



Managing Intellectual Property to Achieve Economic Growth

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ABSTRACT: With the development of the economy and the relationships between economic actors, especially in the context of the knowledge economy, the success of enterprises largely depends on the possibility of creating, acquiring, protecting and effectively managing intellectual property rights. This work brings to the fore intellectual property as a strategic asset for enterprises whose effective management can contribute to their competitiveness and resilience to unforeseen economic shocks. In this regard, information about intellectual property as a business asset is presented, the process of its management and its strategic role in achieving competitiveness and economic growth are defined. Some of the more widely known and applied strategies for managing intellectual property for business purposes are also proposed. In conclusion, the economic benefits of intellectual property management and their relationship with the achievement of economic growth are outlined.

KEYWORDS: intellectual property, intellectual property management, strategy, competitiveness, economic growth.

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I. INTRODUCTION

Knowledge has been recognized as a leading factor in economic and social development by several researchers [1]-[5], if the ability of the economy to renew itself and turn knowledge into an economic outcome, determine the opportunities for long-term growth. An OECD study [6] found that half of the growth in gross domestic product (GDP) in developed countries is a direct result of innovation. And while increasing the intensity of creation and use of new knowledge in the economy, this share increases. Knowledge provokes the intellectual activity of a person, because of which unique creative results appear. These creative results, also called intellectual outputs, are a prerequisite for the emergence of intellectual property (IP) [7],[8]. „*Intellectual Property is a type of intellectual capital (IC) and knowledge assets of company*” [9]-[12].

In modern times, intellectual property is associated with the activities of the so-called. 'creative industries'. Within their scope fall both the creation and implementation of the results of research activities in the field of biotechnology, pharmaceutical, food and chemical industry, automotive, etc., as well as cultural industries and their software, music, publishing, film, etc. activity [13]. Thus, intellectual property includes the products of human intelligence in the field of industry (objects of industrial property) and in the field of science, literature, and art (artistic property), which objective law recognizes and protects. Intellectual property is essential for the construction and sustainable development of modern society and for the promotion of research and development, which contributes significantly to economic growth [14], [15]. „*Intellectual property is a key concern in the quest for growth, development and competitiveness*“ . [8, p.1]

Intellectual property as a legal category covers the rights to objects as compiled. Individual subject-matter, including patents, utility models, trademarks, industrial designs, works in the field of science, literature, and art, etc., are protected under various national, regional, and international regulations that make up the system of intellectual property rights. „*Well-designed intellectual property rights systems give temporary exclusive rights to inventors and thereby increase their chances to recover the often substantial upfront investments they need to make to generate innovations and to bring them to market.*“ [8, p.1]. Intellectual property systems provide the exclusive rights for innovators against the disclosure of information about the nature of their intellectual output, which stimulates the upgrading and creation of new intellectual products and accelerates the pace of innovation. It is the aspiration to promote growth and development together with the

protection of the rights of creators of intellectual products that leads to the promotion of the advantages of providing legal protection over the objects of intellectual property.

The peculiarities of intellectual property highlight its role as a driver of the activity of creative industries, which can contribute to the economic growth of an individual enterprise, sector and even the entire economy. This is primarily dependent on the proper and effective management of intellectual property rights, which requires a detailed examination of this issue.

The aim of the paper is to present intellectual property management as a strategic activity for enterprises that can contribute to increasing their competitiveness and resilience to unforeseen economic shocks. In this context, the main research thesis is also outlined, namely: *intellectual property management is a strategic activity of critical importance for enterprises, which affects their survival and competitiveness*. The proof of the thesis requires the use of interdisciplinary methodology and the methods of theoretical synthesis and analysis, through which the following is conducted: consideration of intellectual property as a business asset that is managed; definition of the process of its management and its strategic role in achieving competitiveness and economic growth. Some of the more widely known and applied strategies for managing intellectual property for business are also proposed. Purposes. In conclusion, the economic benefits of intellectual property management and their relationship with the achievement of economic growth are outlined.

II. INTELLECTUAL PROPERTY MANAGEMENT

As pointed out, the importance of intellectual property has grown tremendously in recent years. As intangible assets, intellectual property objects do not have a physical carrier, but provide a number of rights and advantages for businesses. Unlike tangible assets that are depreciated and depreciated during their use by the enterprise, the value of some of the objects of intellectual property not only does not decrease, but increases over time [16], [17] and creates prerequisites for an increase in the value of the entire company. In most cases, the economic life of these objects may expire before the term of their legal protection (if a new and more significant technology appears, displacing the already obsolete patented technologies). Notwithstanding this, the data on the development of the ratio between the value of tangible and intangible assets owned by companies is indicative of the place occupied by intellectual property in modern times (see Figure 1).

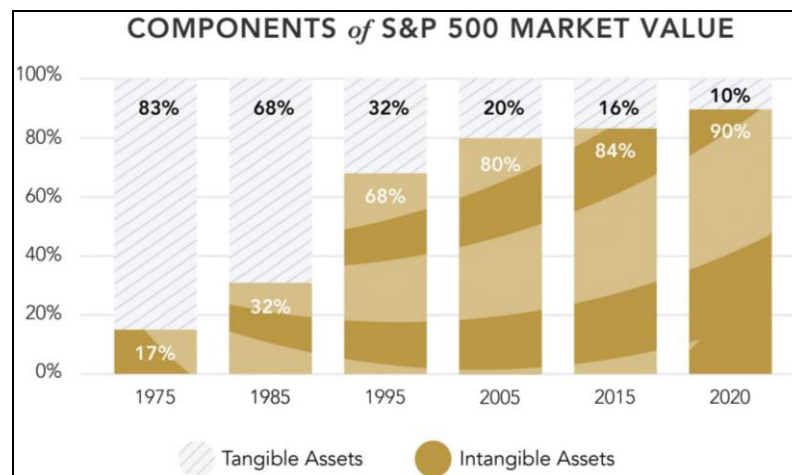


Figure 1: Structure of the value of assets in the ownership of enterprises (1975-2020) [18]

The graph shows the growth of the share of intangible assets in the ownership of enterprises, from only 17% in 1975, by 2020 they reach 90% – there is a reversal of the structure of business assets, which again proves the importance of intellectual property for business. This importance is particularly evident in the context of the knowledge economy, in which intangible assets and intellectual capital are fundamental in building competitive advantages [19]. As a result, intellectual property occupies a significant part of the assets of companies and forms their value (see Figure 1), which brings ownership and effective management of intellectual property rights as a strategic advantage. Thus, intellectual property management has a direct impact on the competitiveness of companies and their profits [20].

Various objects fall within the scope of intellectual property, which is an intangible asset for enterprises, and those of them that have leading in modern times importance for business are:

- **Inventions** – their role in the growth of the economy is indisputable and arises from the fact that inventions are the result of scientific and technological progress. They are innovative technical solutions to an existing problem in any area of public economy. According to the latest report of the World Intellectual Property Organization, in 2021, 3,401,100 patent applications were filed

worldwide, representing a 3.6% increase compared to 2020. At the same time, the number of patents issued worldwide for 2021 is 1,756,500 [21].

- **Utility models** – although not every intellectual property office provides legal protection for them [22], utility model registration provides protection over the form of an existing product that is a direct result of its functions, and a change in shape would also give rise to a change in functions and vice versa. WIPO data show a decrease in the activity of utility model applicants, In 2021, there was a 2.5% decrease in the number of applications filed (2,924,490) compared to 2020 (3,000,100). [21]
- **Trademarks** – represent a sign distinguishing the products of one proposer from those of another. They are identifying in nature and pave the way for other objects of intellectual property, as they also play the role of a marketing tool for creating positive attitudes among consumers about the company and its products. Their role as a strategic business asset and as an indicator of innovation has been proven by several authors [23]-[27] and from the activity data of the trade mark applicants, who globally filed 18,145,100 applications for trademark registration [21].
- **Industrial design** – expresses the artistic form of the product, its appearance, which reflects fashion trends and established preferences of consumers at a given moment. The design of the product is a strategic asset on which the user's choice depends – all other things being equal, he will choose a product with a better design and a more attractive appearance. This predetermines the place of industrial design among the significant intellectual products for the company's business. The data shows, that for 2021, 1,515,200 applications for registration were filed worldwide, which is 5.5% more than those filed in 2020 [21].
- **Trade secrets** – within the scope of trade secrets fall all developments of the enterprise, including inventions and other objects of industrial property that are not yet legally protected; commercial and technological information important for the existence of the business; know-how of organizational, managerial, production or commercial nature, etc. An essential point for trade secrets is their proper identification and management for the purposes of the respective company.
- **Objects of copyright protection** – this includes the so-called social innovations and in particular works such as computer programs, databases, multimedia, domain names, literary works, etc..

The objects of intellectual property indicated so far are part of those falling within its scope, which have the most pronounced influence on the activities of enterprises. But the mere ownership of intellectual property is not a guarantee of a positive economic result – to achieve economic growth, effective management of intellectual property rights is necessary.

The issue of intellectual property management has been addressed by several authors [28]-[31], with Bader [29] highlighting various strands studied by the authors, among them: Strategy and Portfolio Management; Acquisition; Exploitation; Scanning and Monitoring. More recent research has linked intellectual property management to the effectiveness of enterprise activities [7], [13], [31]-[35]. One of the criteria that are indicative of the efficiency of the business activity of enterprises is their innovation policy and the possibility of creating and commercializing the developed innovative intellectual outputs (see Figure 1). During the innovation process, the enterprise must assess the form of protection of the knowledge embodied in the intellectual product to prevent the free access of competitors to the developed innovation product. It is here that the role of intellectual property management as a strategic activity, essential in the innovation process, is manifested. As Holgersson and Wallin [36] point out, the ability of companies to derive economic benefits from their innovations depends heavily on their ability to protect them, which also determines the efficiency of the company and its ability to maintain a certain level of competitiveness.

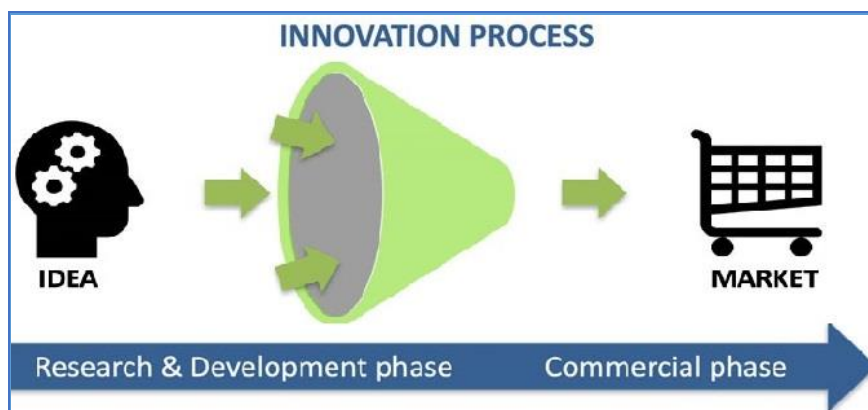


Figure 2: Innovation process [37]

Truskolaski held that the intellectual property management process included the activities of the “*development of intellectual property, market analysis, protection of intellectual property rights, actions aimed at commercialisation, sharing the know-how and selling of the rights in possession*” [38, p. 70].

Intellectual property management activities are aimed at:

- Identification of intellectual property objects within the enterprise (patents, utility models, trademarks, industrial design, software, databases, etc.).
- Providing protection for identified intellectual property – protection as a trade secret or patenting/registration of the intellectual asset, protection of copyright or related rights.
- Making an estimate of the asset and its value, which is included in the property of the enterprise.
- Use of the asset by virtue of the exclusive rights accruing to its holder for the purpose of obtaining economic benefit. The use of the asset concerns not only the immediate use by the owner, but also the possibility of granting licenses or selling.
- Evaluation of the effectiveness of intellectual property management – the benefits obtained from the exercise of intellectual property rights and the costs incurred for their development, protection and use are examined.

In summary, the management of intellectual property for business purposes, according to Borisova, consists in “*management of intellectual property objects in the enterprise*” and “*management of intellectual property rights... by the exercise of powers as constituted for the economic realization of intellectual property objects through their use*” [39, p.41]. Baran and Zhumabaeva point out that “*Effective management of intellectual property should be one of the basic elements of the company’s development policy, which may significantly influence its increase in competitiveness in the market*” [40].

The above mentioned so far allows us to derive the following working definition: **Intellectual property management concerns the issues of establishing, protecting, evaluating, using, and commercializing the rights as well as measuring the effectiveness of the management conducted.**

According to Kyazim, “*Quality intellectual property management can be critical for a company, which requires an outstanding and entirely successful implementation of this management*” and more „*successful management of intellectual property can lead to: attracting investors; monetizing various types of direct or indirect use of intellectual property objects; providing premium pricing; increased capacity to create a market advantage; improving the financial performance of the enterprise; increasing competitiveness; creating a barrier to entry into the market of new competitors, i.e. to appear a kind of firewall against competition; change of the business environment and the sectoral one; restructuring of the entire business*“ [31, p.103-104].

To achieve the advantages specified by Kyazim, intellectual property management must be conducted as a strategic activity. “*An IP strategy puts a legal framework around what are often intangible assets and makes the protection, enforcement and valuation of these assets much easier and more quantifiable.*” [41]

III. INTELLECTUAL PROPERTY MANAGEMENT AS A STRATEGY

Tietze, Phaal, Bluemel & Wang [20] considering the direct impact that IP has on the value and profit of a company point out that companies need to develop strategic IP management skills. Therefore, to clarify the characteristic features of the intellectual property management strategy, it is necessary to first deduce the essence of the company's development strategy as a concept.

The company's development strategy is “*a concept and formulation of prosperity that is the result of a thorough and scientific understanding of the direction of business development*” [42, p. 666]. The very concept of strategy from another point of view represents “*the determination of the basic long-term goals and objectives of an enterprise, and the adoption of courses of action and the allocation of resources necessary for the carrying out of these goals*” [43, p. 13] and more “*Strategy is the choice of such types of activities in which the organization will reach perfection through the creation of a sustainable competitive advantage in the market*” [44 p. 61]. In this regard, we can say that: **the company's strategy defines the objectives and determines the direction of development in the long run, considering the available resources and turning them into a strategic asset.**

As we pointed out at the beginning of this paper, the growing importance of intellectual property and the knowledge contained in it are becoming an essential source of competitive advantage for companies, which is why it is of utmost importance for their sustainable development to develop an effective strategy for managing intellectual property. [45], [46].

Intellectual property management strategies are not independent or separate from the general strategy of the company. Although they are individualized and aimed at specific goals for the company, they must be implemented in the overall development strategy to achieve a positive economic result [32], [46]-[49]. As Holgersson, Granstrand & Bogers [50] emphasize, the complex innovation process makes it necessary for IP strategies to include both protection and/or sharing of own innovation developments and access to those of other market players.

An intellectual property management strategy must involve all activities essential to its management. In addition to the already clarified activities for identification, preservation, evaluation, use and commercialization of intellectual property rights, Trendafilov [51] points out that it is also necessary:

- Development of a comprehensive policy for the creation and use of innovative products.
- Development and implementation of a system tracing the infringement of rights of already protected intellectual property objects.
- Development of a system for correct identification and protection of trade secrets.
- applying a privacy policy for significant information.
- Settlement of the issue of ownership of intellectual developments with employees and subcontractors.
- Development of policies for the protection of own intellectual products from competitors and preparation of procedures for litigation in case of established violations.
- Avoidance of infringements of foreign intellectual property rights.
- Deciding for which intellectual property objects license agreements can be signed and which are subject to sale.
- Conducting periodic audits of intellectual property.

The above can be summarised in the following important points [20] forming an effective strategy for the management of intellectual property rights:

1. Definition of objectives – like any strategy, so does the one for the management of intellectual property contain goals. The purpose of IP management is to provide protection for the company's innovation developments from the actions of unscrupulous competitors to achieve economic benefit. In addition, IP can be used in two opposite directions – as a barrier to entry [52] or to conduct cooperation between companies [32]. In this regard, the objective of IP is to capture the value created within the company [53], which has been particularly relevant in recent years, in which technological change and higher innovation costs, as well as the high risks posed by the innovation process and the subsequent deployment of innovative technologies, force companies to step out of the field of competition and start collaborating by sharing their innovative developments through open innovation approaches. to knowledge and complementary technologies [54]-[57]. According to Holgersson, Granstrand, and Bogers [50], an intellectual property management strategy should be combined not only with the company's development strategy, but also with the overall strategy of the entire ecosystem, of which the company together with other market participants are a part. In this regard, Tietze, Phaal, Bluemel & Wang point out “*IP strategies specifically support objectives to maximise value creation and value capture, and thus support the overall goal of competitive advantage within business and corporate strategies*” [20, p. 9].

2. Multiple objects of intellectual property – as we have indicated, the composition of intellectual property includes various categories of rights, which differ in type, possibility of enforcement, provision of protection, scope of this protection, etc. In general, these objects can be divided into two groups: a formal IP in which own developments, protected in the required order (patents, trademarks, design, copyright, trade secrets) and an informal IP acquired through alternative mechanisms (by contract, common law, or licensing agreements) [58]. In developing the IP management strategy, account shall be taken of the advantages and disadvantages of each of these types of property and combined in such a way as to ensure maximum economic benefits.

3. IP management strategy areas – authors such as Pitkethly [59], Palfrey [60] classify IP management strategies according to the area in which they are implemented. Somaya [45] assumes that intellectual property strategies are those that justify decisions about the allocation of resources for scientific research and they predetermine the implementation of the goals of companies in this area. On the other hand, these decisions are related to three interdependent areas: rights, licensing, and enforcement. The rights include both IP object acquisitions and the provision and maintenance of legal protection for assets in the company's IP portfolio. Licensing concerns actions taken regarding the use of IP by third parties [59] and enforcement is related to the protection of IP rights by conducting lawsuits against violators or by forcing them to conclude license agreements.

4. Alignment – the requirement for constructive collaboration requires that the intellectual property management strategy aligns with the company's overall development strategy to maximize value [32], [46]-[48]. Therefore, the formulation of the IP management strategy should be conducted after developing the company's overall strategy, considering:

- The different types of assets falling into the company's portfolio with IP.
- Alignment of the IP management strategy with the overall strategy of the company, due to the use of this strategy by different units in the company.
- The IP management strategy must align with the three strategic levels in the organizations and the corporate, business, and functional strategy developed.

All the above allows us to assume that: **The Intellectual Property Management Strategy, developed in line with the company's overall strategy, guides the long-term decisions of the managers regarding the rights in the company's intellectual property portfolio (acquisition, exploitation, and enforcement of rights as a body) to increase the value of assets and the organization and contribute to the implementation of the defined business objectives.**

Since theory and practice are not limited to a common strategy, depending on the future development goals of the company and the way of using its intellectual property, some of the more widely applicable management strategies are presented.

IV. INTELLECTUAL PROPERTY MANAGEMENT STRATEGIES

There are different authors' views on the type of strategies in the field of intellectual property rights management. According to Bainbridge & Howell [61], as well as Gollin [62], companies can implement 5 types of strategies:

- Protective strategy – intellectual property is not actively used in business activity.
- Cost control strategy – a variant of the defensive strategy that controls which assets are protected and which are not.
- Income-oriented strategy – intellectual property is an important business asset from which future profitability is expected.
- An integrated approach strategy – promotes the active use and enforcement of intellectual property rights.
- No strategy applies – in cases where the organization is non-profit.

Another classification of intellectual property management strategies has been proposed by Fisher & Oberholzer-Gee [32], who emphasised offensive and defensive strategy (see Figure 3).



Figure 3: Intellectual Property Management Strategies

4.1. Offensive strategy

The offensive strategy uses intellectual property rights as a **barrier against competitors and third parties** imitating the company's products. To achieve this, it is necessary to have stable protection for the company's innovative developments, and the very decision on the type of this protection is often a complex issue, the solution of which requires consideration of several points, including providing legal protection through a patent or keeping promising innovations secret. By patenting Innovation reveals the essence of the invention, which in a subsequent moment can give competitors important starting points for creating a newer and strategically significant intellectual product. On the other hand, keeping developments secret also poses risks and requires ensuring stable measures against espionage, imposing confidentiality obligations on employees and signing confidentiality agreements.

Putting pressure on the market as a second moment of the offensive strategy implies increasing the prices of the company's products above those of competitors, which will lead to an increase in profitability. At the same time, this can cause problems in the market and worsen positions, especially in cases where the presence of the following three mechanisms is observed: changes in competition, rivals' increased incentives for innovation, and smaller markets for complements [32]. In these cases, a better intellectual property management strategy brings to the fore the role of **intellectual property sharing** through sale, licensing, cooperation, or donation to competing companies [32].

The sale is a process of expropriation of intellectual property rights. The sale is advantageous in cases where the company can gain more from this transaction than from the management of the rights to the asset or the lack of such a possibility. The difficulties of the sale are expressed, on the one hand, in the reluctance of the holder of the asset to disclose more information about its nature due to fear of misappropriation of the information, and on the other in the limited information reaching the potential buyer, on which he cannot make an objective assessment of the value of the object of intellectual property.

Licensing is the opposite of selling from the point of view of retaining ownership of the object of intellectual property. The license agreement provides the right to use the object of licensing by a third party, and this right is explicitly granted by the right holder against payment of a license fee by the recipient (licensee). The scope of the license agreement includes one or more of the activities which the relevant legislation provides for to be conducted solely by the right holder.

Cooperation is a form of cooperation of individual companies that, based on common standards for the design and manufacture of their products, increase their quality, which benefits consumers. At the same time, the participating companies are obliged to grant licenses for their intellectual property rights to the other collaborators. The benefits of implementing this strategy are in the profits, which the firm acquires from the increase in the value of the market as a whole, which exceed the losses from the granting of licenses for its IP to competitors. Another form of cooperation is the development of open-source intellectual products – most often, software companies create interfaces for application programming freely available to other companies, thus encouraging the incorporation of the capabilities of different specialists in the creation of a product. Of course, such activity is also legally regulated and requires signing the relevant agreement or granting licenses for free and open-source software.

The last strategy of *donation* (distribution of IP) is related to the grant for use of owned intellectual property rights. The effect of this is most often expressed in a humanitarian direction – as an incentive or means of development of economically and technologically lagging countries. To prevent malicious competitors from using the rights granted free of charge, their owner may conduct the act of donation through the public disclosure of their case and disclosure of intellectual property information, which will prevent competitors from gaining an IP advantage.

4.2. Defensive strategy

The defensive strategy is most often used by companies entering a new market, competing with other leading companies in the sector owning intellectual property. These strategies are implemented by companies that do not have an IP portfolio and are very high-risk, but when properly implemented, they can bring a strong economic advantage and growth to new market entrants.

Assertion of legal privilege is a strategy in which the entrant new market participant in a market segment already occupied by an IP owning company seeks to obtain a niche for work. By challenging the validity of the competitor's IP rights in court or by recognizing those rights but claiming that the product or practice that the new market participant will apply will not conflict with these rights [32], the rights of the leading company may be circumvented.

Developing an alternative technology that provides an economic advantage to the new market participant and at the same time does not infringe the intellectual property rights of other companies is another type of strategy that requires considering several considerations. The most obvious of these is the competition that will arise between companies due to the nearby products they offer and the subsequent fierce race for consumer choice.

Obtaining a permit is a strategy that brings to the fore the legal acquisition of rights to use a protected IP by concluding a license agreement. In this way, the established market participant prevents the attempts of new participants to develop alternative technologies, and at the same time guarantees stable positions. As a new market participant, the prospective licensee may acquire better positions in the negotiation process if it at least partially develops an alternative technology, which will motivate the leading company in granting licenses.

Détente as a strategy implies companies to create a large portfolio of IP rights without asserting them. Thus, when a competitor threatens them with a counterclaim for infringement of rights, the company can first check that its IP rights are not infringed and thus the two companies conclude a cross license. The strategy has been successfully implemented by Canon, who, to gain access to critical technologies, use their extensive patent portfolio to pressure a competitor infringing their rights to cross-license [32].

Rapid spread. This strategy is high-risk and is associated with ignoring the potential consequences of violating others' rights and rapidly spreading the infringing technology. The main goal is to implement the technology quickly and ubiquitously, so that by the time of litigation of the actions of the infringing company, it can convince the owner of the rights to conclude a license agreement.

The strategies presented and their peculiarities are descriptive in terms of the opportunities for companies to strategically manage intellectual property rights. Not irrelevant when choosing a specific strategy

or a combination of several strategies is precisely the overall policy of the company and the developed strategy for corporate development.

V. CONCLUSION

The importance of intellectual property objects for business is expressed through their intangible nature, which allows them in the process of their use to multiply their economic potential, realizing many excess profits. This determines the importance of intellectual property for business, as its effective management makes it a sustainable and long-term competitive advantage for enterprises.

The issues of intellectual property management presented in this paper reiterate the strategic importance of this activity. In modern times, driven by knowledge and technology, the absence of intellectual property policy and strategy can doom the development of a business to failure. At the same time, companies that align their overall goals with the goals of intellectual property management and exploit the competitive advantage that the IP portfolio creates are much more resilient to economic shocks.

In addition to this, the direct economic benefits for companies from the management of their intellectual property should be outlined [39]:

- Creating a competitive advantage for the enterprise – the creation / acquisition and use of intellectual property and the effective management of rights in its composition lead to the formation of a competitive advantage, difficult for competitors to imitate or recreate. This contributes to increasing the revenue of the enterprise and stabilizing its market positions.
- Recruitment of potential investors – providing intellectual property beyond the core business activity to interested parties for sale or licensing, for the protection of the enterprise and its investment and research, etc.
- Implementation of strategic partnerships (mergers and acquisitions) based on the intellectual property portfolio of the enterprise, which ensures stable negotiating positions.
- Adding new cash flow by concluding transactions with intellectual property rights – licensing, securitization [63], etc.
- Higher profit and return on investment – the intellectual property of enterprises embodied in the products offered can provide a higher profit compared to comparable products.
- Positive image – the intellectual property owned testifies to the technological capabilities of the enterprise and its specialization. This contributes to the formation not only of sustainable over time relationships with the counterparties of the enterprise, but also to the formation of positive attitudes among consumers, expressed in an increased number of purchases, because of which a higher profit is generated.

It is these economic benefits that are the basis for the development of companies and for achieving economic growth, which also drives the development of the sector in which the company operates and the development of the entire economy.

Economic growth for several authors [15] is related to the protection of intellectual property and the environment for acquiring technological opportunities. On the one hand, the establishment of a stable legal system for the protection of intellectual property is a necessary condition for encouraging foreign investment and joining the global trend for free trade. On the other hand, in the context of a knowledge economy, The amount of technological knowledge in the public domain is much larger than in previous decades [15]. Therefore, the relationship of technological knowledge development – creation of intellectual products – intellectual property management, is essential to achieve economic growth.

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