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INTERNALLY GENERATED INTANGIBLE ASSETS: RECOGNITION CRITERIA AND WAYS OF ACCOUNTING IMPROVEMENT

Abstract: Modern market economy is characterized by the fact that it is impossible to adapt to modern trends of development ignoring the achievements of human intellectual activity that finds expression in accounting through the concept of "intangible assets". This category can be considered one of the least researched in accounting which is related to the specific characteristics of its economic nature. However today the use of intangible assets in economic activities of companies hugely affects its effectiveness, promotes competitiveness and investment attractiveness. In this context, regulatory support, which is the basis for the reflection of objects in the accounting, needs to be improved in order to provide the accountants the opportunity to build reliable accounting system of intangible assets. The aim of the study is to develop recommendations aimed at improvement of organizational and methodological principles of accounting internally generated intangible assets. The objectives of the paper are: to determine the nature of the recognition criteria for intangible assets, in particular internally created; research on national and international accounting standards; establishing the correlation between investment in research and development and the main operations of enterprises; disclosure of the need to improve existing accounting standards for intangible assets; providing suggestions on how to improve accounting for internally generated intangible assets. During the research the following general and specific scientific methods were used: methods of induction and deduction; comparison and systematization, analysis and synthesis; critical analysis of accounting issues; as well as tabular and graphical methods. The work consists of an introduction, two chapters, conclusions and suggestions, references and 2 annexes. The main content of the work is laid out on 29 pages of printed text. The work contains 4 tables and 5 figures. The list of references includes 19 titles. The first chapter of the work deals with the regulatory framework governing the accounting of intangible assets at both national and international levels. The recognition criteria for internally created intangible assets were characterized according to the research and to the development phases. The second chapter provides an analysis of improvements to the accounting method for internally generated intangible assets provided by Ukrainian and foreign authors. This section also contains the results of an empirical study on the example of Ukrainian and US pharmaceutical companies on the impact of investment in research and development on the firms' current operations.

Keywords: internally generated intangible assets, recognition criteria, accounting standards, expenditure on research and development, capitalization of expenses.

1. Introduction

The development of the global economy indicates the necessity of involving in economic circulation of resources intangible assets which have a unique ability to generate significant profits if they are used effectively. Modern economic researches repeatedly referred to the problem of incomplete coverage of all existing intangible assets in their balance sheets. This trend is the evidence that such resources are not used effectively, they are not given sufficient attention in accounting, and therefore it does not conduct to development of innovative areas. That is why improving the accounting method for intangible assets is a relevant area of research.

The problem also lies in the fact that there is uncertainty regarding the recognition criteria for the intangible assets created by an enterprise: which expenditure relates to research phase and which to development phase. This question is important because for some companies these types of costs are significant and are the driver for further development. In particular, according to the rating of 2.500 companies in the world for R&D costs in 2015, the intensity of such costs relative to net sales is as follows: pharmaceuticals – 15%, software and computer services – 10.6%, cars and spare parts – 5.9%. Thus, it can be affirmed that there is a need to significantly improve accounting standards for this type of expenditure.

The following Ukrainian scientists paid attention to accounting of intangible assets in their works: V.V. Fesenko, I.O. Holesko, O.V. Kantaieva, P.O. Kutsik, S.F. Legenchuk, M.S. Pushkar, I.V. Pervii, N.M. Stoliarchuk, B.I. Valuiev, N.A. Chugriy, I.J. Yaremko and others. Research on this issue is an extremely important contribution to understanding the theory and improving the practice of modern accounting of intangible assets. In spite of this, there are still enough unresolved issues in this area as they are debatable, both from scientific and practical points of view. Further research on accounting standards is required, in particular on improvement in terms of recognition criteria for intangible assets. Special attention is paid to the important disclosure provisions that reflect the expenditure on research and development, the result of which can be internally created intangible assets.

The aims of scientific paper are: the development of existing rules governing the accounting of internally generated intangible assets; an analysis of ways to improve the regulatory support for accounting such objects; establishing the correlation between investment in research and development and performance indicators of the firm; formulating specific approaches to accounting expenditure on research and development that can potentially be expressed as internally generated intangible assets.

2. Recognition criteria of intangible assets according to the national and international accounting standards

The element of uncertainty and ambiguity are the characteristics associated with the use of intangible assets in the activity of enterprises. They are the reason of intense discussions of many scientists and practitioners in the conditions of formation of knowledge-based economy. Currently, there are certain criteria by which intangible assets are different from other enterprise resources but various approaches to their valuation and recognition are widespread in the world. Today, it is extremely important to harmonize the criteria for recognition and to establish accounting standards for intangible assets that would maximally reflect their essence and more detailed information about internally generated intangible assets in the reporting of enterprises. It is confirmed by the international professional accounting organization ACCA in its report "Tenets of good corporate reporting" (2018), which provides different statistics, that the gap between the market value of the company and the net book value of its assets recorded in the financial statements is about 85%. Although the purpose of the balance sheet has never been to disclose the valuation of a business, the significant difference of the above values suggests that current accounting standards need improvement. In today's development conditions they are too restrictive (ACCA 2018). "Accountancy Europe", which brings together 51 professional organizations from 35 countries around the world, emphasizes in its 2019 special report that internally generated intangible assets have become a major component of the market value of companies but are often not taken into account by current accounting methods. The differences in values mentioned above indicate a lack of transparency and damage public confidence in the business (Accountancy Europe 2019).

Regulatory basis for recognition of intangible assets in the accounting records and disclosure of information in the financial statements are national and international accounting standards: Accounting Standard 8 "Intangible assets", International Accounting Standard 38 "Intangible assets", the American accounting standard FAS 142 "Goodwill and other intangible assets".

In all these three standards, the definition of "intangible asset" is identical and characterizes it as a non-monetary asset that has no physical substance or material form but can be identified. The GAAP also states that intangible assets are assets that are the result of past events, have a measurable effect and may cause benefit in the future.

In order to classify intangible assets we first need to answer the question: can an asset be regarded as intangible and, accordingly, be put on balance as such? The recognition of intangible assets in accounting in accordance with IAS 38 and P(S)A 8 is based on the general principle of recognition which applies to expenses that were initially incurred to purchase or create an intangible asset and later to expenses that may be incurred for extensions, additions, replacement parts and maintenance of

such intangible asset. Such expenses are subject to requirements proving that the asset meets the definition of intangible and the recognition criteria (fig. 1).

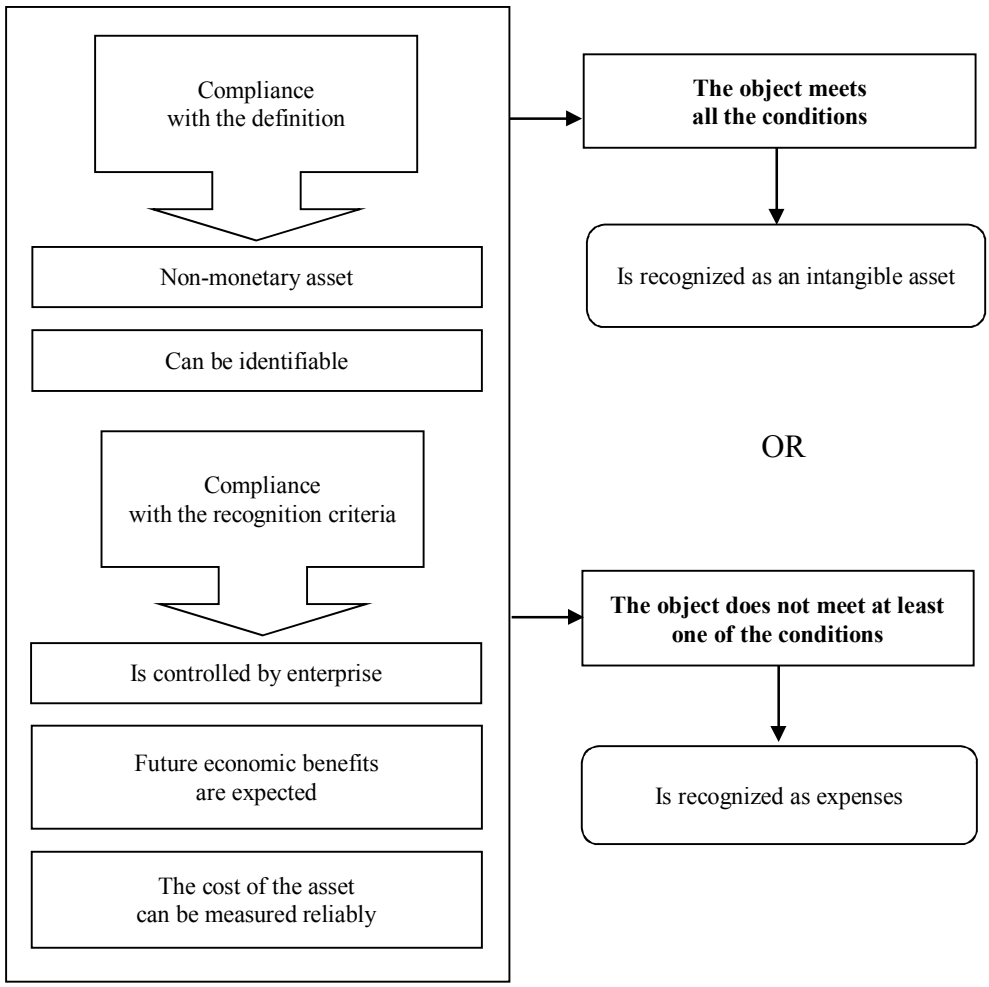

Fig. 1. Recognition criteria of intangible assets

Source: (IASB).

If we consider intangible assets that are created by an enterprise on its own, namely internally created (generated) intangible assets, then in addition to the recognition criteria and requirements for the valuation of an intangible asset the enterprise also has to comply with the requirements of accounting for such assets at the research and development stage.

National and international standards are identical to the definitions of "research" (or phase of research) and "development" (or development phase), which are listed in table 1.

Table 1. Definitions of "research" and "development" in accordance with IAS 38

Name of phase	Definition	Examples of activities
Research	is the original planned investigation undertaken with the prospect of gaining new scientific or technical knowledge and understanding	– activities aimed at obtaining new knowledge – search for, evaluation and final selection of applications of research findings on other knowledge – search for alternatives for materials, devices, products, processes, systems or services – formulation, design, evaluation and final selection of possible alternatives for new or improved materials, devices, products, processes, systems or services
Development	is the application of research findings or other knowledge to a plan or design for the production of new or substantially improved materials, devices, products, processes or services before the start of commercial production	– design, construction and testing of pre-production or pre-use prototypes and models – design of tools, jigs, moulds and dies involving new technology – design, construction and operation of a pilot plant that is not of a scale economically feasible for commercial production – design, construction and testing of a chosen alternative for new or improved materials, devices, products, processes, systems or services

Source: (IASB).

In accordance with the standard, research costs or the research phase of an internal project are recognized as expenses in the period in which they are incurred. In this case, the intangible asset is not recognized. This is because of the fact that at this stage it is difficult for a business entity to estimate accurately the future economic benefits. It is also worth noting that if the enterprise has difficulties with the separating the research phase from the development phase, the cost of an internal project to create an intangible asset should be recognized similarly to the research phase.

During the development phase, an intangible asset can be recognized only if the enterprise confirms that the following conditions are met (IASB):

1) there is a technical possibility to bring the created intangible asset to the condition suitable for use or sale;

2) there is confirmation that the intangible asset has been completed and subsequently used or sold;
3) the ability of an enterprise to use or sell such an asset;
4) to generate future economic benefits – prove the existence of the market for such an intangible asset or confirm its usefulness for the enterprise if it will be used internally;
5) the company has sufficient technical, financial and other resources to complete development of an asset, its use or sale;
6) the expenditure on the development of an intangible asset can be estimated reliably.

The difficulty lies in the fact that the fulfilment of these requirements depends on the intentions of management, the specifics of the development phase and main activities of the enterprise and the estimation of probable future economic benefits (by applying the principles of IAS 36 "Impairment of Assets", i.e. by discounting cash flows). If an asset will bring economic benefits only in combination with other assets, the enterprise should apply the principle of cash-generating units.

Evidence of compliance with the above requirements can be considered: the existence of a business plan with the presentation of the necessary technical, financial and other resources, the ability of the enterprise to provide these resources; confirmation from the lender of its intention to fund the development may be the proof of external financing; an enterprise cost accounting system that can provide an accurate estimation of the expenses on internally created intangible asset (IASB).

Expenditure on development of an intangible asset that meet the six above mentioned conditions are capitalized according to IAS 38. If we consider this question in the context of American accounting standards US GAAP, then the expenditure on development phase is recognized as expenses of the period. Only the creation of computer programs may be considered an exception, the account of which is governed by a separate standard. In the USA, there are specific rules for capitalization of expenditure on software creation. Depending on the purpose for which it is intended – for your own use or for sale, it is reflected in the account of the costs incurred in the internal generation process.

Thus, if a computer programs are intended for sale, capitalization of expenses should be made only if the detailed design of the program or working model is completed. Further expenses arising after the intangible asset is ready for sale should be included in the expenses of the reporting period.

As for those created programs that will be used for company's own (internal) needs, the capitalization of expenses in this case occurs only when specific requirements of the US standards are met (IASB).

It is worth noting that brands, mastheads, publishing titles, customer lists, and other similar items are impossible to be considered as intangible assets. By their nature, they cannot be separated from the expenditure on business development, therefore the reliable estimation is not possible in this case.

The components of the cost of an internally created intangible asset are shown in fig. 2. The components that cannot be included in the cost of an internally generated intangible asset are illustrated in fig. 3.

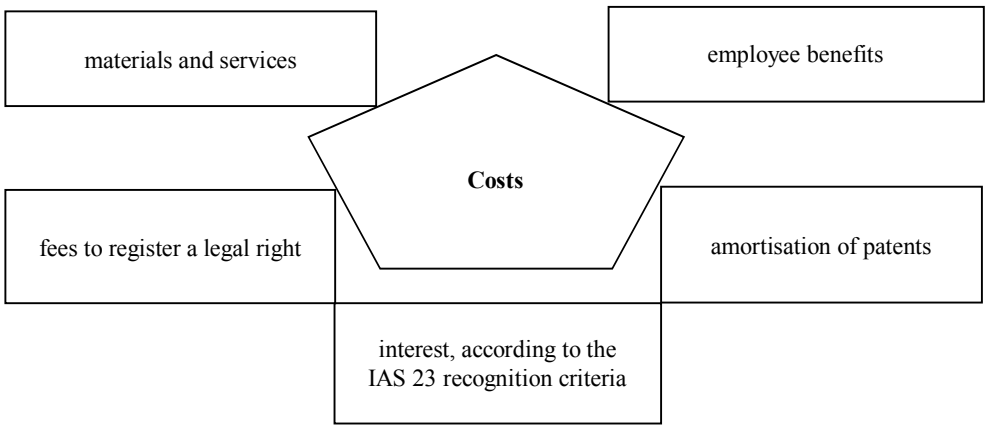

Fig. 2. Directly attributable costs that comprise the cost of an internally generated intangible asset

Source: (IASB).

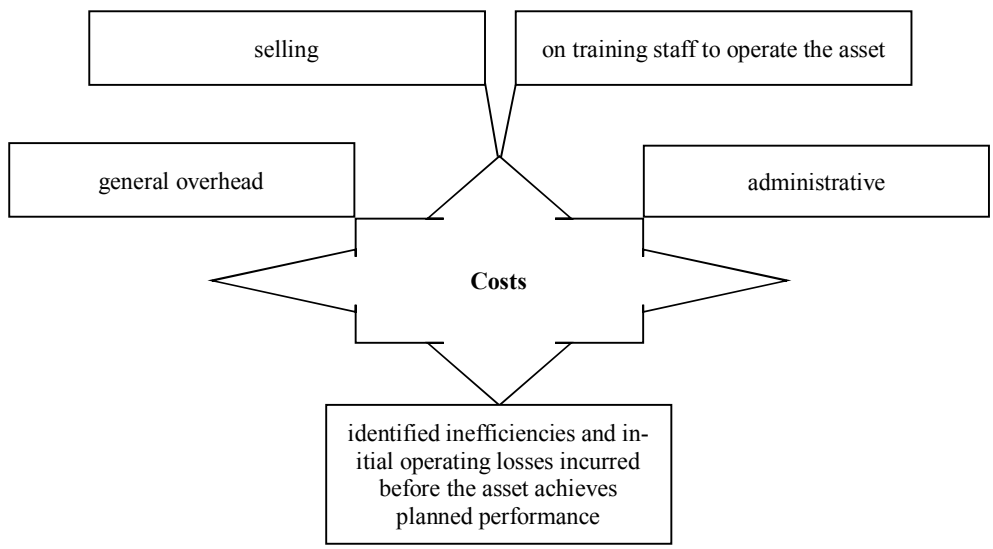

Fig. 3. Components that cannot be included in the cost of an internally generated intangible asset

Source: (IASB).

An important point is that IAS 38 prohibits to include in the cost of an intangible asset its expenditures that were initially recognized as an expense at a later date. Summarized information about the expenses that cannot be the cost of intangible asset in the accounting records is shown in fig. 4. Information is based on the data of P(S)A 8.

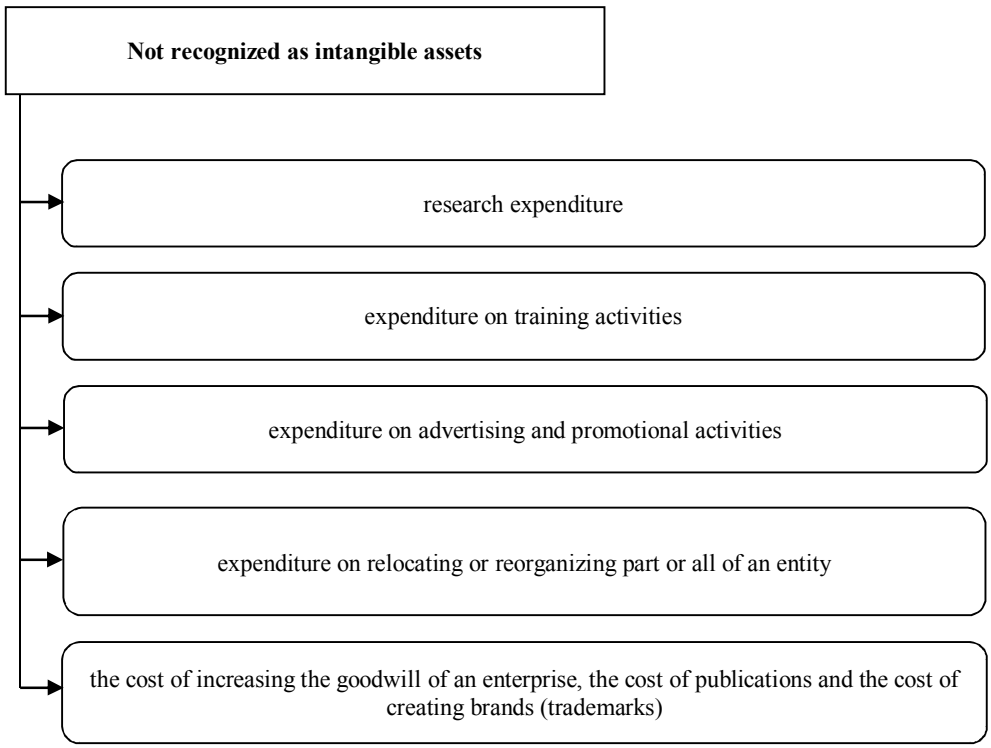

Fig. 4. Expenditures that cannot be recognized as intangible assets

Source: (Pervii 2014).

As you can see, the criteria for non-recognition P(C)BU 8 and IAS 38 are similar in general but it should be mentioned that paragraph 3 of P(S)A 8 indicates that this standard does not apply to goodwill, and paragraph 48 of IAS 38 clearly states that internally generated goodwill should not be recognized as an asset.

Thus, the analysis of criteria that should guide the accountant in the recognition of an intangible asset showed that, although the national accounting standards were developed on the basis of the international ones, there are still points of disagreement which are expressed in the lack of clarification of many key moments in AS. The absence of physical substance and the wide variety of different intellectual properties

require detailed thinking through each path of the accounting process. The accountant relies on a regulatory framework so it must contain clear and transparent information which eliminates the possibility of any inconsistencies.

3. Analysis of accounting improvements of internally generated intangible assets

Analysis of scientific works (IASB; Ministerstvo finansiv Ukrayiny 1999; Holesko 2016; Stoliarchuk 2018; Horokhovets 2017; Zhurakovska 2007; Bierman Jr and Dukes 1975; Ball 1980; Nissim and Thomas 2000; Wyatt 2005) indicates that there is no single approach to the method of accounting expenditures on research and development.

Due to the fact that internally generated intangible assets of an enterprise are the most difficult to identify and evaluate, they often do not become objects of financial accounting and are not included in the assets at all. For example, the level of management quality, customer reliability, internally generated goodwill, trade secrets, high qualification of employees, etc. until today are not reflected in the balance sheet although according to I.O. Golesco it is advisable to give them a proper assessment and to show them as assets (Ministerstvo finansiv Ukrayiny 1999).

In her article N.M. Stolyarchuk suggests to amend paragraph 9 of P(S)A 8 and to supplement a list of expenses which are not included in the initial value of an intangible asset but are reflected in the expenses of the reporting period in which they were incurred as follows: tax refunds; costs for development of individual productions, workshops and units (start-up costs); advertising and marketing costs (Holesko 2016).

According to A. Klimenko's research, "if an enterprise simultaneously develops intangible assets in several areas and the results of such developments become patented objects, then the amount of expenses that cannot be clearly allocated to a specific object relates to the expenses of the enterprise" (Pervii 2014). In this case, N.M. Stolyarchuk believes that the cost of research is underestimated, which is unacceptable. Thus, it is necessary to introduce internal management information and perhaps choose another distribution base which should be justified in the accounting policy (Holesko 2016).

Among the approaches to improve the accounting of intangible assets, including internally created ones, Yu.A. Gorokhovets (Stoliarchuk 2018) sees two concepts: adjusting the accounting system of intangible assets in a particular enterprise; reform of the current accounting system for intangible assets in Ukraine. However, the author pays special attention to the first of the above mentioned approaches.

The idea is that there should be a possibility to choose an appropriate variant of accounting and valuation of intangible assets. Nowadays, internally created intangible assets are generally not recognized in accounting as an asset and usually are recognized as an expense of the period in which they were incurred.

As V. Kretov notes that since the reporting of unrecognized assets is not mandatory the accountant may decide not to spend time reflecting them in the accounts, especially if his motivation is not very high and he does not want to do optional work. This problem remains unresolved for a significant number of companies that have not been the subject of mergers or acquisitions. The solution to this problem is possible only under condition of observance accounting rules for intangible assets in the position that implies the need of capitalization of all the possible intangible assets of an enterprise (Stoliarchuk 2018).

Another important aspect is the publication of additional reports for intangible assets which can disclose detailed and analytical information about the intangible factors of value creation.

Reports detailing information about intangible assets are typically developed for specific companies, given their industry specificities. O.V. Vakun has improved notes to the annual financial statements in part concerning intangible assets on the basis of the construction companies' features (Stoliarchuk 2018). Reports similar to the notes of annual financial statements are based on information reflected in the accounting system of theenterprise using classification of accounts (sub-accounts, analytical accounts, accounts-screens) used to account intangible assets.

The main disadvantage of these reports, despite their importance for improving the understanding of enterprise management processes, is the complete dependence on information generated in the enterprise accounting system. Therefore, despite the existing limitations on the recognition of intangible assets in accounting (Ministerstvo finansiv Ukrayiny 2019; Pervii 2014), not all the necessary information for intangible factors of value creation is reflected in them.

Representatives of the CIMA note that it is still not possible to set monetary value for most internally generated intangible assets, however it should be considered so the process of value creation can be properly understood (Stoliarchuk 2018).

Intellectual capital reporting are integrated reports of intangible assets of a company containing information disclosed in the financial statements and additional indicators. The publication of intellectual capital accounts allows to provide users with information about the status of intellectual-innovative development of enterprises through financial and non-financial indicators increasing the transparency of reporting companies (Stoliarchuk 2018).

As for accounts of internally generated intangible assets, the situation looks as follows. In scientific papers it is proposed to represent expenditure on the research and development account as "investments in research" and "investments in development". According to I.V. Zhurakovska, if the aim of the research is to create a new object of intellectual property the asset should be represented on account 15 "Capital

investments" with the obligatory indication of all expenses, but if not – it should be immediately represented in the debit of account 94 "Other operating expenses". After completion of the processes of research and development all expenditures on account 15 will be the subject of detailed analysis and further allocation in two groups: capitalized – remain on the debit account 15 or recognised as an expense: D 94 – C15 (Horokhovets 2017).

The variability of accounting expenditures on research and development was considered by T. Senchuk (Zhurakovska 2007) who claims that there are following basic approaches in world practice:

1) all expenditures are immediately allocated to the research and development phase;
2) research and development expenditures are written off to the financial results;
3) all expenditures are capitalized and then should be assigned to research or development phase;
4) all expenditures on creating a new item are capitalized.

These methods are analyzed in table 2.

Table 2. Methods for accounting research and development expenditures

№	Characteristic	Source	Suggested accounts
1.	Expenditures on development are represented on account 154 «Purchased (created) intangible assets», expenditures on research – on account 941 «Expenses for research and development»	P(S)A 8	D 154 – C 20, 66, 65, 63 etc. D 941 – C 66, 65, 63, 685 etc.
2.	All expenditures on research and development are current expenses (also considering the case when these two phases cannot be separated)	D.G. Short G.A. Welsh IAS 38	D 941 – C 20, 66, 65, 63 etc.
3.	Firstly all expenditures are capitalized on account 154 and then the completion of development should be analized. After that expenditures on research are recognized as expense	A.M. Dolzhanskyi	D 154 – C 20, 66, 65, 63 etc. D 941 – C 154
4.	All expenditures on research and development are capitalized	J.A. Milburn	D 154 – C 20, 66, 65, 63 etc.

Source: (Zhurakovska 2007).

After reviewing the foreign literature it was found that more often expenditure on research and development is written off to the financial results. That means that such expenditure is recognized as an expense when it is incurred. Foreign authors acknowledge that this position may be the best solution since capitalization of expense can in most cases be unrealizable for a number of reasons. One of them can be considered a situation when in case of recognition of an intangible asset its value in the future will be inferior to the expense incurred at its creation. That is, the asset

will be worth less than its value reflected in the accounting records. However, this approach ignores another problem: the systematic overestimation of costs, misrepresentation of income, undervaluation of the assets of the enterprise. Reflecting R&D costs while not recognizing an intangible asset to a greater extent can be considered the easiest way to solve a complex problem while avoiding responsibility. In such situations it is particularly important to give the accountant an opportunity to develop his or her professional judgment. He/she should be prepared to face existing uncertainty, not just losing potential assets. It is worth considering the fact that predicting future events is extremely difficult, however it should be determined whether it is worthwhile to risk assets that have value today (Bierman Jr and Dukes 1975).

In support of the idea that the accountant should be given more space to make appropriate decisions connected with R&D expenditures, the literature reflects the position that this topic should be covered and periodically reviewed in the accounting policy of the enterprise. This is due, firstly, to the fact that the environment is unstable, and secondly, to the lack of choice in this field and to the need to create a reliable background for experiments in assessing the impact of the accountant's decision (Ball 1980). In addition, the scientific papers pay attention to the fact that when capitalizing costs it is necessary to take into account the industry in which the enterprise operates because for some of them this method of reflecting costs is not recommended (Nissim and Thomas 2000).

It is often mentioned in literature that, in certain circumstances, there must be space for the accountant (or management) to deal with accounting for internally generated intangible assets but still within international standards. Professor A. Wyatt in her article considers this position in accordance with influence of three factors: the power of technology, the duration of the technological cycle and factors related to property rights while not ignoring the specifics of the industry to which the enterprise belongs (Wyatt 2005).

Against this background, the approaches to accounting expenditure on research and development of intangible assets can be divided into two main categories: to recognize an intangible asset – to capitalize the cost of its creation or not to account for the account a new asset – to write off the cost on financial results. These approaches are summarized in fig. 5.

In order to improve the accounting methods for research and development costs, it is necessary, first of all, to understand the importance of this type of activity for the enterprise, in particular when there is a certain correlation between R&D investment and the results of the main activity of the firm. It is also necessary to take into account the peculiarities of the industry in which the firm operates, because foreign scientists have proved that it has an extremely important impact. In this context, our research will help to understand whether there is a significant need to improve the regulations governing the cost of research and development. Namely, in the part of further creation of new standards that would reflect the peculiarities of the issue we are considering and the industry in which the firm operates.

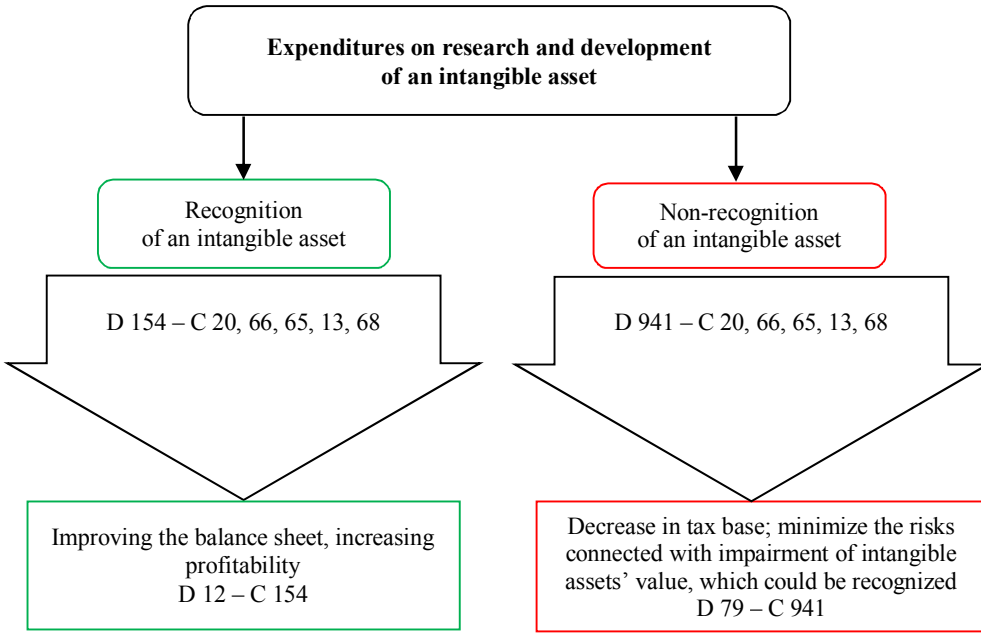

Fig. 5. Accounting for the expenditures on research and development of an intangible assets

Source: the authors' own development.

For our research paper we have selected seven Ukrainian and American pharmaceutical companies. This industry has attracted our attention because, according to the infographic atlas of Pharmaceuticals of Ukraine (Top Lead 2018), it ranks first on the list of investments in research and development to net sales of the company ratio, which is 15%. The source data for the study is given in the annexes. For Ukrainian enterprises information was taken from the annual financial reports and for the USA companies from the K-10 reports which were posted on the official pages of the enterprises.

Investments in research and development are aimed at developing new products and new technologies. When the enterprise begins to apply them it can increase revenue and profits, expand market share and also increase competitiveness. Based on the research of Chinese scientists, in particular on the article by J. Xu (2016), in this paper we characterize our own results, proving or refuting the hypothesis that such investments can have positive effects on the current results of the company.

Since the main purpose of a business is to make profit, financial indicators measuring the performance of the company often attract the attention of most investors. Studying the effectiveness of investments in research and development we use the profit rate as the dependent variable to measure the profitability of the company (table 3). Pharmaceutical companies have been chosen as the valuation indicators but they may be different: companies in a particular industry, different industries and

time period. Our conclusions are based on a comparison of the performance of enterprises of pharmaceutical industry of Ukraine and the United States in 2018.

Table 3. Definition and description of selected variables

Variable type	Variable	Definition
Dependent variable	OPE	Income from main operation to revenue of main business ratio (%)
Independent variable	RD	R&D expenditure to revenue of main business ratio (%)
Control variable	SIZE	Logarithm of the total assets
	DAR	Total liabilities to total assets (%)

Source: the authors' own development.

In addition to investment in research and development, the size of the firm and the ratio of assets and liabilities were also used as control variables. After all, they can also affect the performance of the company.

In this paper we used the multiple linear regression method to test the relationship between R&D investment and firm performance (model 1):

$$OPE = \beta 0 + \beta 1 \cdot RD + \beta 2 \cdot DAR + \beta 3 \cdot LnSIZE + \varepsilon i, \qquad (1)$$

where: $\beta 0, \beta 1, \beta 2, \beta 3$ – denote presumed parameters,
εi – represents the error item.

Model 1 for Ukrainian enterprises, according to our calculations:

$$OPE = -113{,}318 - 0{,}68 \cdot RD - 0{,}27 \cdot DAR + 11{,}39 \cdot LnSIZE$$

Model 1 for USA enterprises, according to our calculations:

$$OPE = 0{,}304 + 1{,}37 \cdot RD + 0{,}22 \cdot DAR - 1{,}17 \cdot LnSIZE$$

The results are shown in table 4. According to the table, investments in research and development of the Ukrainian pharmaceutical sector have critically low value. This was the reason for the negative value of the indicator RD – the ratio of expenditure on research and development to revenue. The data in table 4 confirms the low level of these investments.

Although the investments made by American companies are not very significant compared to the amount of revenue, they do not have such a critically negative relations as it is observed in enterprises of Ukraine. Accordingly, the indicator value of RD is not as negative as in the case of Ukrainian firms.

Table 4. The results of evaluation of the impact of investment in research and development on activity of firms

Indicators	Enterprises	
	Ukraine	United States
Constant	−113.318	0.304
	(−1.532)	(0.002)
RD	−0.685	1.371
	(−0.166)	(1.548)
DAR	−0.275	0.225
	(−0.871)	(0.378)
LnSIZE	11.386	−1.171
	(2.228)	(−0.118)

Note: 1) the main data of the table is the evaluation of the coefficients of the regression model of the least-squares method; 2) t-values are in parenthese.

Source: the authors' own development.

It is generally believed that a firm with more than 2% of R&D investment intensity may continue to obtain a sustainable growth, and more than 5% of R&D investment intensity may enable the company to gain core competitiveness. It is the USA companies that approach RD to 2, which may help to improve their performance. The table also shows that DAR has a significant negative impact on the current performance of firms in Ukraine. In the USA firms this indicator is much better, indicating a small but still positive impact on the performance of the firm.

Thus, R&D investment does not have very significant impact on the current activities of the firm. However, it should be considered that investment in research and development is a long process that requires a certain amount of time to bring economic benefits, i.e. investments have lag effect.

Despite the lag effect, internally generated intangible assets are the result of the productive power of intellectual capital. In the absence of such capital, intangible assets can only be purchased and therefore innovative development of the company will require constant expenditure of equity, profit or debt capital. According to this statement, assuming the same efficiency of production and use of internally generated intangible assets, the company without intellectual capital is in much worse economic situation than the company with such capital. Therefore, intellectual capital, including internally generated intangible assets, is an important factor in the effective functioning of a business, which confirms the need for more careful reflection in accounting and reporting for the information support of managerial decision-making by various stakeholders (Yaremko et al. 2016).

4. Conclusions

Analysis of the criteria to be followed by an accountant in recognition of an intangible asset, proposed by P(S)A 8 and IAS 38, has shown that although national accounting standards have been developed on the basis of international ones, there are still points of disagreement that are expressed in the lack of clarification of many of the key moments in AS. The absence of physical substance and the wide variety of different intellectual property require careful consideration of each path in the accounting process. The accountant relies on a regulatory framework that must contain clear and transparent information that eliminates any inconsistencies. Today there is a significant need for improvement of accounting standards and their harmonization in part related to the recognition of intangible assets. In particular, more attention should be paid to internally generated intangible assets. The calculations made in this paper helped to reach the following conclusions:

- managers should encourage the conduct of more in-depth study of innovation with the aim of improving the core competitiveness of the business entity;
- companies need to establish long-term development strategy and continue investing in research and development since it takes time to properly apply the latest technology in business activity;
- at the level of local government bodies, appropriate policies should be introduced that are backed by financial or tax incentives to stimulate R&D investment;
- at the government level, comprehensive laws and regulations related to intellectual property should be established to ensure that innovation patents will not be illegally used by individuals and other organizations.

Concerning the legislative regulation of the accounting expenditure on research and development it is necessary to pay attention to the development of standards which will take into account:

1. Features of the industry in which the company operates and carries out significant expenditures on research and development compared to the other. For example: pharmaceuticals and biotechnology, software and computer services, automobiles and their parts, etc. Moreover, the example of a standard that has a narrow specialization in this matter already exists in the US and is actively used
2. Possibility to provide businesses with more space in this issue but with the description of the selected accounting techniques in accounting policy. This will allow the accountant to make more balanced decisions about accounting expenditures on research and development
3. The introduction of mandatory industry-specific reports that would provide users with all the necessary information about the intangible assets created by the

enterprise. This would contribute to a more accurate reflection of internally generated intangible assets which could have a positive impact on the investment attractiveness of the enterprise

Since changing the legislation is a complex and time-consuming process but it is still necessary to account expenditure for research and development properly, we recommend to pay special attention to accounts used for such expenses. In particular, there are two main approaches to this issue: displaying incurred costs in off-balance accounts or using screen-accounts.

Accounting on off-balance accounts means to accumulate the amount of expenses that cannot be capitalized under P(S)A 8. For example, an enterprise may create an off-balance account "Internally generated intangible assets" with analytics on such items, taking into account the peculiarities of company's activities.

Using the screen-accounts was suggested for the first time by B.I. Valuiev and O.V. Kantaieva. They consider that it is very useful to concentrate all the costs of the innovation sphere in order to determine their value both in the individual directions and the whole company. To make it possible, the authors suggest introducing a separate synthetic account – The cost of innovation, which would be screen-account (Valuiev and Kantaieva 2009). As a rule we use such accounts to show the expense on an internal brand: D 23 – C 685. Using the screen-accounts allows to see the collected information about the costs on separate account: D Screen-account – C 685, D 23 – C Screen-account. The nature of the operation remains unchanged but there is a possibility of disclosing more information to users.

Therefore, based on the two types of accounts suggested above, it is possible to provide information on research and development costs in a separate report and to prove the potential existence of internally generated assets in businesses that could be reflected as such.

Thus, there are wide variety of reasons to argue that the improvement of accounting for internally generated intangible assets is an extremely important issue and needs more investigation.

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Annex A – Data reporting of Ukrainian pharmaceutical companies used in the study

Enterprise	Income from main operation	Revenue of main business	Expenditures on R&D	Total assets	Total liabilities	OPE	R&D	DAR
	thousands UAH					%		
Private Joined-Stock Company "Kyivskyi vitaminnyi zavod"	902,034	1,980,643	12,705	1,471,995	420,752	45.54	0.64	28.58
Public Joined-Stock Company "Lubnyfarm"	47,356	262,411	266	253,018	78,979	18.05	0.10	31.21
Public Joined-Stock Company "Naukovo-vyrobnychyi tsentr "Borshchahivskyi khimikofarmatsevtychnyi zavod"	604,829	1,403,579	12,803	1,786,418	336,898	43.09	0.91	18.86
Private Joined-Stock Company "Farmatsevtychna firma "Darnytsia"	1,589,809	3,002,135	108,017	4,081,831	1,144,431	52.96	3.60	28.04
Public Joined-Stock Company "FARMAK"	3,543,610	6,346,224	103	6,040,769	1,460,752	55.84	0.00	24.18
Limited Liability Company Pharmaceutical company "Zdorovia"	323,426	1,565,442	13,842	1,841,110	990,669	20.66	0.88	53.81
Public Joined-Stock Company "Kyivmedpreparat"	916,764	2,085,673	116	1,518,193	901,640	43.96	0.01	59.39

Annex B – Data reporting of American pharmaceutical companies used in the study

Enterprise	Income from main operation	Revenue of main business	Expendi-tures on R&D	Total assets	Total liabilities	OPE	R&D	DAR
	milion USD					%		
Abbott Laboratories	3,650	12,706	2,300	14,632	9,012	28.73	18.10	61.59
Biogen Inc.	5,889	10,887	2,597	25,289	12,257	54.09	23.85	48.47
Eli Lilly & Co.	3,721	24,556	5,307	43,908	32,999	15.15	21.61	75.15
Gilead Sciences Inc.	8,200	21,677	5,018	63,675	42,141	37.83	23.15	66.18
Johnson & Johnson	19,798	41,884	10,775	152,954	93,202	47.27	25.73	60.93
Regeneron Pharma-ceuticals Inc.	2,534	4,106	2,186	11,735	2,977	61.72	53.24	25.37
Allergan PLC	257	15,787	2,266	102,426	39,486	1.63	14.35	38.55