tlumachnyy slovnyk ukrayins′koyi movy (2001). [Big explanatory dictionary of the Ukrainian language]. Irpin : Perun. 1440. [in Ukrainian]

[3] Kyryliuk, O. V., & Shvidanenko, G. O. (2018). Katehorial′no-ponyatiynyy aspekt asymetriyi rozvytku pidpryyemstv v konteksti tekhnolohichnykh zmin [Categorical-conceptual aspect of enterprise development asymmetry in the context of technological change]. *Visnyk Khmel'nyts'koho natsional'noho universytetu. Ekonomichni nauky*. 3 (3): 73-76. [in Ukrainian]

the development point and the corresponding changes in order for a tangible effect of change to occur.[4] It should be noted that time distribution and duration do not imply stability or continuity. It is clear that the development of the enterprise is not permanent, that is, it is not necessarily present at every moment of the enterprise existence. It is a manifestation of asymmetry. The condition that there may be no enterprise development at any time indicates that development will not necessarily be continuous.

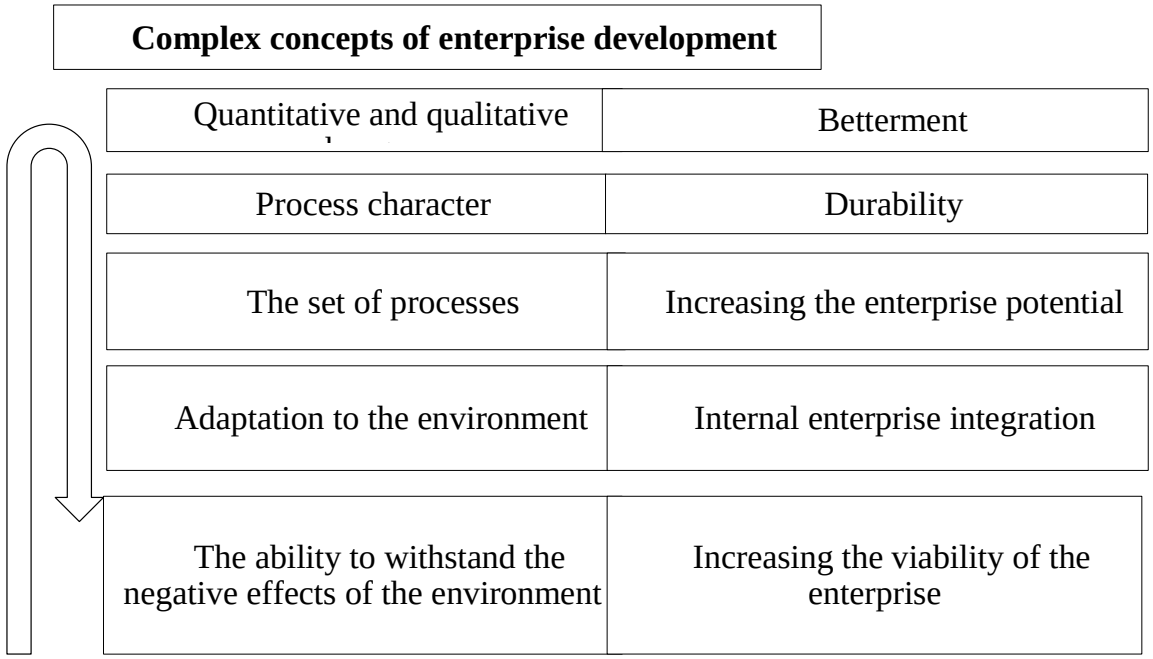


**Figure 1. Complex concepts of enterprise development**

*Source: supplemented by the author*

In its content, the enterprise development is a source of enterprise potential, since the totality of development processes leads to its multiplication. Clear examples of such processes are quantitative and qualitative changes, adaptation to the external environment of the enterprise and internal integration of the enterprise. Therefore, the result of development for the enterprise will be the realization of quantitative and qualitative changes, increasing the potential of the enterprise, ensuring the ability of the enterprise to counteract the negative effects of the external environment and increase the viability of the enterprise.

[4] Grinev, A.V. (2003). Innovacijny`j rozvy`tok promy`slovy`x pidpry`yemstv: koncepciya, metodologiya, strategichne upravlinnya. [Innovative development of industrial enterprises: concept, methodology, strategic management]. Kharkiv: INZHEK. [in Ukrainian]

Sometimes the concept of the enterprise development is synonymous with the concept of changes in the enterprise. In general, "change" is the development of new ideas or behaviors by an enterprise.[5] Change is an action that signifies the direction and strength of the development process itself. According to M. Besedin and V. Nagaev, changes are transformations that occur as a result of instability of the conditions evolution of the enterprises activity under the influence of such factors: production and commodity markets, geographical factors, internal company conditions, external socio-political conditions, etc. The degree of change is determined by the recurrence of events, the pace of these changes, and the predictability of the future.

Therefore, changes at the enterprise are the means of adapting to new conditions, increasing competitiveness, work efficiency and productivity. It is important for the enterprise to strike a balance between change and stability while opening the way for further technological, social and other changes.[6]

The category of development is quite complex. Therefore, it is necessary to consider the criteria for systematization of development and its various types at the scientific level. We describe two sets of criteria to identify types of enterprise development. The first group of criteria refers to the development in general, i.e. as an inter-scientific, philosophical and even general scientific concept. That is why such criteria are considered to be generally scientific. The second set of criteria is specific to the enterprise as the development object.

The development systematization is presented in table 1. The following comment should be provided. The table describes the criteria for systematization of development and indicates the types of development corresponding to them.[7]

Depending on its source or root cause, development is divided into exogenous and endogenous. Exogenous development is a development that is determined by external causes of the enterprise. This interpretation is controversial, because the very concept of development does not specify the necessary source or driving force of changes

[5] Dorofyeyeva, L.I. (2015). Upravleniye izmeneniyami kak osobaya forma menedzhmenta. Menedzhment: konspekt lektsiy. [Management as a special type of activity, its specificity Management: lecture notes]. Retrieved Nov. 10, 2019 from: http://www.stihi.ru/2012/12/10/9441. [in Russian].

[6] Grinova, V.M., & Kozireva, O.V. (2006). Social`no-ekonomichni problemy` innovacijnogo rozvy`tku pidpry`yemstv :Monografiya. [Socio-economic problems of innovative development of enterprises: Monograph]. Kharkiv: INZHEK. [in Ukrainian].

[7] John, F., & Sargent, Jr. (2012). Nanotechnology: A Policy Primer. Retrieved Nov. 20, 2019, from: https://digitalcommons.ilr.cornell.edu/key_workplace/1204/.

occurring. Endogenous development is the development, where the source and root cause is inside the developing object or system. The driving force behind endogenous development is the asymmetry within the development object, which occurrence leads to its qualitative changes. For exogenous development, some contradictions within the company may also be the basis. But such contradictions still extend beyond the object of development, i.e. in the external environment. In other words, it occurs between the enterprise and the external environment.

Table 1

**Systematization of development types**

| Systematization criteria | Development types |
|---|---|
| Nature of changes | Evolutionary; transformational |
| Source of development | Exogenous; endogenous |
| The scale of the object | Individual; general |
| Form | Rectangular, ladder, translational, broken, wavy, spiral |
| Introducing the subject development | Projective, non-projective |
| Development vector selection | Vector, quasi-chaotic |
| The number allocated vectors | Single-vector, multi-vector, frontal |
| Complexity of changes | One-project, one-sphere, multi-sphere and holistic |
| Quantitative characteristics of changes | Progression, degression, ripple and invariant |
| In the direction of resource combinations distribution | Asymmetry; balance |

*Source: supplemented by the author*

The following classification is carried out depending on the complexity of the object and is divided into individual and general. Individual development is the development of a separate, indivisible entity, in our case an enterprise. It is worth noting that the indivisibility of the object in this classification is not analyzed by the entirety criterion. An object may have a complex structure, but its individual parts do not always form the object integrity under certain conditions. For example, in cases when the company delegates its functions to expert organizations outsourced.

Development is manifested in various forms: straight, ladder, translational, polygonal, wavy, spiral, etc. The form of development is determined by the nature of the changes, the intensity over time, the frequency of the changes and their recurrence. It is worth noting that the most important thing is the repetition of changes, not cyclicality, which is a fundamentally different category.[8]

Enterprise development is also classified in the scientific literature by such criteria as the allocation of development vector, number of vectors selected, complexity of changes, quantitative characterization of changes, etc. Development, as noted above, requires some targeted movement or trajectory. According to the trajectory, the development is divided into vector or quasi-chaotic. A development vector is a set of continuous successive changes in the state of a development object, while maintaining its unity and integrity, but that are constrained by certain mandatory conditions or goals of the company. Vector development implies the presence and specification of the trajectory of development in the form of goals. Quasi-chaotic development is carried out without formalization of the development vector. Even the quasi-chaotic enterprise development is also a trajectory, it is located outside the entity and is not specified in the enterprise management system.[9]

According to the number of vectors selected, development is classified as single-vector, multi-vector and frontal. Single-vector and multi-vector development mean a certain number of vectors. In the frontal enterprise development there are several vectors that do not contradict each other or are targeted in one direction. Vectors in the frontal enterprise development contain different functional subsystems or control the behavior of the company in different markets.

According to the criterion of complexity of changes, the enterprise development is divided into one-project, one-sphere, multi-sphere and holistic. One-project enterprise development means the implementation of an individual project aimed to solve a specific problem. The implementation of such a project does not entirely change the activity of the enterprise. Of course, performing this task brings some changes in the activity of the enterprise, but they are not significant. One-sphere and multi-sphere enterprise development, respectively, cover several

[8] Koval′ov, V. M., & Yakovlev, Yu. V. (2012) Intehral′na otsinka metodiv ekonomichnoho upravlinnya pidpryyemstvamy i personalom [Integral evaluation of methods of enterprises's and personnel's economical management]. *Visnyk Berdyans'koho un-tu menedzhmentu i biznesu*. 2 (18) : 84–89. [in Ukrainian]

[9] Losev, A. F. (2005). Istorija antichnoj filosofii v konspektnom izlozhenii. [History of ancient philosophy in a synopsis.]. Moskow: CheRo. [in Russian]

activities or involve engagement of several functional subsystems. One-sphere development involves several projects of development that touch upon one sector of an enterprise's activity, either manufacturing, or finance, or social, or environmental, etc. Multi-sphere development changes simultaneously or sequentially in several enterprise sectors. Holistic development is interpreted as the complete development of an enterprise, covering all spheres of activity, and the next state of the company differs from the previous one in most qualitative and quantitative indicators.[10]

In the distribution direction of the resource combinations, development includes two concepts, such as asymmetry and equilibrium. At rest, the company's resource portfolio is proportionate and stable, so the company is in equilibrium, but there is a movement in the enterprise, resulting the resource combinations being redistributed in a new and disproportionate way. An asymmetry phenomenon occurs, it results in the accumulation of more resources in a particular structural unit than in another one. This provokes its faster development.

Let us go back even further in more detail on the asymmetry of the enterprise development.

Asymmetry in economics has many dimensions and is not just about information.[11] Along with information asymmetry, the impact of real asymmetry is also extensively explored in the economic literature. Asymmetry of costs, capacities, location, demand, market shares, strategies, etc. are explored at the firm level, asymmetry of regional and global development are explored at the macro level.

The relevant scientific literature mainly analyzes the effects of the isolated effects of real and informational asymmetries. Therefore, in our opinion, further studies should be related to the analysis of the combined influence effects of different types of asymmetry on the optimal and balance decisions of market agents.[12]

An enterprise is a complex mechanism that forms an open and flexible economic system at the micro level of the general economic environment, and therefore its development in space and time is

[10] Kyryliuk, O. V. (2019). Informatsiyni tekhnolohiyi v upravlinni asymetriyeyu rozvytku kompaniyi. [Information technology in managing the asymmetry of the company development]. *Visnyk Khmel'nyts'koho natsional'noho universytetu. Ekonomichni nauky*. 3 (3): 95-99. [in Ukrainian]

[11] Kyryliuk, O. V. (2019). Management of asymmetric development of enterprises in the digital economy. Economics of the enterprise: theory and practice, materials of international scientific-practical conference (14.10.2019): 12-18. Riga: Baltic International Academy.

[12] Fedulova, L. (2006). Tekhnolohichnyy rakhunok ekonomiky. [Technological account of economy]. *Ukraine economy*. 6 (6): 6. [in Ukrainian]

inevitably linked to changes within, that is to the irregularities and imbalances of the constituent elements. Being in the balance state, the economic system goes into a state of rest, which often leads to the establishment of barriers to change, so today, in uncertain market conditions, it is more appropriate to bring the economic system into motion. In describing this process, scientists use such concepts as asynchrony, imbalance, divergence, disequilibrium, etc. The analysis of the terms diversity allows us to trace the similarity of their internal characteristics. In our view, describing the phenomenon of uneven enterprise development, it is more appropriate to use the concept of asymmetry.[13]

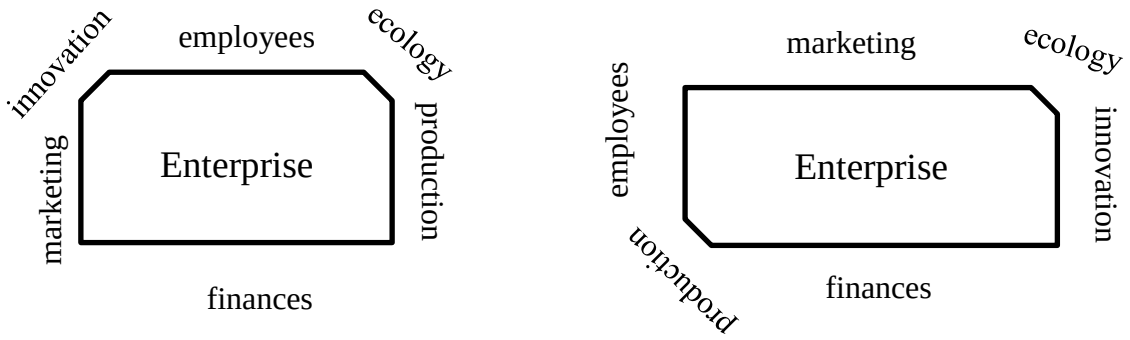


**Figure 2. Enterprise development asymmetry**

*Source: author-generated*

In a general sense, this term is synonymous with the symmetry breaking. It is used in the theories of many sciences, from medicine to arts, when describing the specific property of a particular object to reproduce the best shape of it with changes or transformations. We consider the concept of asymmetry in relation to the enterprise development and understand this symbiosis as a complex process of formation of unique resource compositions in the enterprise, which are directed to the development of a certain structural part of the company, which contributes to its more progressive development relative to others, and, therefore, the emergence of economic irregularities in the enterprise.[14]

[13] Fedorishchev, D. V. Asimmetrija razvitija jekonomicheskoj sistemy [Asymmetry of economic system development]. Retrieved Nov. 6, 2018, from: https://dlib.rsl.ru/viewer/01003241248#?page=27 [in Russian]

[14] Kyryliuk, O. V. (2019). Management of asymmetric development of enterprises in the digital economy. Economics of the enterprise: theory and practice, materials of international scientific-practical conference (14.10.2019): 12-18. Riga: Baltic International Academy.

The phenomenon of asymmetry of development can be both a threat and an advantage. The threat can be caused by concentration of attention on one element, inhibition in the development of others, or lack of resources to keep all business processes at the proper level. The advantage is possible when using the innovative segment of the enterprise as a bridgehead for growth and change of other business processes. As an enterprise is a system object where all elements and processes are interrelated, asymmetry of development is an inevitable process that has a positive effect on the development of the whole enterprise.

## 1.2. Intellectual-innovative model of the enterprise development in the context of technological changes

Modern technological development of countries and their cooperation in the scientific and technological sphere are manifested in two dialectically combined tendencies. On the one hand, there is a levels convergence of technological development of countries and regions, and on the other hand, there is a simultaneous widening of the technological gap between the leading world countries and the rest of them. Such a gap is related to the uneven study of the scientific and technological progress achievements of the different countries and the rapid introduction of elements of new technological styles into their national economies.

Thus, the phenomenon of asymmetry is also present in the global dimension and is called interstate technological asymmetry. There are various forms of technological asymmetry. One of them is the establishment of the lion's share of global inventions in the 12 most technologically advanced countries in the world, which effectively integrated the fundamental and applied aspects of science and concentrated the world's financial, technological, human and intellectual resources in one place. One of the main indicators is the monopolization of the right to own such resources, control and redistribute within the world economy.[15]

Companies and individuals located within these countries own a dominant share of triad patent families, i.e. patents that are simultaneously registered with three of the world's leading patent organizations in the US, Japan and Western Europe. As early as 2009,

[15] World Intellectual Property Indicators (2011). Retrieved Nov. 17, 2018, from: https://www.wipo.int/edocs/pubdocs/en/intproperty/941/wipo_pub_941_2011.pdf.

there were 47,000 registered triad patent families in the world, 29.2% of their total array was in the US, 30.3% in EU countries (including 12.3% in Germany, 5.2 % in France, 3.4% in the United Kingdom, 2.0% in the Netherlands, 1.9% in Sweden) and 28.3% in Japan. Today, the other developed countries of the world, such as Canada, Switzerland, Australia and Israel, are involved in this process; in 2009 their share in patenting was 1.3%, 1.9%, 0.6% 0.7% respectively.[16]

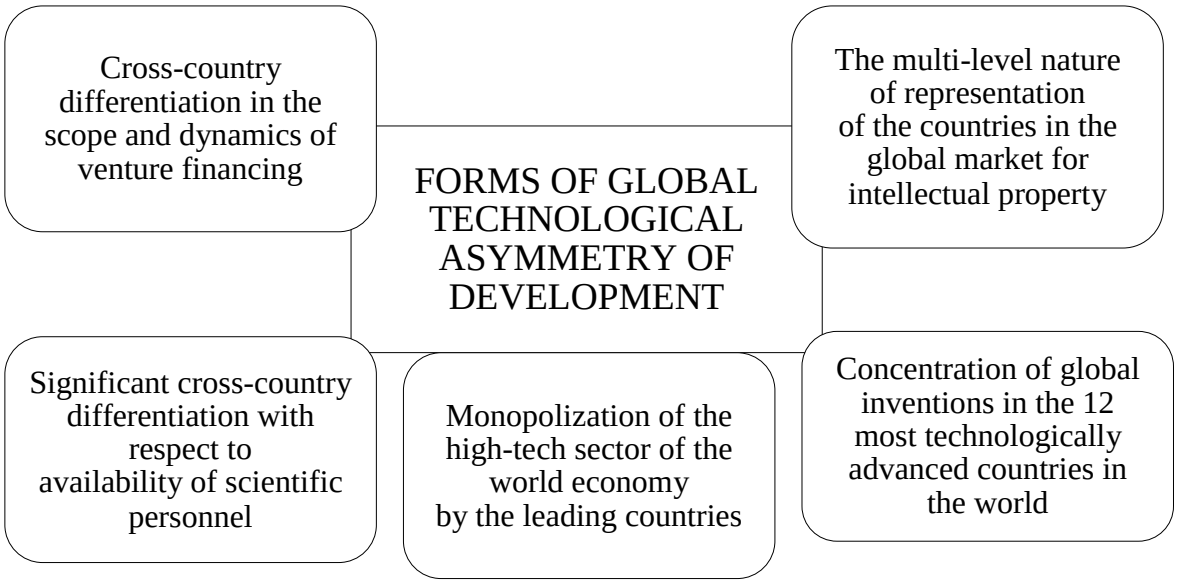


**Figure 2. Forms of global technological asymmetries of development**

The scale of modern interstate technological asymmetry clearly illustrates such key indicator as the countries technological development. It is the export of high technologies and the development level of information and communication technologies. At the beginning of the XXI century. the volume of high-tech exports in developed countries (15% of world population) exceeded the corresponding indicator of low-income countries (41% of world population) by 146 times; the number of mobile phones per 1,000 people by 17 times; the total number of personal computers by 22 times; and the number of Internet users (calculated using 1 thousand people) by 124 times. Meanwhile, more than 90% of the total number of Internet hosts is currently concentrated in the EU, the US, Canada and Japan, the backward countries of Africa and South America own only 0.24% and 1.07% of their total array and have 0.7% and 3.7% of all Internet users respectively.

[16] OECD Factbook 2011-2012: Economic, Environmental and Social Statistics (2011). Retrieved Nov. 17, 2018, from : https://www.oecd-ilibrary.org/economics/oecd-factbook-2011-2012_factbook-2011-en.

It is worth noting that interstate technological asymmetry is not only between developed and developing countries, but also within the leadership triad of the world economy (the USA – Europe – Japan). For example, in the United States, the world leader in the technological revolution, the number of personal computers per 1,000 people in the 1990-2000 period increased from 190-200 to 500, and the proportion of American families using the Internet increased from 6% in 1995 to 50% in 2000. At the beginning of the 21st century, the country accounted for 40% of the world's computer power, and in terms of the number of computers per resident and the proportion of families using the Internet, the US was 2-3 times ahead of Japan and Western Europe.

There is another form of manifestation of interstate technological asymmetry as monopolization by the leading powers of the world economy high-tech sector. The current technological grouping of the global economy is quite narrow. These include the United States, Japan, Germany, the United Kingdom and France. An indicator of the formation of new technology is the attraction of macro technologies. These countries own 46 macro technologies (out of 50 that guarantee the production of high-tech products in the world). Thus, they control nearly 80% of the high technology world market. At the same time, 20-22 macro-technologies serving competitive production are in the USA, 8-10 are in Germany, 7 are in Japan, 3-5 in England and France and 1-2 in Sweden, Norway, Italy and Switzerland.

The share of seven highly developed countries in the world today accounts for 80-90% of the production of high-tech products and practically the total volume of its exports.[17]

Another powerful impetus for the deepening of inter-state technological asymmetry is the increasing regional concentration of R&D in post-industrial countries, where 55% of the total number of patents registered in OECD countries accounts for only 10% of the organization's regions. However, the growing role of the science-intensive industries in modern tangible and intangible production has significantly exacerbated the competitive struggle between the three centers of global economic rivalry for domination in the high-tech segment of the global market, characterized by a clear country specialization. Meanwhile, as the United States monopolized virtually all

[17] Claudt, H., Buch, K., & Christensen, B. (2006). Nova ekonomika: formy vyyavu, prychyny i naslidky: monohrafiya. [The New Economy: Forms of Expression, Causes and Consequences: monograph]. Kiev: Taxon. 240. [in Ukrainian]

key segments of the high technology world market, in particular, aviation and space rocket equipment by 40%, telecommunications and navigation equipment by 20%, microelectronics by 19%, medical equipment by 19%, medical equipment and materials by 27 %, industrial and scientific instruments and materials by 28%, then other developed countries of the world can claim only for some of its segments.[18]

Another form of interstate technological asymmetry is the multi-level representation of countries in the global market for intellectual property. It is true, that royalty and licensing services are currently concentrated in only a few industrialized countries. However, the ratio of payments to receipts under such agreements in most countries (except the US and Japan) is clearly passive when payments exceed receipts.

This phenomenon is peculiar to the countries of the European Union, Korea, Canada, Singapore, China, and Thailand, i.e. to the countries-active importers of scientific and technical knowledge, which find themselves fully technologically dependent on the American monopolies. Only the United States shows the most active balance in trade in scientific and technical knowledge, which shows, on the one hand, the high level of scientific research in this country and its powerful scientific and technical potential, and on the other hand, the large-scale export of scientific knowledge to Western European and Asian countries, which hinders the development of national scientific research in these countries and enhances the inequality in trade with the United States.[19]

Another form of demonstration of interstate technological asymmetry is the significant country differentiation in the availability of scientific personnel. When analyzing this indicator, it can be seen that over the last decades, the world is once again retained by the United States, where for the period of 1995-2010 the number of researchers increased by an average of 5% annually, three times higher than the total employment growth rate.[20]

As far back as the early 1960s, the number of basic scientific personnel (engineers, researchers and technicians) in this country was 695.5 thousand people, while in Japan there was 187 thousand,

[18] Kostin, A. I. (2005). Ekopolitologiya i globalistika. [Ecopolitology and Global Studies]. Moskow: Aspekt Yekspres. 378. [in Russian]

[19] Main Science and Technology Indicators, Volume 2012, Issue 2 (2013). Retrieved Nov. 17, 2018, from: https://eric.ed.gov/?id=ED541311/.

[20] John, F., & Sargent, Jr. (2012). Nanotechnology: A Policy Primer. Retrieved Nov. 20, 2019, from: https://digitalcommons.ilr.cornell.edu/key_workplace/1204/.

105 thousand in Germany, 85.4 thousand in France, 159.5 thousand in the UK. Despite the narrowing of this gap in the 1970s, the United States is still the country with the largest scientific personnel in the world. In 2010, it amounted to 1.412.6 thousand people, or 33.6% and 45.3% of the total number of the scientific personnel, respectively, according to OECD countries and the G7. For comparison: in Japan, the number of the scientific personnel in the same year was 656.0 thousand people, 1567.7 thousand in the EU, 327.2 thousand in Germany, 234.2 thousand in France, 264.1 thousand in Korea, 235.4 thousand in Great Britain, 146.3 thousand in Canada, 92.4 thousand in Australia, 49.3 thousand in Sweden, 41.4 thousand in Finland, 38.2 thousand in Belgium, 35.9 thousand in Austria, and 1210.8 thousand in China.[21]

Another striking form of interstate technological asymmetry is the country's differentiation in the scope and dynamics of venture financing. Its target is mainly small firms, which have chosen venture capital as their specialization, the most risky but at the same time the most promising type of activity, unlike the large R&D companies. Comparing countries to venture funding as an indicator of their technological development, the United States has held the lead with up to 600-800,000 of such firms emerging every year since 1982, with about 23 million emerging in the last 25 years, with a total employment of 87 million people.

Ukraine has also set out to create a digital economy by 2030. The development of the digital economy has been made possible by a purposeful public policy. In the early 2020s, the Cabinet of Ministers and Deputies should prioritize the structural transformation of the Ukrainian economy, where innovation and digitalization will be the key drivers.[22]

The Digital Economy Development Strategy will create the basic conditions for its development, i.e. labor law, access to sufficient capital, including venture capital, an education system that will allow graduates to be competitive and meet the challenges of the current technological landscape.

[21] Science and Engineering Indicators 2012. National Science Board: 4-45.

[22] Rozporyadzhennya KMU vid 17 sichnya 2018 r. № 67-r "Pro skhvalennya Kontseptsiyi rozvytku tsyfrovoyi ekonomiky ta suspil′stva Ukrayiny na 2018–2020 roky ta zatverdzhennya planu zakhodiv shchodo yiyi realizatsiyi" (2018). [Order of the Cabinet of Ministers of Ukraine "On Approval of the Concept of Development of the Digital Economy and Society of Ukraine for 2018–2020 and Approval of the Plan of Measures for its Implementation"]. Retrieved Feb. 2, 2018, from: https://www.kmu.gov.ua/npas/pro-shvalennya-koncepciyi-rozvitku-cifrovoyi-ekonomiki-ta-suspilstva-ukrayini-na-20182020-roki-ta-zatverdzhennya-planu-zahodiv-shodo-yiyi-realizaciyi. [in Ukrainian].

From 2023, the Ukrainian jurisdiction will change. In Ukraine, both the number of patents registered and the number of startups that sell their products worldwide within the Ukrainian tax jurisdiction will increase rapidly. It will also create a new fiscal system that provides tax breaks for companies that produce innovative products.[23]

From 2020 to 2025, the Government of Ukraine will initiate and implement the following steps:

• identifying the country as a major player in the sector. The country will become a key consumer and user of innovation, lead the trend for digital culture, and promote education in the high-tech sector;

• legally enshrining the basic digital rights of the citizen;

• implementing the infrastructure projects (connection to fixed broadband Internet of all households, smart physical infrastructure, etc.);

• initiating and implementing of numerous digital transformation projects (e-government, smart cities, electronic identification, e-customs, etc.);

• creating the conditions for the emergence of over 300,000 new jobs in the digital economy;

• introducing universal digital services for citizens (standard mandatory minimum): education, medicine, transport, security.[24]

In essence, the country must transform itself, its internal governance, political life, internal structure so that everything is built on innovative solutions. Digitalization can have the impact on businesses, citizens, and eventually the budget, political elite will form a new agenda and introduce digital culture in the country.[25]

Analyzing the technological asymmetries of the development of countries in the global dimension, we can conclude that the digital transformation means the integration of digital technologies in all areas of business. This integration leads to fundamental changes in the way citizens, businesses and organizations act, how they deliver value to themselves, their employees, customers, partners, achieving their own, common, economic and social goals faster, cheaper and with the new quality. Digitalization is the saturation of the physical world with

[23] Tsyfrova adzhenda Ukrayiny – 2020 (2016). [Digital Agenda of Ukraine – 2020]. Retrieved June 20, 2017, from: https://issuu.com/mineconomdev/docs/digital_agenda_ukraine-v2__1_/47.

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electronic-digital devices, tools, systems and the establishment of electronic-communication interaction between them. Digitization should be seen as a tool, not an end in itself. Under the systematic state approach, digital technologies will stimulate job creation, increase productivity, economic growth and quality of life for Ukrainian citizens.

It is clear that such trends affect primarily on business. Under the influence of the environment, there are inevitable changes within the enterprise, which deepens the asymmetry of the enterprise development. For its successful operation, the company must seek a new development model and be able to identify and manage internal asymmetric processes.[26]

Taking into account the above factors, it is possible to present an innovative model of Ukrainian enterprises development as follows (Figure 3). To date, Ukrainian enterprises are lagging behind in the technological development of the enterprises of the highly developed countries due to lack of sufficient attention and support for the development and implementation of innovative development models.[27]

The need to direct the entrepreneurial activity development in the direction of innovation, increasing the activity of innovative entrepreneurship is also due to the current globalization process, which stimulates the development of communication and information technologies. The trend of globalization, in particular, is reflected in the growing share of foreign funding for research in most developed and emerging industrialized countries, and in the creation of an increasing number of research units of multinational corporations in regions favorable to such activities.[28]

Activation of the innovation process is not possible without the encouragement and effective use of innovative mental work that creates new knowledge and new technologies. The mechanical use of other people's borrowed know-how is not so valuable today. From the sphere of requirements of time and limited material resources rational use, which reduces the cost of production and its price, competition of the world market has shifted to the sphere of technological progress, design and engineering improvement.

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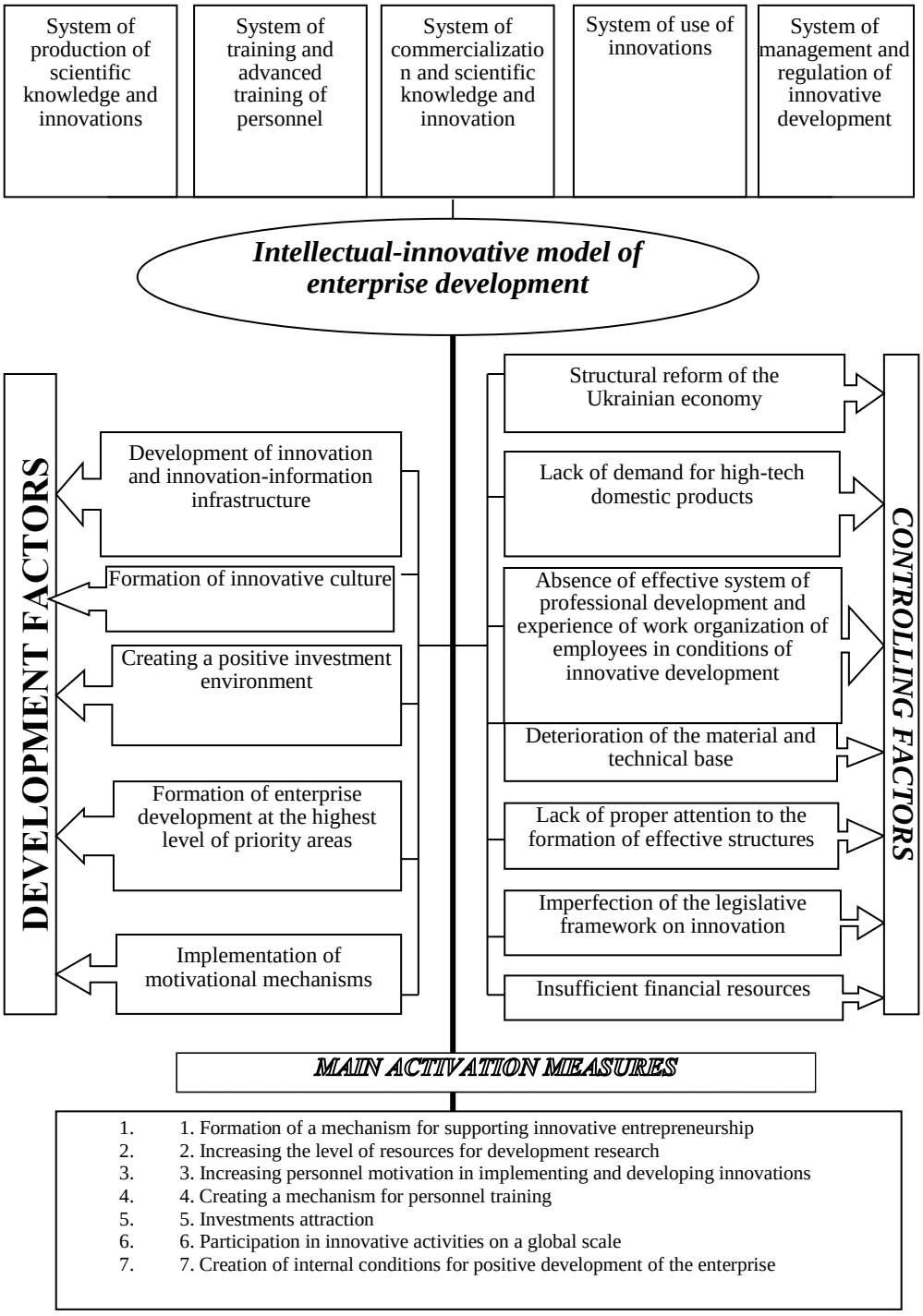


**Figure 4. Intellectual-innovative model of company development**
*Source: Developed by the author*

## CONCLUSION

The study of the development concept, isolation of species and characteristic features of this definition made it possible to follow certain patterns in the process of enterprise development. Since the enterprise is

an economic system, it is exposed to external factors and responds to the movement of internal elements. Under this influence, an enterprise undergoes change, and it is always a movement that is impossible without breaking the balance and the emergence of asymmetry in the development of the enterprise.

Asymmetry of enterprise development is a continuous, regular, constant process of changing the qualitative and quantitative state of the enterprise due to the formation of unique resource compositions, which causes structural changes in the company. The process of asymmetry in the development of economic entities is particularly relevant in the current economic trends. The larger the company is, the deeper the process of asymmetry is in its development. Peter Drucker, in the Effective Executive, argues that company success is a non-static indicator. The reason is the constant desire of an effective leader for excellence, or in other words for a stable continuous dynamic development. Based on the operating experience in the leading companies, it is safe to say that as soon as the leader and personnel of the company are satisfied with the result, i.e. development ceases, the phase of stagnation and crisis begins. In the age of technological change, this particular feature of development becomes relevant and becomes the driving mechanism for achieving efficiency and high performance of the enterprise. The head of one of the most progressive investment companies in the country, UFuture, whose main focus is to attract investment in promising innovative projects, said: “I am always dissatisfied with something. But this is the way forward: look what doesn't work, what can be done better. As a whole, it's on the four. ”In this way, it provides its company with the potential for future growth through continuous development.

Technological changes require transformation in familiar models of company development. In particular, there is a multi-vector change in the organizational structure, which is described by the processes of debureaucratization, narrowing of functional specialization, decentralization, reduction of administrative levels. These cause the transition of enterprises to radically new organizational forms to mediate the asymmetry management processes in the enterprise, smooth out the negative manifestations of irregularities in the enterprise management system, turning them into competitive advantages of the enterprise.

**SUMMARY**

The basic approaches to identify the definitions of “development” and “enterprise development” are analyzed. The relation between the concepts of “development” and “change” is determined. The constituent characteristics of the concept of enterprise development are described. Classification of types of development is described. The classification group of asymmetry and balance as the type of development is formed. The enterprise development asymmetry is characterized. The forms of global technological development asymmetry are shaped. The main trends of the digital economy are investigated. An intellectually innovative model of modern enterprise development has been created.

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