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THE IMPACT OF INNOVATION ON THE STRUCTURE OF THE ASSETS OF THE ENTERPRISES[6]

The article evaluates the impact of the intensity of innovation of the enterprise on the structure of its assets. The importance of optimising the structure of assets to ensure the efficient operation of the enterprise is substantiated and the optimal structure of the company's assets is determined in terms of minimising the duration of the operating cycle. It has been established that the process of optimising the structure of enterprise assets in order to ensure the efficiency of its operation should be considered through the prism of comprehensive optimisation of all components. The study of enterprises by the method of alternative valuations gave grounds to determine the ratio between non-current and current assets of 80:20, which may be optimally provided that automated and high-tech production. The sequence of stages of the asset structure optimisation model has been proposed and described, the mechanism of determining the optimal structure at each of the stages is outlined, the expediency of practical application of the model is proved.
Keywords: innovative activity; assets; optimal structure; operating cycle
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Introduction

In modern conditions, the development of the world economy is closely linked with the pace of scientific and technological progress. Therefore, innovation is one of the key sources and prerequisites for enterprise development and economic growth in general.

Innovation is considered as an implementation process that extends to a new or significantly improved product (good or service) or process, a new marketing method or a new organisational method in business practice, organisation jobs and external relations (OECD, 2015). Innovative activity characterises the harmonised interaction in accordance with the needs, available assets of the enterprise and scientific and technical potential, which leads to the improvement of quantitative growth indicators, encourages the revival of economic activity and business activity of the enterprise.

In today's market conditions, only those companies that can quickly adapt to new requirements, offer consumers quality products, use innovative technologies and develop effective development strategies function effectively. In addition, the priority component of the enterprise should be to increase the competitiveness of goods and services, reduce production costs, improve its quality. The growth of innovation activity will allow to outpace the pace of development of other enterprises and sectors of the economy.

The implementation of innovative activities affects the structure of assets of the enterprise, which necessitates the study of the ratio of different components of property during the implementation of innovations and analyse the impact of such a structure on individual indicators of financial condition.

In the process of optimising the asset structure of enterprises, the criteria that best meet modern economic requirements, environmental challenges and internal targets are used.

The Literature Review

Research by Ukrainian and foreign authors (Vasylenko, 2015; Tkach, 2012; Fatkhutdinov, 2016; Ramos et al., 2016) is devoted to the study of problems related to innovative development and management of innovative processes at the enterprise.

The strategic goals of managing innovative activities of the enterprise aimed at resource conservation are to reduce the cost of production resources and increase its efficiency (Bagrova, Yudina, 2013). Effective management of innovation is a necessary prerequisite for determining the directions of further development of the enterprise and strengthening its competitive position in the market environment (Sakhatskyi, Kazandzhi, 2017). E. Lousã (2013) developed and applied a number of indicators to compare enterprises of different technological industries and different scales of activity, as well as to better characterise and analyse the organisation in terms of its own activities focused on innovation.

The ability of the enterprise to carry out innovative activities is defined by researchers as innovative potential. Accordingly, the innovation potential is characterised by a system of resources required for basic and applied research, design and technological work focused on

solving scientific, scientific and technical, social and economic and environmental problems of the enterprise (Dudar & Melnichenko, 2008). Researchers identify four levels (high, medium, low and zero innovation opportunities) of innovation potential of the enterprise, which can be used to determine the ability of the enterprise to implement new technologies in economic turnover and, at the same time, provide financial needs of current production and economic activities. Levels of innovation potential are differentiated depending on the availability of own financial resources (Garbar, 2020).

A group of scientists has developed a model of adaptive management of innovation processes in conditions of uncertainty, taking into account the risk factor in enterprises. The results of the practical application of the model allow to make management decisions and adapt to changes in the external environment in the operational management of innovation in the enterprise and can be used to solve other problems of optimising management processes (Babenko et al., 2017). At the same time, other researchers have identified five models (collaboration, outsourcing, licensing, trade, and incorporation), the combination of which determines the openness of the company's innovation strategy (Lamberti et al., 2016).

Theoretical and practical substantiation of issues related to asset structure management in order to ensure the effective operation of enterprises, devoted to the scientific works of economists (Blank, 2008; Mizina, 2010). Asset structure is the share of assets in different categories of enterprises. It is constantly adjusted along with changes in industrial structure and market competition and is the result of the coordination of goals and management strategies at different stages of enterprise activity. The structure of assets mainly affects the value of the enterprise, as well as profit, liquidity and risk control of the enterprise (Liu et al., 2019). Optimisation of the structure and composition of the company's assets should be aimed, on the one hand, to ensure the useful use of certain species in the future and on the other – to increase the total potential ability to generate operating profit (Nosach, Lebedeva, 2019).

Today there are no strict rules for choosing the optimal organisational structure of the enterprise and its assets for innovation. Scientists have proposed an approach to optimise the structure of investment resources of the enterprise and the choice of funding based on the criterion of optimising economic security (Zlotenko et al., 2019). Differences in the formation of the asset structure of large and small enterprises, in particular under the influence of innovation, were studied by Wagenvoort, R. (2003).

Problems of optimising the structure of non-current and current assets in terms of their components were also studied by economists (Bashnyanin, 2012; Gura, 2012; Vlasova, 2013; Koshelyok, 2015; Fedorova, 2016). M. Humeniuk (2016) argued for the need to upgrade fixed assets through the use of innovative technologies in the production process.

Without underestimating the importance of these studies, we note that there are a number of issues that need attention and solutions, such as: the application of a comprehensive approach to optimising the asset structure of the enterprise in terms of innovative development to ensure the efficiency of its activities.

Thus, the above arguments indicate that in a competitive environment, the question of the innovation component in optimising the structure of enterprise assets is relevant.

Research Methodology

The purpose of the study is to assess the impact of the intensity of innovation of the enterprise on the structure of its assets and justification of the optimal structure of assets of the enterprise by optimising the production process by reducing the duration of the operating cycle.

In the process of research, the method of expert assessments was used, which from a professional point of view allows to more accurately identify problems in functioning enterprises. Each enterprise is a unique economic system, so the universal standardised methods and models, which are based on certain mathematical laws, do not allow for the application of an individual approach in the implementation of management decisions. The method of expert assessments is one of the main methods of scientific and technical forecasting, which is based on the assumption that based on the opinions of experts, it is possible to build an adequate model for the future development of the forecasting object.

The object of the study were two highly efficient Ukrainian enterprises (ALS "Trembita" and LLC "Hals-2000") and a leader among beverage producers in the Polish market Grupa Krynica Vitamin. The obtained indicators of financial statements of enterprises were evaluated by experts (employees of the Department of Economic Development, Industry and Infrastructure of Ivano-Frankivsk Regional State Administration and the Department of Regional Development of Chernivtsi Regional State Administration, representatives of innovative enterprises – a total of 10 people) and analysed by us. Based on the processing and analysis of the collected data, alternative variations of the composition and structure of assets of the studied enterprises have been identified. According to the results of the assessment of the enterprise, the optimal ratio between non-current and current assets has been found. The reliability of the results has been confirmed: the structure of assets of one of the studied enterprises, which is innovative and active, is proportional to the obtained optimal ratio. The results of the study are recognised as practically significant and will be implemented in other enterprises.

It has been proved that the use of the method of expert assessments in the process of optimising the structure of assets, taking into account the innovation component, contributes to the adoption of informed, rational and sound decisions.

The study also used such a method of economic analysis as a comparison – to compare over time the indicators of innovation activity of industrial enterprises in Ukraine and Poland. To achieve this goal, data from the State Statistics Service of Ukraine and the Central Statistical Office of Poland were used.

Results of Analysis

In the current economic environment, most companies in Ukraine rely on a conservative business model, where business is seen as an activity focused on performing certain functions and resource management. As a result of such activities, the production and sale of goods or services in exchange for cash or other goods and services are carried out. Often companies use a "strategy of transfer and borrowing", which is to use the world's scientific and

technological potential and transfer innovations created abroad in their own economy or start producing products that are already manufactured in developed countries. However, applying the experience of economically developed countries in Ukraine by simple transfer is not always appropriate, as it is necessary to take into account the specifics of the country and the state of its economy.

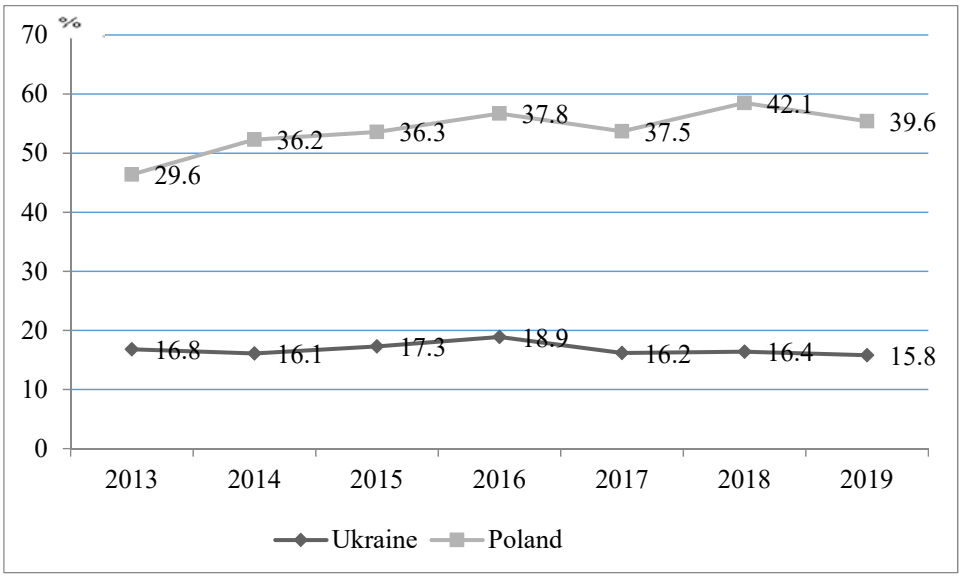
The result of European integration should be a change from a conservative business model to an innovative one – as a result of increased competition between Ukrainian and foreign manufacturers. That is why the implementation of innovative activities is a key task of Ukrainian enterprises, which has certain features of asset and capital management.

Considering the dynamics of the number of enterprises engaged in innovation activities in Ukraine, we note: in 2015, innovation activities in the industry were carried out by 824 enterprises, or 17.3% of those surveyed; in 2017 – 759 enterprises, or 16.2% of the surveyed; in 2019 – 782 enterprises or 15.8% of the surveyed. Thus, we observe a decrease in the intensity of innovation and its quality (Scientific and Innovation of Ukraine, 2020, p. 71).

The development of innovation infrastructure in one of the EU countries, Poland, is more intensive. There is a significant gap between Ukraine and Poland in terms of the share of enterprises engaged in innovation (Figure 1). Thus, the share of innovation-active enterprises in the total number of industrial enterprises in Poland in 2019 was 2.5 times higher and amounted to 39.6% (Scientific and Innovative Activity of Ukraine, 2020, p. 71; Statistical Yearbook of the Regions, 2020, p. 102). If in Poland, during the study period, the share of enterprises engaged in innovation in the total number of industrial enterprises increased, in Ukraine, there was a tendency to decrease in 2019.

Figure 1

The share of enterprises engaged in innovation



Source: Authors.

At the same time, it should be noted that, compared to other EU countries, Poland ranks low in this indicator. For example, on average, more than half of all enterprises in the EU were engaged in innovation (52.9%), and in Germany – about 80% (Tkach, 2016, p. 93).

The low share of innovation-active enterprises in Ukraine and the reduction of their number in 2019 is a negative fact due to a number of factors. Among them, in our opinion, the greatest influence is political and economic:

- divergence of centres of influence in the process of distribution of budget funds;
- unfavorable economic climate for innovation and the inability to compensate for significant risks arising from innovative investments;
- politicisation of society and distrust of business in public authorities;
- absence of legislative and tax support for innovation-active enterprises (Sas, 2019);
- insufficiency of systematisation in the measures taken by the state to intensify innovation. More than 90% of industrial enterprises are privatised, which virtually eliminates state regulation;
- lack of financial resources to provide research and implementation of innovative developments;
- inflation risks, inefficient ways to stabilise the hryvnia exchange rate, high NBU discount rate and excessive business lending rates (Kalinichenko, 2016);
- high dependence of the country's economy on loans from international financial organisations and funds;
- high level of monopolisation of industries;
- high costs of enterprises for innovation with low effective demand for new products;
- increased risk due to high uncertainty of the result and long payback period of innovative technologies;
- weak investment attractiveness of domestic enterprises for both foreign and domestic investors.

In order to predict the development of the innovative activity of enterprises and the effectiveness of management decisions in this area, it is necessary to eliminate the negative impact of the above factors.

Innovation potential is characterised by resources, which are a set of means by which the ability of the enterprise to achieve the goal of innovation. The main economic resources, in this case, are funds, which are represented by tangible and intangible assets of the enterprise. The material component of the innovative potential of the enterprise includes mostly fixed assets, in particular the part that is directly involved in the production process. The intangible component of innovation potential, which can still be described as an intellectual component, includes intangible assets, marketing resources, management and infrastructure resources,

and labour resources. Each component has specific purposes of use, is influenced by various factors, and its presence can be both a strong and a weak sign of the enterprise to carry out innovative activities.

Scientists traditionally believe that material resources are the basis for the formation of the innovative potential of the enterprise (Bagrova, Yudina, 2013; Nosach, Lebedeva, 2019). This opinion is confirmed by the results of the analysis of the distribution of innovation costs. Thus, in Ukraine in 2015, innovation costs were distributed in the following ratio: 14.8% – internal and external research and development, 0.6% – the acquisition of other external knowledge, 80.6% – the purchase of machinery, equipment and software (in including 44.3% – purchase of machinery, equipment, vehicles) (Scientific and Innovative Activity of Ukraine, 2020, p. 77). Given the fact that in the process of production, the Ukrainian enterprises use morally and physically outdated technical and technological base, the share of investments directed to the active part of fixed capital is insignificant. At the same time, in Poland in 2015, 16.7% of innovation expenditures were directed to internal and external research and development, 0.8% – to the acquisition of other external knowledge, 1.2% – to the purchase of software, 51.4% – to the purchase of machines, machinery, equipment, vehicles (Statistical Yearbook of the Regions, 2016, p. 472). That is, in contrast to Ukraine, in Poland, a much larger share of investment was accounted for by fixed assets.

In 2019, there were negative changes in the distribution of innovation costs in terms of investing assets of Ukrainian enterprises. In particular, in Ukraine, 20.5% of expenditures were directed to internal and external research and development (5.7% less than in 2015), 0.3% – the acquisition of other external knowledge (0.3% less than in 2015) year), 71.6% – purchase of machinery, equipment and software (9.0% less than in 2015) (Scientific and innovative activities of Ukraine, 2020). In Poland in 2018, 36.7% of innovation expenditures were directed to internal and external research and development, 53.5% – to the purchase of software, machinery, machinery, equipment, vehicles, buildings and land (Statistical Yearbook of the Regions, 2019, p. 392).

In times of rapid scientific and technological development and informatisation of society, special attention should be paid to intangible assets in enterprises. Intellectual capital is the foundation for building the potential of the enterprise; it allows to carry out innovative activities and provides competitive advantages in the market. In our opinion, the development of non-traditional tangible assets for the formation of the innovative potential of the enterprise is interesting. It's about business culture and brand. It is worth noting that in Poland in 2018, 2% of innovation costs were the cost of independent work of staff on innovation (Statistical Yearbook of the Regions, 2018). In Ukraine, such statistics are not calculated and costs are not incurred.

The results of the study confirm that the innovative activity of Polish industrial enterprises is much higher and, accordingly, higher competitiveness compared to our manufacturers. Therefore, Ukrainian companies need to intensively implement innovative technologies in the production process. This will affect the structure of their assets, in particular increase the share of non-current assets. The structure of assets in terms of mobile and immobile parts, i.e. current and non-current assets, has a significant impact on the results of the enterprise and business efficiency. Therefore, Ukrainian companies that will increase innovation

activity and borrow the experience of Poland, need to pay attention to both the advantages and disadvantages of the accumulation of non-current assets, and focus on the optimal ratio between non-current and current assets. Our study aims to find the most optimal asset structure. To do this, we have chosen companies that operate effectively and are innovative.

Given the turnover of current assets and a greater degree of their liquidity, compared to non-current assets, we believe that increasing the share of current assets in total assets is associated with increased efficiency. The formation of the property structure depends largely on the industry in which the company operates, so it makes it impossible to form a mobile structure in each of the companies. According to the management practice of Ukrainian enterprises, intangible assets occupy a small share in the property structure, while fixed assets, which are a component of tangible assets, are obsolete. We believe that the main reason for this situation is usually the lack of financial resources, due to which companies are not able to invest in fixed assets that are directly involved in the production process and do not accumulate intangible assets. Physical and moral depreciation of fixed assets sometimes reaches 80% of the property structure of industrial organisations (Gura, 2012).

Thus, we see a clear link between the process of innovation in the enterprise and the structure of assets innovation steadily leads to an increase in non-current assets of the enterprise (due to an increase in intangible assets and fixed assets), i.e. the formation of less mobile assets.

Successful asset management can increase the efficiency of operational and financial activities in the relationship. On the one hand, the optimisation of the company's assets is aimed at ensuring the full useful use of certain types, and on the other – to increase the total potential ability to generate an operating profit. In order to ensure the effective operation of the enterprise and optimise non-current and current assets, it is necessary to take into account not only the sectoral characteristics of operating activities but also the average operating cycle for the enterprise, positive and negative assessments of all types of assets.

When studying the structure of assets, it is necessary to sort mobile assets according to the degree of liquidity. Traditionally, they are divided into absolutely liquid assets, which include money and their equivalents (A1); average liquid assets, i.e. receivables of the enterprise (A2); illiquid assets, the main component of which are inventories (A3). Non-current assets are illiquid assets (A4).

The structure of assets affects the efficiency of management, the key to which, in our opinion, is the length of the operating cycle. The duration of the operating cycle is the period of time between the purchase of materials, use in production, sale of finished products and receipt of cash. Reducing the value of the indicator can be achieved by optimising the production process and increasing production efficiency.

Consider how different options for the structure of assets affect the change in the duration of the operating cycle, in particular, provide a positive change: reduction.

The assessment of the impact of the structure of assets on the duration of the operating cycle was carried out on the materials of financial and economic activities of ALS "Trembita" and LLC "Hals-2000". These are industrial enterprises (ALS "Trembita" belongs to light industry enterprises, and LLC "Hals-2000" belongs to food industry enterprises), where innovations that affect the structure of their assets have been actively implemented recently. These

enterprises were chosen because they differ in the mobility of the asset structure. Thus, ALS "Trembita" is dominated by non-current assets, and the property of LLC "Hals-2000" is formed mainly at the expense of current assets.

ALS "Trembita" is one of the undisputed leaders in the garment industry of Ukraine, in particular in the market of men's clothing in our country, as well as abroad. Due to the high level of business culture, the products of this company are successfully sold in Ukraine, Germany, Italy, France and the United States. Electronic and automatic equipment of equipment helped to improve the quality of products and increase production. Trembita is one of the leaders in Europe and the world in terms of output. The products have a high level of competitiveness and meet international standards. The technical condition and technological level of the enterprise meet the requirements of European standards. This is a modern enterprise, which uses the latest advances in science and technology of the garment industry (Catalog of leading enterprises of Ukraine, 2021).

The company is actively engaged in innovative activities. The share of spending on innovation during 2013-2019 fluctuated significantly. It was the highest in 2016 and accounted for 34% of the company's costs. The average annual value of the company's property in 2019 was 3454 thousand dollars and revenue from sales of products – 4067 thousand dollars. Due to the increase of intangible assets and active renewal of fixed assets, the following asset structure was formed at the enterprise: 80% are non-current assets (A4), 20% –are current assets (A1, A2, A3). The share of absolutely liquid assets is 4% and the share of medium liquid assets – 5%, illiquid assets are 11% of total assets.

To assess the optimal structure of assets, it is necessary to consider various variations in the structure of assets of ALS "Trembita". Each of the proposed options provides for different ratios of current and non-current assets, as well as variations within current assets, depending on the degree of liquidity. The impact of such changes on the results of the enterprise as:

1. Structure of assets of this enterprise in the absence of innovation and in the period of active implementation: the first of them is characterised by the ratio of non-current and current assets of 60% : 40% (Option I), the latter – 80% : 20% (Option III);
2. Different options for the ratio of asset groups A1, A2, A3, namely:

   - variations 1.2, 2.2, 3.2 characterise the volume of absolutely liquid assets (A1) at the level of 5%, i.e. within the limits that will ensure the appropriate level of liquidity and solvency at the current level of current liabilities of the enterprise;
   - variations 1.1, 2.1, 3.1 characterise the decrease in absolutely liquid assets (A1) by 1% and illiquid assets (A3) by 1%, as well as a corresponding increase in average liquid assets (A2) by 2%, which leads to a slight increase in the operating cycle, provided that the ratio of non-current and current assets remains unchanged;
   - variations 1.3, 2.3, 3.3 characterise the increase in absolutely liquid assets (A1) by 1% and medium liquid assets by 1% (A2), as well as a corresponding decrease in illiquid assets by 2% (A3), which leads to a slight decrease in the operating cycle, provided the ratio of non-current and current assets.

As a result, variation 3.3. characterises the optimal structure of assets in terms of the optimal size of both non-current and current assets. The structure of ALS "Trembita" assets is close to option 3.1 (Table 1).

Table 1

The duration of the operating cycle of ALS "Trembita" with different options for the structure of assets

Indicator	Option I (60% : 40%) Lack of innovatio			Option II (70% : 30%) Insignificant implementation of innovative activities			Option III (80% : 20%) Active implementation of innovative activities		
	1.1	1.2	1.3	2.1	2.2	2.3	3.1 (available)	3.2	3.3 (optimal)
Structure (%)									
A1	4	5	6	4	5	6	4(4)	5	6
A2	17	15	16	12	10	11	6(5)	4	5
A3	19	20	18	14	15	13	10(11)	11	9
A4	60	60	60	70	70	70	80(80)	80	80
Total	100	100	100	100	100	100	100	100	100
Sum (thousand dollars*)									
A1	138	173	207	138	173	207	138 (128)	173	207
A2	587	518	553	415	345	380	207 (188)	138	173
A3	656	691	622	484	518	449	345 (388)	380	311
A4	2073	2073	2073	2418	2418	2418	2763 (2750)	2763	2763
Total	3454	3454	3454	3454	3454	3454	3454	3454	3454
The duration of the operating cycle (days)									
Duration of inventory turnover, days	58	61	55	43	46	40	31 (34)	34	28
Duration of turnover of receivables, days	52	46	49	37	31	34	18 (17)	12	15
The duration of the operating cycle, days	110	107	104	79	76	73	49 (51)	46	43

** at the rate of the NBU on January 1, 2019.*

Source: Authors.

Taking into account the existing value of ALS "Trembita" assets, which is reflected as a sub-item of variation 3.1, in the second stage, the probable value of asset groups is calculated in accordance with the proposed changes in the structure. In the third stage, the probable duration of the operating cycle (the sum of the duration of inventory turnover and receivables) is determined, provided that the value of assets of groups A2 (receivables) and A3 (inventories) changes. The study found that with an increase in the value (share) of non-current assets and a corresponding decrease in the value (share) of current assets, including receivables and inventories, the duration of the operating cycle decreases.

When assessing and justifying the optimal amount of cash, it should be noted that their increase is usually positive, as it indicates an increase in liquidity and acceleration of sales of the enterprise. However, cash is characterised by inflationary depreciation, so companies should try to make more rational use of free cash. In the management process, it is advisable to keep in the accounts the minimum amount of cash required to ensure current operations.

According to the results of the analysis, the structure of assets at ALS "Trembita" in terms of the ratio of current and non-current assets is optimal. The structure of current assets is imperfect. Therefore, to reduce the operating cycle, you should use a variant of structure 3.3. This will increase the share of cash and reduce the share of inventories.

The next object of study is LLC "Hals-2000". This is a well-known fish processing enterprise of the Dobra Ryba brand in Western Ukraine. The share of expenditures on innovative technologies is average, and during 2013-2019 it did not exceed 15%. Determining the impact of innovative activities of LLC "Hals-2000" on the duration of its operating cycle, we note that this company was established in 2000. The volume of sold products of the enterprise amounted to 3539 thousand dollars, and the total amount of assets – 4369 thousand dollars. The company is actively implementing innovations, so over the past two years, the structure of its assets has changed significantly. Currently, the ratio of non-current and current assets is almost 50% : 50%, i.e. the company is characterised by an asset structure that is close to option 3.2 (Table 2). Accordingly, the structure of assets in terms of the ratio of non-current and current assets is not optimal.

Table 2

The duration of the operating cycle of LLC "Hals-2000" with different options for the structure of assets

Indicator	Option I (30% : 70%) Lack of innovatio			Option II (40% : 60%) Insignificant implementation of innovative activities			Option III (50% : 50%) Activation of innovation activity			Optimal 80% : 20%
	1.1	1.2	1.3	2.1	2.2	2.3	3.1	3.2 (available)	3.3	
Structure (%)										
A1	4	5	6	4	5	6	4	5 (5)	6	6
A2	32	30	31	27	25	26	21	19 (21)	20	5
A3	34	35	33	29	30	28	25	26 (26)	24	9
A4	30	30	30	40	40	40	50	50 (48)	50	80
Total	100	100	100	100	100	100	100	100	100	100
Sum (thousand dollars*)										
A1	175	218	262	175	218	262	175	218 (218)	262	262
A2	1398	1311	1354	1180	1092	1136	917	830 (917)	874	218
A3	1485	1529	1442	1267	1310	1223	1092	1136(1136)	1048	393
A4	1311	1311	1311	1747	1747	1747	2184	2184 (2097)	2184	3494
Total	4369	4369	4369	4369	4369	4369	4369	4369	4369	4369
The duration of the operating cycle (days)										
Duration of inventory turnover, days	151	156	147	129	133	124	111	116 (115)	107	40
Duration of turnover of receivables, days	142	133	138	120	111	116	93	84 (93)	89	22
The duration of the operating cycle, days	293	289	284	249	244	240	204	200 (208)	196	62

** at the rate of the NBU on January 1, 2019.*

Source: Authors.

Reducing the level of innovation and depreciation of fixed assets can increase the share of current assets to 70-60%. This usually results in an increase in current assets such as

receivables and inventories. Accordingly, the duration of the operating cycle increases. In order to form the most objective conclusion about the optimal structure of assets and determine whether to increase or decrease the share of non-current assets, we offer a study of different options for the structure of assets. The following changes are considered:

- change in the ratio between non-current and current assets: increase the latter to confirm the feasibility or inexpediency of increasing the share of non-current assets (Option I – current assets are 30%, a Option III – 50%);

- optimisation of the structure of current assets by liquidity (variation of groups of assets A1, A2, A3 is carried out in accordance with the above approach. The overall increase in the share of current assets causes an increase in the share of groups A2 and A3, but the variation within 1-2% remains the same as in the study ALS "Trembita");

- application of the probable optimal asset ratio of 80% : 20%, which provides for an increase in intangible assets and fixed assets as a result of the high intensification of innovation (as a result, the optimum ratio of 80% : 20% was confirmed, which is justified by a significant reduction in the duration of the operating cycle).

Thus, among the three options considered, the current ratio between non-current and current assets of LLC "Hals-2000" 50% : 50% is more appropriate. However, from the point of view of minimising the duration of the operating cycle, it is optimal to achieve a ratio of 80% : 20%, which will involve the active implementation of innovation.

In order to confirm the results of the study, the reliability of the optimal ratio between non-current and current assets of 80% : 20% on the example of one of the innovative enterprises in Poland.

Grupa Krynica Vitamin specialises in the production of beverages and provides bottling services in aluminum bottles and PET packaging. At the end of 2019, the company launched a production line for filling glass containers. In addition, the company's sales structure for exports changed. Revenues from the sale of beverages outside Poland amounted to 47%. The company supplies products to almost 40 countries. In 2019, 51% of production was energy drinks classified as special foods. The second category by share in the company's portfolio (43%) were carbonated beverages. The volume of sold products of the enterprise amounted to 76915 thousand dollars, and the total assets – 41637 thousand dollars.

As of now, the structure of assets corresponds to option 2.2. (Table 3). Variation in the structure of assets was carried out similarly to the method used in the study of ALS "Trembita". Sub-item of variation 2.2. called "existing", characterises the existing structure of assets at the enterprise, which formed the basis for further calculations. The evaluation results confirm the feasibility of optimising the asset structure of the company "Grupa Krynica Vitamin" to achieve the optimal ratio of 80% : 20%. As a result, the duration of the operating cycle will be reduced.

Table 3

The duration of the operating cycle at the company "Grupa Krynica Vitamin" with different options for the structure of assets

Indicator	Option I (60% : 40%) Lack of innovatio			Option II (70% : 30%) Insignificant implementation of innovative activities			Option III (80% : 20%) Active implementation of innovative activities		
	1.1	1.2	1.3	2.1	2.2 (available)	2.3	3.1	3.2	3.3 (optimal)
Structure, %									
A1	4	5	6	4	5 (1)	6	4	5	6
A2	17	15	16	12	10 (15)	11	6	4	5
A3	19	20	18	14	15 (15)	13	10	11	9
A4	60	60	60	70	70 (69)	70	80	80	80
Total	100	100	100	100	100	100	100	100	100
Sum, thousand dollars*									
A1	1666	2082	2491	1666	2082 (331)	2498	1666	2082	2498
A2	7078	6246	6661	4997	4164 (6074)	4580	2498	1666	2082
A3	7911	8327	7495	5829	6246 (6436)	5413	4164	4580	3747
A4	24986	24986	24986	29146	29146	29146	33309	33309	33309
Total	41637	41637	41637	41637	41637	41637	41637	41637	41637
The duration of the operating cycle, days									
Duration of inventory turnover, days	37	40	35	27	29 (30)	25	20	21	18
Duration of turnover of receivables, days	33	29	31	23	19 (28)	21	12	8	10
The duration of the operating cycle, days	70	69	66	50	48 (58)	46	32	29	28

** at the rate of the NBU on January 1, 2019.*

Source: Authors.

Thus, considering the impact of different options for the structure of assets on the change in the duration of the operating cycle of industrial enterprises engaged in innovation and characterised by different levels of property mobility, industries and sales, we can draw the following conclusions:

- increase in innovation activity of the enterprise affects the increase in the property structure of non-current assets and provides a positive change – reducing the duration of the operating cycle;

- the formation of a more mobile structure of assets in the enterprise has a negative impact on the duration of the operating cycle, as it slows down the turnover of current assets, including inventories and receivables, due to the growth of the absolute amount with constant sales revenue;

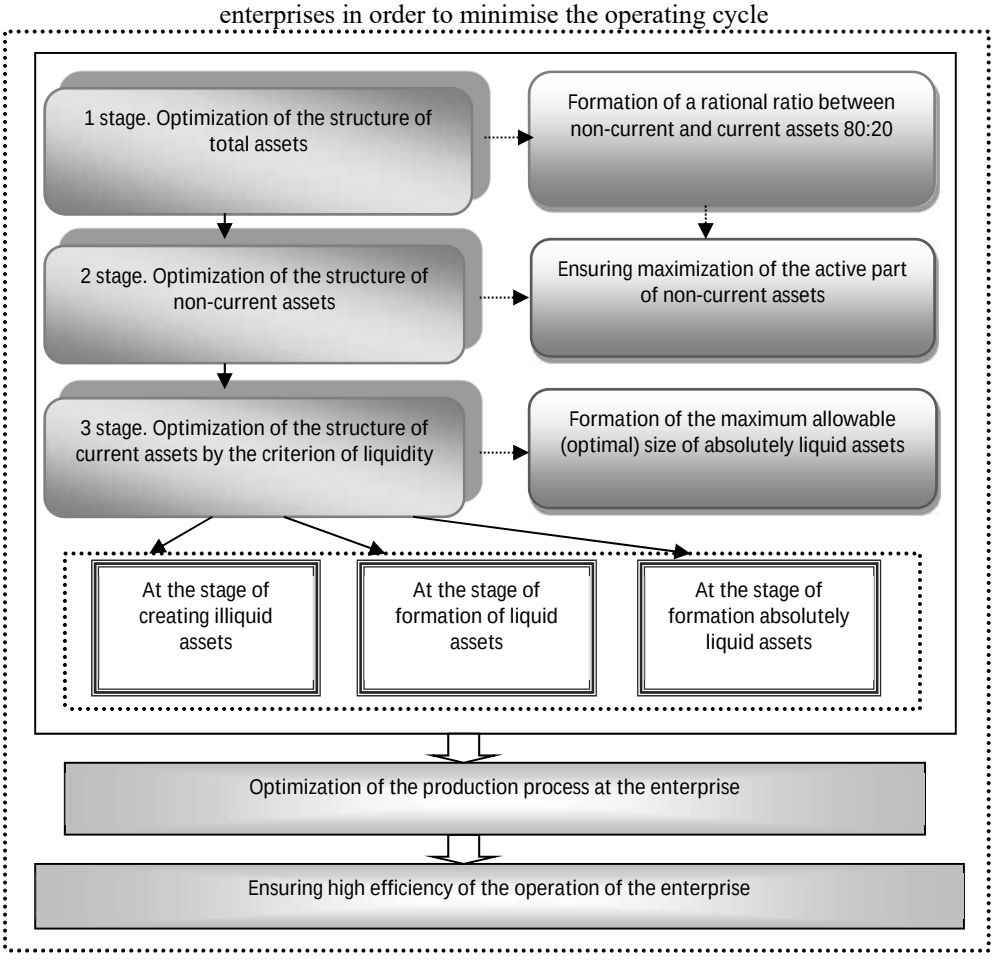
- an increase in the share of A1 (absolutely liquid assets) leads to a reduction in the duration of the operating cycle, as evidenced by all three options for capital structure;

- shorter operating cycle duration, among the proposed, provide options for the structure of assets, which provide for the average (among the three proposed) share of medium liquid assets and less (among the three proposed) share of illiquid assets.

In our opinion, the optimisation of the structure of assets in order to ensure the efficiency of the enterprise, namely the criterion of minimising the duration of the operating cycle, should be carried out in three stages, which are shown in Figure 2.

Figure 2

The mechanism of optimisation of the asset structure of innovatively active industrial enterprises in order to minimise the operating cycle



Source: Authors.

At the first stage, it is advisable to optimise the ratio of the value of non-current and current assets of the enterprise, which will ensure better performance. If the share of non-current assets is more than 40%, the asset structure is considered "heavy", less – "light". "Heavy" structure indicates significant overhead costs and high sensitivity to changes in revenue, "light" – the mobility of the enterprise (Bashnyanin, 2012). For industrial enterprises, it is the increase in the share of non-current assets in the total amount that minimises the operating cycle, which is due to the peculiarities of the technological process.

In the second stage, given the above, the main task of optimising the structure of non-current assets is to increase the share of the active part of fixed assets. This is due to the fact that the active part is directly involved in the production process and thus determines a certain volume and proper quality of products (working machines and equipment, measuring and regulating devices, production tools, as well as some technical facilities). The passive part creates the conditions for the production process (buildings, structures, vehicles, power machines and equipment, transmitting devices and other fixed assets). The task of the second stage of optimisation of the property structure of the enterprise is to ensure the maximisation of the share of fixed assets in the structure of non-current assets.

Based on the analysis, we can say that the structure of current assets by the criterion of liquidity has a significant impact on the duration of the operating cycle. With this in mind, the third stage optimises the ratio by the criterion of liquidity of the three main types of current assets: absolute (cash), medium (receivables) and illiquid assets (inventories). According to this stage, you can identify ways to optimise at each stage of production. At the stage of formation of illiquid assets –minimisation of inventories and work in progress through the introduction of innovative technologies, rational use and storage, the optimal choice of suppliers and others. At the stages of formation of absolutely and medium-liquid assets – rational organisation of the sales process, compliance with settlement and payment discipline, the use of marketing levers to increase sales (advertising) and others.

The consequence of such optimisation is a reduction in the duration of the operating cycle, which improves the efficiency of management as a whole.

Modern production requires significant costs for scientific and technical development, and implementation of results, and in many cases, this burden is unbearable for individual businesses in conditions of fierce competition (Tubolets, 2016). The lack of own financial resources, low profitability and insignificant market share do not allow Ukrainian companies to withdraw money from circulation for the introduction of innovative technologies. It is the innovation component that is the main source of social progress not only in world-leading countries, but also in such small countries as Iceland, Ireland or Thailand, which are sometimes even ahead of the leading countries in implementing scientific achievements. The importance of scientific and technological progress is evidenced by the special attention of the state to the scientific sphere in all countries. It manifests itself in significant and diverse types of government support. Unfortunately, today private enterprises have insufficient financial opportunities and can ensure the development of only certain projects related to specific business activities.

Discussion

Changes in the institutional environment and the development of European integration processes lead to new requirements for Ukrainian enterprises: to intensify innovative activities that involve efficient and rational use of tangible and intangible assets, use a resource and material-saving technologies, automate production processes, update fixed assets, use innovative approaches. However, a survey conducted by H. Pozo (Pozo et al., 2019) shows that the main motivating factor for innovation in small businesses in Brazil is the search for sources of increasing profits. For these companies, innovation is equated with the purchase and use of new machinery and equipment. We believe that the size of net profit is not the most important problem for Ukrainian enterprises. The priority for them is to increase competitiveness and market share.

In the process of research, we considered the optimisation of the asset structure of the enterprise in order to ensure the efficiency of its operation by reducing the duration of the operating cycle. Of course, the process of optimising the structure of assets can be based on other criteria that have been studied by various authors. Thus, N. Kovalchuk et al. (2019), among the many criteria that can be used in Ukrainian enterprises to improve the structure of assets, offer two, such as: increasing the market value of shares and net income. It should be noted that the criteria for maximising the company's net profit and market value do not fully meet modern economic requirements and are not a priority. This opinion is confirmed in the research of the authors (Sosnovska, Zhytar, 2018), who note that the choice of principles and methods of building a financial architecture depends on such financial interests of the entity as the formation of flexible financial potential, optimising capital structure, increasing investment attractiveness, maximising profit and increase the market value of the enterprise.

As we see from the results of our research, it is advisable to identify a set of political and economic factors that negatively affect the innovative activity of enterprises. At the same time, L. Kalinichenko (2016), along with political and economic, identifies social and technological factors that affect the level of innovation activity of enterprises. The analysis of current social factors makes it possible to conclude that it is necessary to form a cult of engineering and technical worker and thus create conditions to provide industrial enterprises with highly qualified personnel (Kalinichenko, 2016). The importance of corporate social responsibility and the environmental basis of sustainable development has also been emphasised (Pylypiv et al., 2018).

It has been established that the development of innovative activity in industrial enterprises is important and will help optimise the structure of assets. This statement is supported by I. Balaniuk and other (Balaniuk et al., 2019) researchers, who note that the use of innovative technologies in agricultural enterprises can provide such important for Ukraine expansion of production, increasing the resource base of enterprises and social development of rural areas.

The practical results of the operation of both Ukrainian and foreign companies, in particular Polish enterprises, allowed us to determine the directions of intensification of innovation processes during the formation of assets of industrial enterprises. At the same time, a group of scientists has identified the benefits of management success in information and

telecommunications companies and companies specialising in professional, scientific and technical activities in Ukraine and Poland (Mamatova et al., 2020).

The forecasted trends of changes in the analysed indicators, obtained using the method of alternative estimates, show that for industrial enterprises, the ratio between non-current and current assets is 80:20, which allows to optimise the duration of the operating cycle and the volume of innovation. According to Kirdina, O. (2013), the optimisation of the ratio of current and non-current assets should be based on the following principles: taking into account the immediate prospects of operating activities and forms of diversification (the volume of current and non-current assets of the enterprise, formed at the initial stage certain reserve potential that will provide opportunities for product growth and diversification of operating activities); ensuring the appropriate ratio for the formed current and non-current assets of the volume, for the structure of production and sales; ensuring the optimal ratio of current and non-current assets to the efficiency of economic activity; providing opportunities for high turnover of assets in the process of their use. We believe that compliance with the above principles in innovative enterprises will contribute to competitiveness and efficiency.

In the business system, business culture is an effective intangible asset. The development of business culture is an important means of improving social and economic relations, which has a significant impact on improving the economic efficiency of the enterprise and improving the economic situation of the country as a whole. An important type of intangible assets is the brand. We support the opinion of Gorovy, D. (2016) that intangible assets should be grouped into three categories, which are most often defined in the financial statements:

- brand (this also includes a design that stands out in the US, Japan, UK, Sweden and other EU countries), marketing research (Russia);
- information: software, patents and research (EU countries, Russia and Ukraine), mineral exploration (Sweden, Japan and the Netherlands), preparation for production (Russia);
- human capital, as well as organisational capital (Japan, EU countries), vocational training (Sweden, Russia).

Conclusions

Thus, during the study, the main goal was realised – to assess the impact of the intensity of innovation of the enterprise on the structure of assets of the enterprise by optimising the production process, which will reduce the duration of the operating cycle.

The following strategic tools were used for this: innovation and investment policy of the enterprise, new knowledge and technologies, new fixed assets, capital of the enterprise and financial resources that invest in tangible and intangible assets, production resources.

This allowed us to obtain the following scientific results: first, to justify the feasibility of increasing the innovative activity of Ukrainian enterprises; secondly, to determine the

optimal ratio of non-current and current assets for these enterprises; thirdly, to indicate the areas of optimisation of current assets.

It has been proved that in the process of improving the efficiency of the enterprise, an important place is occupied by the optimisation of the asset structure. The share of non-current assets should be sufficient to ensure their productive use, as well as quality renewal based on the introduction of new technologies.

At the same time, the share of current assets must provide sufficient liquidity and manoeuvrability. The optimisation is associated with the largest reserves of inventory reduction in enterprises, especially in terms of material-intensive production.

At the enterprises it is expedient to form stocks of necessary values within the possible minimum for constant maintenance of continuity of production process that will reduce the expenses of the enterprise connected with storage and damage of stocks. It is necessary to accelerate the sale of products, payments for products sold and services provided to prevent the creation and reduction of receivables.

Given all the advantages and disadvantages that will provide the company with working capital and non-working capital, the optimal ratio between non-current and current assets is 80 : 20. With such an asset structure, companies will be able to implement innovative technologies, improve the production process, increase competitiveness and increase market share.

The practical significance of the obtained results has been confirmed by the presence of such a ratio in the structure of assets of one of the investigated enterprises of ALS “Trembita”, which is innovation-active and export-oriented.

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