

2

Adoption of IFRS or US GAAP on intangible assets and the potential effect on the final result. A theoretical overview

Miloš Petković, Ana Obradović**

2.1. The role of intangibles in the corporate world

Adam Smith's book "The Wealth of Nations" published in 1776 (see the newer edition of 2009), regarded as a classical school of economic theory, stated that the wealth of a nation comes from tangible or physical assets only, or to be more precise, from production factors such as labour, land and capital.

Nowadays, this theory is no longer meaningful in this modern knowledge-based economy (Wang, 2008). The global economy has dramatically changed during the last thirty years. The change in the form of the transition from industrial capitalism to knowledge-based capitalism was a revolution in the corporate world. Tangible or physical assets no longer represent the core of a knowledge-based economy. Instead, intangible assets are now seen as its centre. Even though there is no particular definition of a knowledge-based economy, three main structural changes have appeared (*Guidelines for managing...*, 2002):

- 1) knowledge is seen as an object of potential trade;
- 2) the interrelation between different knowledge has improved;
- 3) Information and Communication Technologies (ICT) enable a higher diffusion of knowledge, by allowing the development of new and sophisticated networks between the subjects of knowledge.

These three structural changes completely modified the global business model of companies that was available in the previous industrial revolution. Owing to the vast development of the Internet and advanced technology, data, information and knowledge are widespread and generally available. In the process of sharing and collecting necessary knowledge, companies can improve their businesses much more easily.

* Singidunum University, Belgrade, Serbia.

Modern society has dramatically changed thanks to the global influence of information and technological changes through favouring the globalization of the economy and innovation as key factors of global competition. It is interesting that, nowadays, the total market value of a company is composed of almost 90% of intangible assets' value, mainly because current accounting frameworks do not provide an adequate system for a company to make long-term decisions. From the agricultural age to industrial age, there were numerous changes. The best proof for this being the 'proportion evolution', which started in 1978 when intangible assets constituted only 5% of total assets, and then in 1998 when it was 72%, and finally recently, when this proportion improved even more and the interval was between 75% and 85% (Ciprian, Valentin, Mădălina, & Lucia, 2012). From the 1990s, significant changes have occurred in the asset composition structure. In the 1980s, the book value of companies started changing compared to the market value. Between 1982 and 1992, the value of intangible assets increased from 38% to 62% of the market value, but the book value decreased from 62% to 38% (Lev & Daum, 2004).

Lev (2001) stated that in the period between 1998 and 2001, the total market value of US Standard and Poor's (S&P) 500 biggest companies increased from less than 1% to over 5%, as a result of which more than 80% of a company's value did not appear in a financial report. Edvinsson and Malone (1997) explained that a limitation of financial statements in presenting a company's value and creating economic value can no longer rely on the production of physical material goods. The economic wealth of a company is driven by knowledge or information more than by the production process (Akpınar & Akdemir, 1999).

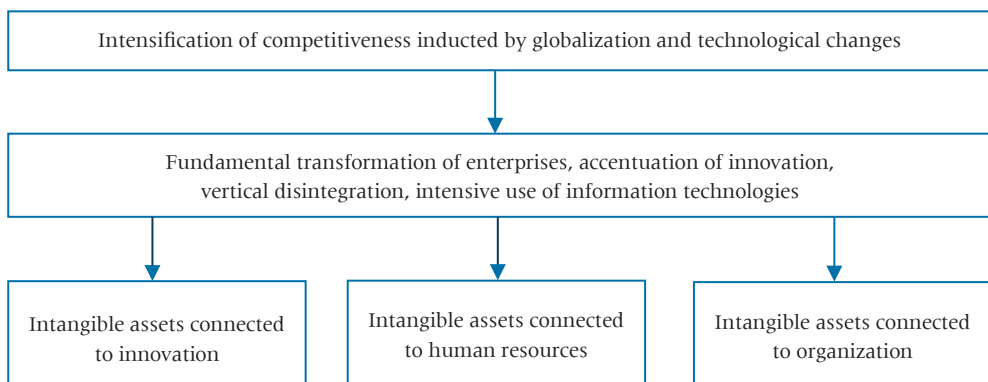


Fig. 2.1. Intangible assets' calculation

Source (Lev & Feng, 2003).

Kaplan and Norton (2004) documented that 75% of the market value of US companies comes from intangible assets, fundamentally determined based on two factors: vertical disintegration achieved through the replacement of intangible assets by tangible assets and through investments in intangible assets (Lev & Feng, 2003). According to Lev (Lev & Feng, 2003), the main figure described this as follows:

As presented in Figure 1 above, there are three types of intangible assets: intangible assets connected to innovation, intangible assets connected to human resources and intangible assets connected to organization. All these types of intangible assets are the focus of the fundamental transformation of enterprises, the accentuation of innovation, vertical disintegration, and the intensive use of advanced information technologies. The greatest intensification of future competitiveness arising from technological changes and the globalization process is based on these components (Lev & Feng, 2003).

When talking not just about the control over intangible assets, but also the protection of employees' skills, knowledge and techniques, then the problem very often occurs. Employees' specific skills, techniques or knowledge that they possess and bring with them to the company do not belong to the company, even if the company invests in their education or training on certain occasions. The main problem surfaces when the very worker who was trained leaves the company. All the invested training remains as the company's costs, without any actual returns. These investments in intangibles cannot be capitalized because of the missing contractual link between the company and the employee, the investment and the employee's skill (Lev & Feng, 2003).

Entities can very often expand their activities onto new acquisitions, research and development, maintenance, scientific or technical work, implementation of new processes, licenses, intellectual property, market knowledge, trademarks, computer software, customer lists, market shares and rights, etc. If an item based on the definition above does not meet the requirements of the definition, expenditure to acquire, or all the expenses for internal development, are seen as an expense. If an item is acquired through a business combination, then it will be recorded partly as the goodwill on the day of the acquisition (*IAS Standard 38 – Intangible Assets*, 2001).

2.1.1. Determination of intangible assets

Until now, there have been many different definitions of intangibles. Intangible can be used both as a noun and an adjective, which is why it is difficult to determine its correct definition (Sánchez et al., 1998).

There are both theoretical and professional dilemmas which relate to the meaning and the main notion of the term “intangible”, very often wrongly interpreted as some other non-tangible form, such as intangible investments, intangible capital and intellectual capital. Moreover, the literature review throughout different disciplines emphasizes several other concepts that can be seen as synonymous with the terms “intangible capital”, “intellectual capital”, “immaterial capital”, “knowledge capital” or “goodwill” (Zéghal & Maaloul, 2011).

As presented above, there are several very similar synonyms that explain intangible assets, namely: “intellectual capital”, “intangible resources”, “immaterial capital”, “immaterial resources”, “intellectual property”, “invisible assets”, “immaterial values”, “intellectual knowledge”. Based on these different terms, a review of the most important definitions by different authors of intangible assets is presented in the Table 2.1.

Table 2.1. Table of intangible assets definitions

Authors	Intangible assets definitions
Hall (1992)	Intangible assets represent a generator of advantage that transforms productive resources into property with added value.
Smith (1994)	Intangible assets include all components of a business entity that exist with current and non-current assets. Those are components that, together with current assets and non-current assets, allow for the functioning of a company, and often contribute to the profit of a company. Their existence depends on the presence or expectations of future incomes.
Edvinsson and Malone (1997)	Intangible assets do not possess physical appearance, but they are of great importance to the company.
Cañibano, Garcia-Ayuso and Sanchez (2000)	Adjective that accompany different concepts such as resources and investments.
Granstrand (2000)	Intellectual property is a property that is directly related to the creativity, knowledge and identity of an individual.
Brennan and Connell (2000)	Capital based on knowledge in the company.
Harrison and Sullivan (2000)	Knowledge that can be converted into profit.
Lev (2001)	Intangible assets encompass the rights of future benefits that do not have physical or financial substance.
Gu and Lev (2001)	Intangibility can be defined as a generator of value (research and development, promotions, information technology and capital expenditures and practice in human resources).
Kristandl and Bontis (2007)	Intangible assets represent a company’s strategic portfolio of resources that will enable a company to create a sustainable value.
Itami and Roehl (2009)	Intangible assets consist of invisible property that is composed of a wide range of activities, such as: technology, clients trust, brands, corporate culture and managerial skills.

Source: own study.

There is a further explanation about the difference between intellectual capital and intangible capital. Based on the in-depth exploration of literature, intellectual capital is always seen just as a subset of intangible capital when “intangible” is related to an asset without physical substance and with certain future economic benefits (Hunter, Webster, & Wyatt, 2005).

2.1.2. Characteristics of intangible assets

Intangible assets have two main characteristics, which also differentiate them from tangible and financial assets, such as (Warfield, Weygandt, & Kieso, 2008):

1. **The lack of physical existence.** Intangible assets encompass only the legal rights and privileges granted to a company to use them. Based on these rights and privileges, a company generates benefits.
2. **They are not financial instruments.** Financial assets also do not represent physical substance, but when compared to intangibles, financial instruments have value because they can claim, or have the right to receive cash or cash equivalents in the future.

Intangible assets can be **purchased** or **developed internally**. Intangibles bought from another organization are recorded in financial statements as cost. Cost includes all costs of acquisition and expenses necessary to make intangible assets ready for usage. Typical costs are legal fees, purchase price and other expenses. Internally created intangibles can be both expensed and capitalized. From the financial accounting perspective, the crucial aspect is to clarify whether to expense or capitalize. If it is expensed, all the expenses will be recorded in the profit and loss account. If it is capitalized, an item must fulfill several restrictive requirements; notably, it must be separable and reliably measurable. Intangible assets can have a **limited life** or an **indefinite life**. Limited-life intangibles have a precise period when they can be used. These assets must be amortized or systematically allocated to the costs of intangible assets. After that period, intangible assets must not be used anymore, and should be excluded from the property and annual report of a company. On the other hand, indefinite-life intangible assets are all intangible assets without a legal, regulatory, contractual or any other factor that limit the useful life cycle. There is no foreseeable limitation period for these intangible assets over which the asset will provide cash (Warfield et al., 2008).

Items seen as intangible assets are included in the balance sheet together with long-term assets or non-current assets and further explanations are given in the notes of the financial statements. However, there are no further explanations even in the notes of financial statements as to how these assets have been produced, made or acquired. There is no evidence of expenses in the profit and

loss account that is related to some of the intangible asset internal development. There is nothing else inside the balance sheet apart from the intangible assets that already meet all the necessary criteria. Thus here is one very problematic part for all those individuals who want to see the efficiency of investing into some of the intangible assets (Caddy, 2000; Harvey & Lash, 1999).

According to the study published by the Center for Excellence in Accounting and Security Analysis in 2009, there are two main preliminary points regarding intangible assets (Penman & May, 2009).

1. An intangible asset has a speculative characteristic. Intangible assets are not only without physical substance, but they are also not identifiable, such as contracts or customer lists which can help a company generate benefits. Legal rights, patents and copyrights or brands are exceptional because of that. However, the difficulty is seen in “customer relationships”, “organizational capital”, “human capital”, “knowledge assets”, and similar because they are not specific and conceptualized enough, which makes it hard for their market to be defined. The market price of these assets is highly speculative, subjective, non-realistic. The market price is usually formed based on the personal perspective of the owner. When a speculative value enters the financial statement, problems occur because a non-realistic value can create an imbalance in the reports.
2. Intangible assets are used jointly. Most of the intangible assets generate an inflow of cash or cash equivalents, and they do so jointly with some other tangible or intangible assets. Different intangible assets, such as brands, marketing campaigns, and distribution networks work together with other assets, and it is impossible to imagine their work independently. For instance, “knowledge capital” works together with productive machines and processes, marketing and management, but the cash flow streams only one cash inflow. Additionally, “organizational capital” makes it possible for many different company’s assets to be used jointly. An organization can be seen as one big asset composed of these several smaller tangible, intangible and financial assets that coordinate together and are a source of future value.

According to Lev (2005), intangible assets differ from other types of assets, tangible and financial, in two major aspects: partial excludability and non-marketability (Lev, 2005).

When an individual owns a building or its share, he/she can completely collect all the related benefits from it without any difficulties, yet owners of some intangible assets are in a completely different situation. Even though an individual owns an intangible asset and it will expire in 20 years, competitors may explore and develop

similar patents or an intangible asset before that time. This is problematic from the cash and income perspectives because it is necessary to have stable cash inflows in the company in order to value intangibles. The consequence of unstable cash flows is not having tightly regulated property rights over intangibles as they should be.

Most of the tangible and financial assets can be easily traded on a market, which is not the case with intangibles. There are transactions in some intangibles, precisely in the licensing and sales of patents, but generally, these transactions are not transparent and disclosed publicly. The reason for their not being publicly disclosed is due to unresolved and precisely defined property rights. The non-tradability of intangible assets represents a serious issue for investors and decision-makers because there are no particular valuation methods. The valuation process is only possible when comparing values between highly similar intangible assets, and, even then, it is not sufficiently correct. This characteristic of intangibles has created problems to accountants mainly because they cannot be seen as assets in the balance sheet of financial statements.

Taking into consideration that intangible assets are highly risky, with uncertainty in cash incomes, why are they so important today? The answer can be found in two main explanations, the intensity of business competition and the commoditization of physical assets. The global market has created competition all around the world. Companies from different sectors operate and compete with similar companies worldwide. In such a global environment, it is highly important to be continuously innovative. Innovations are allowed and necessary not only in product and service matters, but also in cost-efficiency mechanisms. The necessary level of innovation can be achieved through investments in intangible assets, such as research and development focused on creating a new product, training employees, developing new brands or marketing campaigns, etc. As the competition pressure gets stronger, innovations should get better.

The second answer is the commoditization of physical assets, which means that all competitors can allow themselves to have equipment, production machines, tools or advanced technology. Technology and equipment are widely available to all competitors who are able to pay for them. This is one of the most important differences between intangible and tangible assets. Tangible assets are not so unique today as they used to be in the industrial era when only the biggest companies could afford the most sophisticated tools and equipment. Nowadays, the situation has changed, and they are available more or less to all. The biggest advantage can be achieved through intangibles (Lev, 2005).

The attention to intangible assets and their importance is expressed mainly by the following constituents (Lev, 2001):

1. Managers and their shareholders – investments in intangible assets are associated with the high cost of capital. Managers are interested in alleviating the excessive cost of capital.
2. Investors and capital market regulators – investors are interested in information obtained from insiders and outsiders of companies.
3. Accounting standard setters – the lack of an accounting standard regarding intangible assets results in financial statements that do not follow changes in the current business environment.
4. Policymakers – the lack of standards and financial statements require public policy makers to assess fiscal policy, support innovations, or protect intellectual property.

Lev and Daum (2004) addressed two main issues about intangible assets; first, intangible assets by themselves cannot create value or generate profit. They need to be combined with other production factors. They require efficient support and systems in order to create future value. Corporate performance reports must provide a much more efficient view that will allow investors and managers to follow the value creation process; second, the value of intangible assets is related to the future, not to the present. Intangible assets represent the possibility for future potential growth and profitability. This is achievable only with a more dynamic system of reporting that will replace the current, traditional performance management system.

Based on the book “Unseen Wealth – Report of the Brookings Task Force on Intangibles” published by Blair and Wallman (2001), there is a much more comprehensive distinction between three major categories of intangibles:

1. There are two main sub-categories of intangibles for all intangible assets for which the market already exists and property rights are clear, and these are: first, patents, brands, copyrights, and second – contracts, databases, licences and business agreements.
2. When there are no legal and well-defined rights, a group of intangibles for all intangibles that are controlled by a particular company is composed of: the R&D process, reputational capital, business processes and business secrets.
3. When both market and legal and property rights do not exist or are very difficult to identify for all the other intangibles, a group of intangibles consists of human, structural and relational assets. All of these assets belong to intellectual capital as its main components (Bontis, 1998).

Ashton (2005) gives a further explanation of the guiding principles for Blair and Wallman's (2001) classification of intangibles. This classification shows the level of difficulty to record them in official financial reports and to treat them properly, not only for accounting standard-setters but also for the managements of companies. The last third category causes the biggest problems mainly because as yet there are no accounting standards for them, whereas the first and second group of intangibles are already well-determined (Ashton, 2005).

2.2. IFRS on intangible assets

International Financial Reporting Standards (IFRS) arose as the need to establish unique and generally accepted accounting standards. IFRS standards are issued by the International Accounting Standards Board (IASB), whose task is to adopt new standards and make decisions on repealing or amending the existing standards. The term International Financial Reporting Standards includes International Accounting Standards (IAS), International Financial Reporting Standards (IFRS) and Interpretations provided by the Committee for Interpretations of International Financial Reporting (Petrović, 2020). According to (Bao, Lee & Romeo, 2010; Ciesielski & Weirich, 2008) the main goal of the IASB is to develop applicable, understandable, high-quality standards that will be applied globally.

Accounting standards are a set of rules and principles that companies should follow when preparing, compiling and publishing their financial statements. Adherence to the prescribed standards enables the standardized presentation of a company's financial condition and achieved business performance (IFRS).

The development of the above-mentioned standards increases the transparency, comparability of companies at international level, increases efficiency, improves the quality of information used by investors and other stakeholders for risk assessment, but also allows the possibility of achieving the global comparability of information based on different economic decisions.

Since intangible investments are the focus of this paper, the treatment of intangible assets from the aspect of IFRS is presented and analysed below.

International Accounting Standard 38 (IAS) defines an intangible investment as a non-monetary asset that is identifiable even though it has no physical characteristics. When defining intangible investments within IAS 38, three conditions for the recognition of intangible assets are noted, and they are as follows (Petrović, 2020):

1. Possibility of identification.
2. Asset control.
3. Economic benefits of that asset.

An asset is considered to meet the conditions of identification if it is separable in the sense that it can be set aside or separated from the entity and transferred, leased, sold, licensed or exchanged together or separately with other assets or liabilities. The very definition of intangible assets requires that they are identifiable and that there must be a possibility to clearly distinguish them from goodwill. An asset meets the conditions of identification if it arises on the basis of various legal rights or on the basis of a contract, regardless of whether those rights are transferable or separable from the economic entity or some other rights and obligations. From the aspect of control over intangible investment, an economic entity has control over it if it can use the economic benefits that would flow from the asset and if it is able to limit access by others to that asset and the benefits that it brings. The future economic benefits from intangible investments can be reflected in the income that flows to the business entity on the basis of that asset, but also in the potential reduction of future costs through the use of intellectual property.

The significance of IAS 38 comes from the fact that in the last 20 years there has been an ongoing transformation from traditional mass production to a knowledge-based economy and that intangible investments have an increasing share in the assets of companies. The basic characteristics of intangible investments derive from their definition and relate to the fact that intangible investments are not financial instruments, do not have a physical feature and the purpose of the asset is not important to be classified as an intangible investment. Taking into account the criteria for classifying an asset as intangible, one can cite several examples of intangible investments: licences, patents, concessions, computer software, franchises, trademarks, trade names, databases, prototypes, chemical formulas, recipes, etc. (Petrovic, 2020).

Accounting in terms of the recognition of intangible investments is defined as the process of determining whether the amounts of investments for their creation and acquisition will be treated as an expense in the income statement or as an intangible investment and presented in the balance sheet. For the recognition of an item as an intangible asset, IAS 38 requires the entity to demonstrate that the item first meets the very definition of an intangible asset, as well as meeting the recognition criteria. Therefore, an intangible asset is recognized if, and only if, the cost of the asset can be measured reliably and if it is probable that future economic benefits, which are attributable to the asset, will flow to the entity.

The valuation of intangible investments during the introduction into the accounting records of the entity is performed at the cost of procurement. Exceptions to the initial valuation at the cost of procurement occur in situations where it is an acquisition within a business combination, in the case of acquisition with the help of state allocation and in the case of acquisition through exchange. IAS 38 regulates the initial recognition and valuation of several ways in which intangible assets are acquired, namely (Petrović, 2020):

- private acquisition,
- acquisition through state allocation,
- acquisition as part of a business combination,
- creation within an economic entity,
- exchange of property.

According to IAS 38, two models are provided for the valuation of intangible investments after the initial recognition: the procurement cost model and the revaluation model.

The procurement cost model. If this model is applied, after the initial recognition an intangible investment is valued according to the procurement cost less accumulated depreciation and accumulated impairment losses. The procurement cost model for the subsequent valuation of intangible investments involves the calculation of depreciation at the end of the accounting period in the event that the asset has a limited useful life in the economic entity. Hence the calculation of depreciation is performed for intangible investments with a limited useful life in the economic entity. However, for assets with an indefinite long useful life in the economic entity, depreciation is not calculated. The estimation of the useful life of intangible investments is performed by the economic entities themselves and in accordance with this it is determined whether a certain intangible investment has a limited or unlimited useful life. When it comes to the depreciation calculation, according to IAS 38, the choice of the method for the depreciation calculation is made by the economic entities themselves, and the following methods of write-off can be used: proportional write-off, degressive write-off and functional write-off. The choice of method for calculating the depreciation of intangible investments should be such as to provide the most accurate calculation of depreciation and it is allowed to use different methods of calculating depreciation for different intangible investments. Changes in the estimated remaining useful life of an asset, as well as changes in the method for calculating the depreciation of an asset, are considered to be changes in the accounting estimates. The amount of the calculated depreciation of an intangible investment is recognized as an expense unless the economic benefits from the intangible investment are incorporated into another asset.

The depreciation calculation is discontinued on the earliest of the following dates: when the asset is disposed of or expended, when its present value becomes equal to its estimated residual value, or when it is reclassified to a fixed asset intended for sale (Petrović, 2020; The Ministry of Finance of the Republic of Serbia, 2020).

The revaluation model — when this model is used, intangible investments are subsequently measured at their fair value less subsequent value adjustments and accumulated impairment losses. According to IAS 38, the revaluation of intangible investments is determined through an active market for those types of intangible investments. In the event that there is no active market for an intangible investment, it is not revalued, and the valuation is performed at procurement cost less value adjustment and impairment losses. How often revaluation will be performed depends on how much the fair value of the asset changes. When the fair value of an intangible investment deviates significantly from its book value, it is necessary to revalue it. If the value of the asset has increased as a result of the revaluation, the increase is recognized in the total other result and is accumulated in equity, as a revaluation reserve position. The increase is recognized in the income statement in the amount in which it represents a reversal of the decrease based on the revaluation of that asset that was previously recognized in the income statement as an expense. On the other hand, if the revaluation results in a decrease in the book value of the asset, the decrease is recognized in the income statement. A decrease is recognized in the total other result up to the amount to which there is a revaluation reserve regarding that asset (Petrović, 2020; The Ministry of Finance of the Republic of Serbia, 2020).

2.3. US GAAP on intangible assets

Generally Accepted Accounting Principles (US GAAP) represent a set of generally accepted principles adopted and promoted by the Financial Accounting Standards Board (FASB) — an organization recognized by the US Securities and Exchange Commission. The FASB is financially supported by the FAF (Financial Accounting Foundation) which selects FASB members. FASB members are representatives of various organizations that deal precisely with accounting standards and must leave their current employment and work only for the FASB (Fosbre, Kraft, & Fosbre, 2009). US GAAP are applied mainly in the United States, and US companies operating in Europe should adjust their financial statements as if they were prepared in accordance with IFRS. These standards are recognized by various organizations such as the American Institute of CPAs (AICPA) and the State Boards of Accountancy. The main task and aspiration of the FASB is to establish new and improve the existing standards in order to provide information to all users of financial statements, but also improve their education in terms of better and more efficient understanding and application of these standards (FASB, n.d.).

The standard which deals with intangible assets is the Accounting Standards Codification-ASC 350, Intangibles – Goodwill and Other, and consists of the following five subtopics (Flood, 2019):

1. ASC 350-10, Overall.
2. ASC 350-20, Goodwill.
3. ASC 350-30, General Intangibles Other Than Goodwill.
4. ASC 350-40, Internal-Use Software.
5. ASC 350-50, Website Development Costs.

According to (FASB, 2019), two criteria are listed, of which at least one needs to be met in order for an intangible asset to be identified. Both of these criteria are identical to the criteria prescribed by IFRS/IAS. The first criterion refers to the fact that intangible investment arises from contractual rights or other legal rights, regardless of whether those rights are transferable or separable from the business entity or from other rights and obligations. The second criterion concerns the separability of an asset in the sense that it can be set aside or separated from the entity and transferred, leased, sold, licensed or exchanged together or separately by a related contract, identifiable assets or other liabilities.

The initial recognition of intangible investments acquired individually or with a group of other assets is based on their fair value. Companies can purchase certain intangible investments, however the capitalization of internal development costs, maintenance costs or renewal of intangible investments is not allowed (Flood, 2019). It is possible to capitalize only costs incurred in the development phase when the software is developed for internal use (Nwogugu, 2012). Flood (2019) states that it is necessary to take into account the following factors in order to determine the useful life of an intangible investment:

- various economic factors such as competition, technological progress, demand, industry stability, legal restrictions, potential changes in distribution channels, etc.;
- the expected use of funds;
- the expected useful life of another asset or group of assets to which the intangible asset's useful life may be related;
- previous experience of the company in similar agreements;
- provisions of contracts, regulations or laws that may in any way limit the useful life of intangible investments, etc. (Flood, 2019).

If none of the potential factors affect the limitation of the useful life of an intangible investment, it is considered to be unlimited. For identifiable intangible assets (patents, licenses, franchises, trademarks, copyrights, etc.), depreciation is

calculated over the expected useful life of that intangible investment. The value of an intangible investment at the end of its useful life less disposal costs represents its residual value (Flood, 2019).

2.4. Differences and similarities between IFRS and US GAAP

The difference between IFRS and US GAAP exists in the process of capitalization. If a company wants to have a recognized and capitalized developed intangible asset, it must have substantial research and development expenses accepted by International Accounting Standard (IAS) 38 to create an intangible. Based on IAS 38 in the development phase, there are six main conditions that should be met if a company wants to capitalize and include an intangible asset inside the balance sheet (*IAS Standard 38 – Intangible Assets*, 2001):

- I) the technical feasibility of building intangible assets, so that it will be ready for usage or sales;
- II) the intention to build intangible assets for usage or sales;
- III) the ability to use or sell intangible assets;
- IV) the possibility to generate future economic benefits based on the existence of market demand;
- V) the availability of adequate technical, financial and other resources to complete the development of intangible assets;
- VI) the ability to precisely measure all expenditures attributable to that intangible asset.

According to Ding et al. (Ding, Stolowy & Tenenhaus, 2004), the capitalization process of R&D expenses is possible in France, but only under certain conditions. This study proved that the capitalization of R&D is a risky process, in the sense that they belong to the group of high technology industries, or have a higher beta coefficient, which is related to the tax of rentability on the market.

Triki-Damak and Halioui (2013) explained that in the French setting, it is up to the management to decide whether to expense or capitalize. If the conditions from IAS 38 are met, then the capitalization process is certain. The only difference between IFRS/IAS and GAAP is the obligation to capitalize R&D expenses. GAAP do not accept the capitalization of R&D expenses, whereas IFRS/IAS allows it under previous conditions.

A significant number of scientific papers are devoted to discussing the fundamental differences between IFRS and US GAAP standards. The most significant difference cited in several different papers relates to the fact that IFRS are based on principles,

while US GAAP are more rule-based (Sanko & Koldovskyi, 2017) According to (Fosbre et al., 2009), the basic accounting principles are the same when comparing IFRS and US GAAP, however their interpretations may differ.

Unlike IFRS, US GAAP make a distinction in certain areas such as software development costs, and provide specific guidance depending on whether the software is intended for internal use or for resale (PWC, 2014). This means that US GAAP prescribe separate guidelines for the treatment of software development costs intended for sale to third parties, as well as specific guidelines for the treatment of the same group of costs in cases when the software is intended for internal use. According to (PWC, 2014), development costs that were previously recognized as expenses cannot be capitalized in a subsequent period.

According to IFRS, when talking about the treatment of acquired research and development assets, they are capitalized if they are likely to bring economic benefits in the future. Yet, according to U.S. GAAP, acquired research and development assets are capitalized if the asset has an alternative use in the future, and the capitalization also depends on the type of acquisition – business combination or asset acquisition.

As stated by IFRS, an impairment loss of an intangible asset is calculated by comparing the recoverable amount with the book value, with the recoverable amount being higher than an asset's net fair value or its net use value. In the case of US GAAP application, the impairment of intangible assets is calculated by comparing fair value with the book value (PWC, 2014).

According to (Sanko & Koldovskyi, 2017), when assets are impaired under US GAAP, the treatment is permanent, but impaired assets under IFRS can be revalued. In line with IFRS, when it comes to revenue recognition, it is usually recognized when the asset is sold. Revenue is often deferred in US GAAP until the earnings process has been completed and expenses have been recorded and matched against generated revenue (Fosbre et al., 2009). The authors (Bao et al., 2010) confirm that according to IAS 38, fair value is allowed for the revaluation of intangible assets, while according to US GAAP it is not allowed.

2.5. Relation between intangible assets and final result

This section introduces the background, motivation, encouragement and significance of the study. In the global economy based on knowledge, intangible assets often make up to 80 % of a company's value. The transformation of intangible assets and resources into a tangible result is a new way of thinking for most companies. Based on the study by Volkov and Garanina (2007), only from 6% to 30% of

a company's value belong to tangible assets. Due to the importance of intangible assets, companies invest about 50 % in the sphere of intangible assets only, namely in research and development, personnel development, and infrastructure (Fuller, 2002). Van Ark et al. (Van Ark, Hao Corrado, & Hulten, 2009) found that investments in intangibles accounted for about 25% of labour productivity growth in EU countries from 1995 to 2010. In order to manage intangible assets properly, it is very important to measure them in the right way. The treatment of intangible assets in a company's accounts has changed drastically. The main decision relates to capitalizing investments in intangibles as this can transform knowledge into a concrete value. However, this is where the greatest difficulty lies because organizations must measure these investments consistently and systematically over time (Belo, Linc, & Vitorino, 2014; Bloom & Van Reenen, 2010).

According to Penrose (1959), a company is not only an administrative organization but also a set of resources: productive and human. Resources should be included in the production process and transformed into products or services. Outputs are the functions and results of experience and knowledge a company has. This philosophy started to develop in the 1980s and serves as a confirmation of the statement made by Nonaka and Takeuchi (2007) that only those companies that create knowledge can be successful in today's world. Based on the study developed by Marr (2004), a company's capability is to realize and achieve greater future performance based on the knowledge that lies within it. What differentiates companies is the specific and unique knowledge. Firms with more knowledge will be more powerful and competitive (Marr, Schiuma & Neely, 2004). A knowledge society will be dependent on intangible capital because knowledge and information have become the economy's primary raw material and most important outcome (Stewart, 1998). Drucker (1993) wrote that when entering a knowledge society "the basic economic resource is the knowledge" (see also Nonaka & Takeuchi, 1995; Reich, 1992; Toffler, 1991; Quinn, 1992).

Nakamura stated that investments in intangible assets in the corporate sector in 2000 amounted to \$1 trillion. Half of this amount was used for research and development and software development. The other part was in other intangibles, such as brands, human resources and organizational processes (Holtham & Youngman, 2003). Literature's interest in investments in intangible assets has shown an upward trend. It is widely accepted that intangible assets are a crucial part of achieving competitive advantage (Barney, 1991). Only a few studies have explored the factors that lead companies to invest in intangibles. In most papers, intangibles have been used as given and already determined, not as explanatory variables. Determining what stimulates companies to invest in intangible assets can be very important for both managers and decision-makers, mainly because

this can help identify variables that differentiate high from low performing companies. Based on the study produced by Arrighetti (2014), there are three confirmed factors that intensify investments in intangible assets, namely:

- **size of a company** – this is a very important factor for investing in intangibles. Regardless of the industry a company belongs to, it is much easier for large companies to exploit economies of scale in intangible asset accumulation than it is for the smaller ones (Dierickx & Cool, 1989). Larger companies can protect their intangibles more successfully than smaller companies, which can motivate them more to invest and develop new ones. A large share of investment uncertainty is also related to smaller companies rather than to larger companies (Ghosal & Lounyani, 2000);
- **human capital** – several studies have confirmed that human capital affects a proportion of the amount of investments in intangible assets (Abramovitz & David, 2000; Galor & Moav, 2004). Human capital is the formal education that every employee has and brings to the company before hiring. Human capital consists not only of formal education, but also of all skills and techniques that an employee possesses (Barney, 1991; Nerdrum & Erikson, 2001). It is composed of all the abilities of an individual that will come into the organization, but will never belong to the organization (Bontis & Fitzenz, 2002);
- **past level of intangible capital intensity** – organizational complexity is another factor that can affect the process of intangible assets accumulation. The stock of intangible assets directly influences the increase of organizational *capital* (Bontis, 2001; Kaplan & Norton, 2004; Lev & Radhakrishnan, 2003).

Intangible assets are inert themselves, they do not generate profits or create value. Investing in training will only lower costs and increase revenues. However, it is possible to have a much more comprehensive result when such improved processes and efficient information systems are combined with other factors. Without these tools, the value of intangibles disappears much quicker than the value of physical assets. With proper information systems and organizational structure, it is possible to transform tangible and intangible assets into bundles of assets that will further realize sustainable competitive advantage and profitability (Lev, 2002).

Nakamura (2001) uses three approaches in estimating the corporate sectors' investments in intangible assets:

- the first approach is based on investments in research and development (R&D), software, brand development and other intangibles;
- the second approach is focused on salaries and wages paid to “creative workers”, who generate company's intangible assets;

- the third approach examines the changes in the operating margins of companies. The company's operating margin is the difference between sales and cost of sales.

Investing in intangible assets is in itself a little risky. For instance, when a company invests in employees and their training or education, another company very often benefits from it when employees change their employment. The knowledge, skills and techniques of an employee stay with them even though the employee has changed company. A company that invests in an employee cannot limit the benefits of other future employers (Benkraiem, 2008). That is because companies do not have the means to keep and retain their skills or knowledge. Even in the case of patented inventions, there is a substantial benefit for non-owners which is called "spillovers" (Lev, 2001).

2.6. Conclusions

Knowledge-intensive companies have gained competitive advantage in the knowledge economy. Intangible assets are seen as the main value driver and an important factor for improving not only corporate financial performance but also a company's market value (Brennan & Connell, 2000; Petty & Guthrie, 2000; Tunc Bozbura, 2004). To date, various researchers have added intangible assets as a production factor, together with land, labour and financial capital (Goh, 2005; Lev & Daum, 2004; Petty & Guthrie, 2000). The use of advanced information technology and information in business management has resulted in the rise of the knowledge economy.

This section's conclusion is that there is not a single definition of an intangible asset that can explain the term in more detail. However, definitions by different authors demonstrate that intangible assets have intangibility components and forms and that they are a source of value creation, and can enhance value creation when combined with other organizational resources. A modest attempt has been made in this study to examine whether the performance of intangible assets is related to a company's financial performance, which is not only influenced by the performance of intangible assets but also by certain factors at both organizational and industrial level.

References

Abramovitz, M., & David, P. A. (2000). American macroeconomic growth in the era of knowledge-based progress: The long-run perspective. In S.L. Engerman, R.E. Gallman (Eds.), *The Cambridge economic history of the United States*. Cambridge University Press.

Akpınar, A. T., & Akdemir, A. (1999). *Intellectual capital* (First International Joint Symposium on Business Administration "Challenges for Business Administrators in the New Millennium, Turkey, pp. 332-340).

Arrighetti, A., Landini, F. & Lasagni, A. (2014). Intangible assets and firm heterogeneity: Evidence from Italy. *Research Policy*, 43(1), 202-213.

Ashton R. H. (2005). Intellectual capital and value creation: A review. *Journal of Accounting of Literature*, 24, 53-134.

Bao, D. H., Lee, J., & Romeo, G. (2010). Comparisons on selected ratios between IFRS and US GAAP companies. *Journal of Financial Reporting and Accounting*, 8(1), 22-34.

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99-120. <https://doi.org/10.1177/014920639101700108>

Belo, F., Linc X., & Vitorino, M. A. (2014). Brand capital and firm value. *Review of Economic Dynamics*, 17(1), 150-169.

Benkraiem, R. (2008). The influence of institutional investors on opportunistic earnings management. *International Journal of Accounting, Auditing and Performance Evaluation*, 5(1), 89. <https://doi.org/10.1504/IJAPE.2008.020195>

Blair, M., & Wallman, S. M. H. (2001). *Unseen wealth: Report of the brookings task force on intangibles*. Washington D.C.: Brookings Institution Press.

Bloom, N., & Van Reenen, J. (2010). Why do management practices differ across firms and countries? *Journal of Economic Perspectives*, 24(1), 203-224. <https://doi.org/10.1257/jep.24.1.203>

Bontis, N. (1998). Intellectual capital: An exploratory study that develops measures and models. *Management Design*, 36(2), 63-76.

Bontis, N. (2001). Assessing knowledge assets: A review of the models used to measure intellectual capital. *International Journal of Management Reviews*, 3(1), 41-60.

Bontis, N., & Fitzenz, J. (2002). Intellectual capital ROI: A causal map of human capital antecedents and consequents. *Journal of Intellectual Capital*, 3(3), 223-247. <https://doi.org/10.1108/14691930210435589>

Brennan, N., & Connell, B. (2000). Intellectual capital: Current issues and policy implications. *Journal of Intellectual Capital*, 1(3), 206-240. <https://doi.org/10.1108/14691930010350792>

Caddy, I. (2000). Intellectual capital: Recognizing both assets and liabilities. *Journal of Intellectual Capital*, 1(2), 129-146. <https://doi.org/10.1108/14691930010377469>

Cañibano, L., Garcia-Ayuso, M. & Sanchez, P. (2000). Accounting for intangibles: A literature review. *Journal of Accounting Literature*, 19, 102-130.

Ciesielski, J. T., & Weirich, T. R. (2008). The SEC goes international. *Strategic Finance*, 90(6).

Ciprian, G. G., Valentin, R., Mădălina, G. (Iancu) A., & Lucia, V. (Vlad) M. (2012). From visible to hidden intangible assets. *Procedia – Social and Behavioral Sciences*, 62, 682-688. <https://doi.org/10.1016/j.sbspro.2012.09.116>

Dierickx, I., & Cool, K. (1989). Asset stock accumulation and the sustainability of competitive advantage: Reply. *Management Science*, 35(12), 1514-1514. <https://doi.org/10.1287/mnsc.35.12.1514>

Ding, Y., Stolowy, H., & Tenenhaus, M. (2004). Les determinants de la strategie de “capitalisation” des frais de recherche et developement. *Finance Contrôle Stratégie*, 7(4), 87-106.

Drucker, P. F. (1993). *Post-capitalist society*. HarperBusiness. <http://books.google.com/books?id=dr2QAAAAIAAJ>

Edvinsson, L., & Malone, M. S. (1997). *Intellectual capital: Realizing your company's true value by finding its hidden brainpower* (1st ed). HarperBusiness.

FASB. (2019, May). Retrieved September 7, 2021 from <https://asc.fasb.org/imageRoot/76/120327576.pdf>

FASB. (n.d.). *Financial Accounting Standards Board*. Retrieved September 6, 2021 from <https://www.fasb.org/home>

Feng, Gu, & Baruch, L. (2001). Markets in intangibles: Patent licensing. *NYU Working Paper*, 2451(27465).

Flood, J. M. (2019). *Wiley GAAP 2019: Interpretation and application of generally accepted accounting principles*. Hoboken, New Jersey: John Wiley & Sons, Inc.

Fosbre, A. B., Kraft, E. M., & Fosbre, P. B. (2009). The Globalization o accounting standards: I FRS Versus US GAAP. *Global Journal of Business Research*, 3(1).

Fuller, S. (2002). *Knowledge management foundations*. KMC Press: Butterworth-Heinemann.

Galor, O., & Moav, O. (2004). From Physical to human capital accumulation: Inequality and the process of development. *Review of Economic Studies*, 71(4), 1001-1026. <https://doi.org/10.1111/0034-6527.00312>

Ghosal, V., & Lounyani, P. (2000). The differential impact of uncertainty on investment in small and large businesses. *Review of Economics and Statistics*, 82(2), 338-343. <https://doi.org/10.1162/003465300558722>

Goh, P. C. (2005). Intellectual capital performance of commercial banks in Malaysia. *Journal of Intellectual Capital*, 6(3), 385-396.

Granstrand, O. (2000). *The economics and management of intellectual property: Towards intellectual capitalism* (paperback ed). Edward Elgar.

Guidelines for managing and reporting on intangibles (Measuring Intangible to Understand and Improve Innovation Management MERITUM Project, 31), 2002, Madrid, Spain.

Hall, R. (1992). The strategic analysis of intangible resources. *Strategic Management Journal*, 13(2), 135-144. <https://doi.org/10.1002/smj.4250130205>

Harrison, S., & Sullivan, P. H. (2000). Profiting from intellectual capital: Learning from leading companies. *Journal of Intellectual Capital*, 1(1), 33-46. <https://doi.org/10.1108/14691930010324124>

Harvey M. G., & Lash, R. F. (1999). Balancing the intellectual capital books: Intangible liabilities. *European Management Journal*, 17(1), 85-92.

Holtham, C., & Youngman, R. (2003, May). *Measurement and reporting of intangibles – A European policy perspective* (Proceedings of the 5th Conference on Intangibles). McMaster University, Canada.

Hunter, L., Webster, E., & Wyatt, A. (2005). Measuring intangible capital: A Review of current practice. *Australian Accounting Review*, 15(36), 4-21. <https://doi.org/10.1111/j.1835-2561.2005.tb00288.x>

IAS Standard 38 – Intangible Assets. (2001). IFRS Foundation.

IFRS, F. (n.d.). *IFRS*. Retrieved August 30, 2021 from <https://www.ifrs.org/>

Itami, H., & Roehl, T. W. (2009). *Mobilizing invisible assets*. Harvard University Press.

Kaplan, R. S., & Norton, D. P. (2004). The strategy map: A guide to aligning intangible assets. *Strategy & Leadership*, 32(5), 10-17. <https://doi.org/10.1108/10878570410699825>

Kristandl, G., & Bontis, N. (2007). Constructing a definition for intangibles using resource-based view of the firm. *Management Decision*, 45(9), 1510-1524.

Lev, B. (2001). *Intangibles management, measurement, and reporting*. Washington D.C.: Brooking Institution Press.

Lev, B. (2002). The importance of organizational infrastructure (OI). *Financial Executive Magazine*.

Lev, B. (2003). *Intangible assets: Measurement, drivers, usefulness*. Washington D.C.: Brooking Institution Press.

Lev, B. (2005). Intangible assets: Concepts and measurements. *Encyclopedia of Social Measurement*, 2(7).

Lev, B., & Daum, J. H. (2004). The dominance of intangible assets: consequences for enterprise management and corporate reporting. *Measuring Business Excellence*, 8(1), 6-17. <https://doi.org/10.1108/13683040410524694>

Lev, B., & Feng, G. (2003). *Intangible assets: Measurement, drivers, usefulness*. Washington D.C.: Brooking Institution Press.

Lev, B., & Radhakrishnan, S. (2003). *The Measurement of Firm-Specific Organization Capital* (No. w9581). National Bureau of Economic Research. <https://doi.org/10.3386/w9581>

Marr, B., Schiuma, G., & Neely, A. (2004). Intellectual capital – defining key performance indicators for organizational knowledge assets. *Business Process Management Journal*, 10(5), 551-569. <https://doi.org/10.1108/14637150410559225>

Nakamura, L. (2001). What is the US gross investment in intangibles? (at least) one trillion dollars a year! *Working Papers – Research Department, Federal Reserve Bank of Philadelphia*, (43).

Nakamura, L. (2003). A trillion dollar a year investment and the New York economy. In *Intangible assets: Values, measures and risks*. Oxford University Press.

Nerdrum, L., & Erikson, T. (2001). Intellectual capital: A human capital perspective. *Journal of Intellectual Capital*, 2(2), 127-135. <https://doi.org/10.1108/14691930110385919>

Nonaka, I. (2007). The knowledge-creating company. *Harvard Business Review*.

Nonaka, I., & Takeuchi, H. (1995). *The knowledge-creating company: How Japanese companies create the dynamics of innovation*. Oxford University Press.

- Nwogugu, M. C. (2012). Goodwill/intangibles rules, earnings management and competition. *European Journal of Law Reform*, 17(1).
- Penman, S. H., & May, G. O. (2009). *Accounting for intangible assets: There is also an income statement*. Center for Excellence in Accounting and Security Analysis. Columbia Business School.
- Penrose, E. (1959). *The theory of the growth of the firm*. Basil Blackwell.
- Petrović, Z. (2020). *Finansijsko izveštavanje*. Beograd: Univerzitet Singidunum.
- Petty, R., & Guthrie, J. (2000). Intellectual capital literature review: Measurement, reporting and management. *Journal of Intellectual Capital*, 1(2), 155-176. <https://doi.org/10.1108/14691930010348731>
- PWC. (2014). *IFRS and US GAAP: similarities and differences*. PricewaterhouseCoopers.
- Quinn, J. B. (1992). *Intelligent enterprise: A knowledge and service-based paradigm for industry*. Free Press, Maxwell Macmillan Canada, Maxwell Macmillan International.
- Reich, R. B. (1992). *The work of nations: Preparing ourselves for 21st century capitalism* (1st Vintage Books ed). Vintage Books.
- Sánchez, P., Cañibano, L., Asplund, R., Stolowy, H., Roberts, H., Johanson, U., & Mouritsen, J. (1998). *Measuring intangibles to understand and improve innovation management (MERITUM)*. (Project Funded by the European Community under the Targeted Socio-Economic Research (TSER)).
- Sanko, H., & Koldovskyi, A. V. (2017). Comparative analysis of IFRS and US GAAP. *Financial Markets, Institutions and Risks*, 1(1).
- Smith, A. (2009). *The wealth of nations*. Thrifty Books.
- Smith, G. V. (1994). *The new role of intellectual property in commercial transactions*.
- Stewart, T. A. (1998). *Intellectual capital: the new wealth of organizations* (Reprint). Nicolas Brealey Publishing.
- Stewart, T., & Ruckdeschel, C. (1998). Intellectual capital: The new wealth of organizations. *Performance Improvement*, 37(7), 56-59. <https://doi.org/10.1002/pfi.4140370713>
- The Ministry of Finance of the Republic of Serbia. (2020). Retrieved September 1, 2021 from <https://www.mfin.gov.rs/dokumenti2/resenje-o-utvrdjivanju-prevoda-medjunarodnih-standarda-finansijskog-izvestavanja-msfi-broj-401-00-43512020-16-od-10-septembra-2020-godine-sluzbeni-glasnik-rs-br-1232020-i-1252020>
- Toffler, A. (1991). *Powershift: Knowledge, wealth and violence at the edge of the 21st century*. Bantam Books.
- Triki-Damak, S., & Halioui K. (2013). Accounting treatment of R&D expenditures and earnings management: An empirical study on French listed companies. *Global Business and Economics Research Journal*, 2(1), 50-71.
- Tunc Bozbura, F. (2004). Measurement and application of intellectual capital in Turkey. *The Learning Organization*, 11(4/5), 357-367. <https://doi.org/10.1108/09696470410538251>

Van Ark, B., Hao J. X., Corrado, C., & Hulten, C. (2009). *Measuring intangible capital and its contribution to economic growth in Europe* (No. 14; 1, p. 63-93). European Investment Bank.

Volkov, D., & Garanina, T. (2007). Intangible assets: Importance in the knowledge-based economy and the role in value creation of a company. *The Electronic Journal of Knowledge Management*, 5(4), 539-550.

Wang, J. (2008). Investigating market value and intellectual capital for S&P 500. *Journal of Intellectual Capital*, 9(4), 546-563. <https://doi.org/10.1108/14691930810913159>

Warfield, T. D., Weygandt, J. J., & Kieso, D. E. (2008). *Intermediate accounting: Principles and analysis* (2nd ed). John Wiley & Sons.

Zéghal, D., & Maaloul, A. (2011). The accounting treatment of intangibles – a critical review of the literature. *Accounting Forum*, 35(4), 262-274. <https://doi.org/10.1016/j.accfor.2011.04.003>