Revisiting business theory and intellectual capital in the digital era: a review

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Abstract. This paper examines the theoretical framework presented in Peter Drucker's book entitled "The Theory of Business" in conjunction with the concept of *intellectual capital*, to clarify the underlying rationale influencing organizational behavior, strategic formulation, and performance outcomes. Specifically, it analyzes how foundational assumptions of business theory regarding an organization's external environment, mission, and core competencies, align and integrate with the three principal components of intellectual capital, namely: *human capital*, *structural capital*, and *relational capital* - the latter being also referred to as *customer capital* in the literature. The study further demonstrates how the synergistic interaction between these conceptual elements contributes to organizational effectiveness and competitive advantage in contemporary business environments. Its insights presented offer a conceptual basis for understanding how knowledge assets and strategic assumptions drive innovation, organizational growth, and sustainable business success in the digital economy.

Keywords: intellectual capital, business core competencies and strategies, knowledge management, digital organizational performance.

1 Introduction

The "Theory of Business" by Peter F. Drucker (Drucker, 1994) is widely regarded as a foundational text in the field of management theory, offering a comprehensive framework for understanding how organizations define their purpose, align their operations, and adapt to changing environments. As one of the most influential thinkers in modern management, Drucker systematically explores the underlying assumptions that drive organizational success or failure. His work remains highly relevant in both academic and practical contexts, particularly when examining the strategic alignment of an organization's internal capabilities with external realities. In (Drucker, 1994) the author emphasizes the critical importance of foundational assumptions in shaping an organization's strategy and overall effectiveness. He argues that for an organization to achieve sustained success, it must clearly define and understand three core assumptions: the environment in which it operates, the mission it seeks to fulfill, and the competencies it possesses. These underlying assumptions serve as a framework for strategic planning, informed decision-making, and performance evaluation. In principle, Drucker believes that having a good idea is really important for an organization to do well and last a long time. But as things within our digital world change, as it is the case with people and technology itself, the ideas an organization such as a modern company has or employs may not work efficiently anymore. This can cause big problems that simply can't be easily solved. Instead, the organization needs to make big changes to its ideas and plans to become better. Some flagship organizations, like IBM for instance, made serious mistakes in the past because they thought things would always stay the same and this caused them to get stuck or even go out of business. But other organizations, like Merck or Sony, showed us that when they noticed problems early and acted appropriately to solve them, they got better and grew (Drucker, 1994). Drucker articulates that businesses need to be able to change and try new things. They should stop doing things that don't work anymore and pay attention to what's going on around them, especially seeing people who aren't buying from them. It is very important for organizations to keep updating their ideas to keep them strong and ready for anything.

Transitioning to the notion of *intellectual capital*, this includes a set of assets and capabilities of a company that allows it to be successful and differentiated in the market. This includes skills and the knowledge of the employees (i.e., *human capital*), systems, processes or concepts that are important to the company and does not change where there is a change in employees (i.e., *structural capital*) and everything drawn from the partnerships with clients and stakeholders (i.e., *relational capital* or *customer capital*) (Bontis, 1998; Quintero-Quintero et. al., 2021). This group of capital is what is hardly seen but is central to economic development and wealth creation. Basically, it contains everything a company knows and uses in order to add value. The main target of the notion of intellectual capital is to add value to an organization by depending more to knowledge, ideas and skills. Steps in this process include examining the firm's strategy and objectives, defining the strategic purpose of the firm, listing assets, assessing their quality and quantity, devising how they are to be applied, planning transformations, measuring the impact of intellectual capital, and providing a critical metric on the extent of value copy.

The structure of the rest of this paper is as follows: Section 2 discusses the fundamental assumptions of Drucker's "Theory of Business", focusing on the environment, mission, and core competencies, and how these elements shape organizational strategy and decision-making. Section 3 tackles the notion of *intellectual capital* by examining its three key dimensions and their significance in creating organizational value. In the following, Section 4 provides an in-depth analysis of the parallels and distinctions between Drucker's assumptions and the components of intellectual capital, highlighting their combined relevance for enhancing organizational adaptability and competitive advantage. Section 5 explores the practical applications of intellectual capital, illustrating how leading organizations leverage intangible assets to sustain innovation, improve performance, and maintain a competitive edge. Section 6 introduces similar and complementary concepts, namely Knowledge Management and social capital, to further contextualize (Mylonas, 2018) the role of intangible resources in driving strategic outcomes. Section 7 discusses the implications of integrating Drucker's framework with intellectual capital management, offering insights into how organizations can align strategic assumptions with knowledge assets to strengthen resilience, foster innovation, and ensure long-term business success. Finally, Section 8 concludes the paper by synthesizing the key findings and emphasizing the importance of combining Drucker's strategic principles with intellectual capital management to promote sustainable growth, adaptability, and competitive advantage in today's complex and dynamic digital business environment.

2 Fundamental assumptions

Specifically, in his book, Drucker states that the fundamental assumptions to be adopted and took into account by an organization are the environment, the mission and the core competencies, defined in the following.

2.1 Environment

By environment we refer to society and its structure, the market, the customer and technology. It is important for organizations to understand how society works and how it relates to the management of their organization, and then find thoughtful solutions when needed. Every organization interacts with its people, its operations and the world around it, and this is linked to how society is organized. The way an organization interacts with the society in which it is situated can lead to many different outcomes, whether good, bad, or somewhere in between.

For example, the transition of Nokia from a paper and rubber company to a global telecommunications leader illustrates the importance of aligning organizational assumptions with societal and technological shifts. In the late 20th century, Nokia successfully identified the growing societal dependence on mobile communication and adapted its strategy and core competencies accordingly. However, in the early 2010s, the company's failure to respond effectively to rapid changes in consumer expectations and smartphone technology - particularly the rise of touchscreen interfaces and app ecosystems - revealed a misalignment with its environment. This ultimately led to a significant decline in its market share. The Nokia case underscores how an organization's understanding (or misunderstanding) of its societal and technological environment can critically influence its trajectory.

2.2 Mission

By mission we refer to the goals an organization has, how important they are and how it can achieve them. A goal is a strategy set by an organization's management to define expected outcomes and guide the efforts of employees to achieve those outcomes. Objectives form the basis for an organization's short-, medium- and long-term financial goals. Organizations that set clear goals find it easier to meet standards and can track their progress. They can determine issues and discover areas for improvement that matter most. There are many benefits to setting an organization's goals.

They direct what employees do, explain why the organization exists, establish performance goals, limit the chase of unnecessary targets, and motivate behavior.

A notable example is Google's mission "to organize the world's information and make it universally accessible and useful." This clear and ambitious mission has guided the company's strategic decisions and innovation efforts since its inception. It has influenced product development - such as Google Search, Google Maps, and Google Scholar - ensuring alignment with the overarching goal of information accessibility. Moreover, the mission has served as a unifying principle that motivates employees and supports a cohesive organizational culture. Google's ability to maintain focus on this mission while expanding into new domains illustrates how a well-defined organizational mission can drive sustained innovation and long-term success.

2.3 Core Competencies

By core competencies we refer on what an organization does best compering to others and how can it be more competitive. Maintaining business as normal frequently entails concentrating on outside variables like increasing revenue or developing outward-facing goods and services. The organization itself can be the key to a stronger and more competitive business.

In this case a clear example is Apple Inc., whose core competencies include innovative product design, seamless hardware/software integration, and strong brand loyalty. These internal capabilities have allowed Apple to consistently differentiate itself in a highly competitive technology market. Rather than solely focusing on external growth drivers, Apple has invested heavily in its design philosophy, proprietary operating systems, and a tightly controlled ecosystem, which have become hallmarks of its competitive edge. This focus on refining and leveraging internal strengths demonstrates how core competencies can serve as the foundation for sustainable competitive advantage.

3 Intellectual Capital: dimensions and significance

Establishing and making sure that employees share and uphold a set of core principles is essential to an organization reaching this degree of trust in its workforce. This gives staff members more freedom to make daily decisions that management understands will best represent the company. Intellectual capital may be defined as the specific knowledge and skills that a group of people in a company have, together with the good relationships they build with customers and partners (Quintero-Quintero et. al., 2021). It also includes things like the company's ideas and ways of working that help it succeed, even if some people leave. This knowledge and these relationships help the company make money and do better than others. The main goal of intellectual capital management is to help the company create more value, which means making things better or more useful to customers. To do this, companies need to look at their plans for the future, understand what they want to achieve and check how good their resources are. They also need to figure out how to improve those resources and see how well they are doing at creating value. All of these steps help the company grow and succeed.

3.1 Human Capital

Human Capital refers to the knowledge and the skills that employees have in an organization. It represents their ability to solve issues and support new ideas within the organization. This valuable asset includes employees training, their mental and physical well-being and how they approach a given task. The relationship between the organization and its people is important for employee's productivity, satisfaction and loyalty. Human Capital is about the people, not the organization itself. If its workforce becomes weaker over time without having a mechanism for keeping up their knowledge and skills of the present day, this asset will become none. Using human capital effectively helps a company remain competitive and thrive in the market by promoting strong relationships, creating a supportive atmosphere, and providing opportunities for growth (Bontis, 1998; Wikipedia contributors, n.d.).

3.2 Structural Capital

Structural Capital is the non-physical assets and systems that help an organization work well and support its employees. It includes the company's values, culture and methods that improve its abilities. It also involves the methods to deliver products and services efficiently. Structural Capital covers Intellectual Property like patents, trademarks, copyrights and trade secrets, special databases, software, information systems and leadership structures. Human Capital is about people, while Structural Capital stays within the organization even when employees leave, making it essential for long term success (Bontis, 1998; Wikipedia contributors, n.d.).

3.3 Relational/Customer Capital

Relational Capital (or Customer Capital) is the value of an organization that gets from the relationships with different people and groups like customers and suppliers. It's all about the trust and loyalty that an organization built through these connections, which affect its image in the market. It also shows how important an organization is in the market, providing a competitive advantage and valuable assets like customer licenses, trademarks, and brand names. Relational Capital is very important for how an organization operates internally and competes in the market. It helps the organization become more efficient and effective as it grows (Bontis, 1998; Quintero-Quintero et. al., 2021; Wikipedia contributors, n.d.).

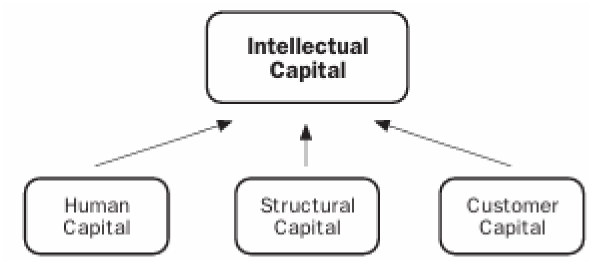

Fig. 1. The three identified types of intellectual capital.

4 Examining "Theory of Business" in the context of intellectual capital

As said above, "The theory of business" by P. Drucker (Drucker, 1994) and the concept of intellectual capital are important for an organization's success. The first one emphasizes the basic beliefs about the organization's environment, its mission, and its core competencies. The second one emphasizes the importance of people's skills, organizational systems, and relationships with clients. In this part of the paper, we shall focus on the similarities and differences of both these ideas.

First and foremost, both theories are based on non-physical assets, which bring success to an organization. Drucker's assumptions and intellectual capital dimensions can be aligned. Environment and Relational/Customer Capital can correlate, because these assets refer about the relationship between the organization and the market, its customers and suppliers. Similarly, organizational goals, cultures and ideas are part both of Structural Capital and Drucker's assumption about mission and Core competencies and Human Capital refer on skills, knowledge and strength of its workforce.

Both theories, mention the necessity of consistent evaluation. Drucker warns about outdated assumptions, while Intellectual Capital management supports consistent evaluation on these assets, so organizations can remain relevant and competitive (Bontis, 1998). The target of both the ideas is to create value through these assets or through an effective strategy. Both recognize that value creation extends beyond financial metrics, encompassing innovation, customer satisfaction, and societal impact (Drucker, 1994).

Despite of how similar both theories are, there are still differences between them. Drucker's Theory is focused on the foundational principles that guide organizational behavior, while Intellectual Capital is a measurement-oriented concept that quantifies and optimizes intangible assets (Quintero-Quintero et al., 2021). Implementing the ideas, Drucker gives a philosophical approach on how the organizations reflect and adapt on his assumptions. On the other hand, Intellectual Capital uses tools such as knowledge audits and relational network analysis, to count asset performance (Serenko & Bontis, 2013). In addition, the time frame considered by the two theories also differs. In the case of Drucker's Theory, relates to the long-term survival of the organization, whereas Intellectual Capital management theories refer to short-term and long-term survival and taking advantage of intangible its assets (Bontis, 1998).

Organizations can combine Drucker's framework with Intellectual Capital management to align strategic assumptions with the optimization of intangible assets. For example, a technology company like Microsoft takes advantage of the its structural capital, such as patents and software systems, while continuously reassessing its mission to stay competitive in a rapidly growing industry (Bontis, 1998).
Bontis (1998) stated that: "Shares in Microsoft, the world's largest computer software firm, changed hands at an average price of $70 during fiscal 1995 at a time when their so-called book value was just $7. In other words, for every $1 of recorded value the market saw $9 in additional value for which there was no corresponding record in Microsoft's balance sheet (Sveiby, 1997, p. 3)." (p. 64).

The interaction between Drucker's Theory of the Business and Intellectual Capital offers a complete perspective on organizational success. By addressing foundational assumptions and optimizing none physical assets, organizations can grow and adapt to the complexities of the modern market.

5 Practical applications of intellectual capital

The influence of intellectual capital on organizational performance is also important (Bontis, 1998). Intellectual capital, which encompasses human, structural, and relational capital, plays a key role in achieving and sustaining a competitive edge. Research within the field has consistently demonstrated a positive link between intangible assets and value creation, emphasizing the importance of intellectual capital in driving organizational success.

For example, the application of structural capital through companies like Microsoft, which uses patents and proprietary systems to secure their market position and sustain innovation. Similarly, human capital is critical, as evidenced by organizations such as McKinsey & Company, where knowledge and skill sharing between employees lead to client solutions and operational efficiency. Relational capital (Customer capital) is equally important, with firms like Nike take advantage of their strong brand relationships and partnerships to remain loyal on its customers and expand its market reach. (Bontis, 1998).

More specifically, according to Bontis (1998): "One of the purest examples of intellectual capital valuation is in the consulting industry. McKinsey, one of the industry's leaders, does not employ traditional marketing methods; it sells by having clients come knocking to purchase the best analytical knowledge available (Nicou et al., 1994). McKinsey generally sells its intellectual capital in teams of five, each led by a senior partner. Remarkably, clients are willing to pay for the transfer of this knowledge at an average annual rate of $500,000 per consultant (Sveiby, 1997)." (p. 64-65).

"Another popular example of a knowledge intensive organization that is internationally known for its products is Nike. However, Nike is a shoemaker that makes no shoes – its work is research and development, design, marketing, and distribution, almost all knowledge based activities - but still has $334,000 in sales for each employee (Stewart, 1997).” (p.64). For instance, Drucker (1994, para. 17-19) discusses IBM’s initial success and later struggles due to its failure to reassess outdated assumptions about its environment and mission. IBM attempted to combine two distinct business units: mainframes and personal computers (PCs). These two technologies had completely different underlying philosophies and competitive natures:

- Mainframes - their basic function is linked to the concept of memory, i.e.. the storage and management of large volumes of data.
- PCs - they focus mainly on software, which gives them 'intelligence' and flexibility.

IBM's attempt to combine these two directions caused serious strategic problems. The rapidly expanding PC market couldn't be controlled by the traditional mainframe division because its needs and demands were different and constantly changing. At the same time, IBM's main source of revenue came from mainframe sales, which limited its ability to fully invest in the PCs business. The result was the inability to optimize both the mainframe and the PC unit. This so-called “paralysis” of IBM resulted from the basic assumption that 'a computer is just a computer' and that the IT industry is driven solely by hardware. This assumption ignored the fundamental difference in the way mainframes and PCs operate and the value they provide.

However, its eventual changes in structure show how adjusting valuable but non-physical assets can improve a company's performance. Drucker’s (1994, para. 57) Merck and Sony examples, show how important it is to use people’s skills by creating a culture that encourages learning and innovation, which focus on core competencies. The CEO of Merck who developed the company initially focused exclusively on the research and development (R&D) of high-margin and innovative drugs that were protected by patents. Although Merck was in excellent shape, the CEO made a radical change in strategy by acquiring a major distributor of generic and over-the-counter drugs. This change took place without a crisis, demonstrating that strategic readjustment can be made even when a company is at the peak of its success. A similar strategic shift was made by the new CEO of Sony, the world's best-known consumer electronics manufacturer. The CEO acquired a Hollywood movie production company, shifting the focus of Sony's strategy. Instead of being just a hardware manufacturer seeking software, Sony redefined itself as a software producer that creates demand for its physical devices. This change in strategy shifted the company's focus, making it a pioneer in connecting hardware and content.

Relational capital (Customer capital) also aligns with Drucker’s insights into understanding non-customers and engaging external stakeholders. Drucker (1994, para. 53) points out that companies like Sears succeeded because they really understood what their customers wanted. However, they struggled when they didn't change their strategies to meet the changing market. In the early 1930s, during the Great Depression, Sears took a bold step, thinking that auto insurance had changed from just a financial product to something that American families needed. Although this decision was initially considered foolhardy, auto insurance almost immediately became the company's most profitable business. In the 1950s, twenty years later, Sears thought that diamond rings had shifted from being a luxury item to a must-have. They quickly became the largest and probably the most successful diamond seller globally. However, in 1981, when Sears decided that investment products had become consumer goods for the American family, this strategy failed completely. The acquisition of Dean Witter and its integration into Sears' stores did not resonate with the public. The American public did not perceive its investment needs as “consumer goods”. When Sears finally decided to operate Dean Witter as an independent business outside its stores, Dean Witter experienced an immediate boom and in 1992 it was sold at a substantial profit. Drucker stresses that Sears' failure to establish itself as a supplier of investment products to the American family should have been seen as a failure of vision for its business, rather than an isolated incident. Had Sears identified this failure as a warning of a fundamental change in buying habits and market heterogeneity, it could have begun its restructuring and repositioning at least ten years earlier. Instead, the company's failure to react in time led to a gradual loss of its leading market position, which was exploited by competitors, such as J.C. Penney.

Despite its theoretical advancements, the practical application of intellectual capital has been gradual. Academic terms are often not used in real life, leading to a disconnect between theory and practical application. Organizations must focus on translating the principles of intellectual capital into actionable strategies that enhance their performance. This means recognizing and using valuable non-physical resources to encourage innovation, enhance efficiency, and strengthen relationships with stakeholders. Bontis (1998) argues that future research should focus on demonstrating the actionable impacts of intellectual capital. This method connects theory and practice, helping organizations use intellectual capital frameworks to improve their performance.

6 Relevance to Knowledge Management and social capital

The concept of intellectual capital shares without doubt similarities with other management and organizational theories. Intellectual capital aligns with concepts such as *knowledge management* and *social capital*, which also emphasize the intangible assets leading an organization to become successful and are presented in the following (Quintero-Quintero et al., 2021). By examining these interconnected concepts, organizations can enhance the management and development of their intellectual capital, thereby strengthening their strategic positioning and addressing the increasing demands for transparency, innovation, and social responsibility.

6.1 Knowledge Management

Knowledge Management is about organizing knowledge so that encourages new ideas and improves efficiency. This theory intersects with Intellectual Capital by addressing the creation, storage, and application of knowledge as a strategic asset. For example, organizations implementing strong knowledge management systems ensure that their Human and Structural Capital are used effectively (Vallet et al., 2005). This helps continuous learning ongoing and matches Intellectual Capital's focus on using non-physical assets for long-term benefits.

Throughout history, the importance of intellectual capital in organizations has changed. It is now understood as the knowledge and processes that help companies compete. Therefore, both should be developed together. Rastogi (2000) claims that both intellectual capital and knowledge management are activities related to handling knowledge. These two ideas are connected in both directions. Intellectual Capital involves the knowledge found in Human Capital, Structural Capital, and Relational/ Customer Capital (Quintero-Quintero et al., 2021).

6.2 Social Capital

Social Capital is another similar concept, which refers to the value of relationships and networks in enhancing organizational performance. It relates to Relational Capital (Customer Capital) by emphasizing that trust, collaboration, and strong partnerships are key for success. It was noted that, they benefit a lot from their social capital by working with industries, alumni networks, and community engagement, which helps improve their reputation and gain more resources. It consists of business capital, which is the value of the relationships it has with key people involved in its core activities, and social capital, which is the value these relationships bring to the organization (Quintero-Quintero et al., 2021).

7 Discussion and implications

The connection between Drucker's "Theory of Business" and Intellectual Capital offers important lessons for organizations dealing with today's complex business world. Both ideas emphasize the importance of being adaptable, using non-physical assets wisely, and aligning business strategies with shifting external factors. This section joins these concepts and looks at their effect on practice and future studies.

Drucker (Drucker, 1994) points out that organizations must always review their basic beliefs about their environment, goals, and main skills. Likewise, managing Intellectual Capital needs ongoing assessment and reporting of people, structures, and relation-ships to stay relevant and competitive (Quintero-Quintero et al., 2021). These similarities imply that combining the two ideas can strengthen an organization's ability to adapt by promoting forward-thinking in decision-making and resource use. A key takeaway is that organizations should have a comprehensive view that includes both theoretical understanding and measurable actions. For example, Drucker's focus on core skills aligns with managing human capital, where developing talent and sharing knowledge are important for gaining a competitive edge. Similarly, structural capital, which includes processes and intellectual property, supports Drucker's suggestion to use internal strengths to address outside challenges.

Another important point is the role of relational capital in building trust and teamwork. Organizations with strong external networks often perform better in changing markets (Quintero-Quintero et al., 2021). This is consistent with Drucker's belief that understanding non-customers and outside partners is important for long-term success. By including relational capital tactics into their main goals, organizations can improve relationships with key stakeholders and adapt better to the market. Practically, combining Drucker's strategic insights with Intellectual Capital management methods (like knowledge audits and balanced scorecards) creates a strong framework for assessing and improving organizational performance. This combined approach helps leaders spot gaps, measure the effects of non-physical assets, and apply focused strategies to meet new challenges. For instance, research shows that universities that share information about their performance rank higher globally, emphasizing the value of being open and responsible (Quintero-Quintero et al., 2021).

8 Conclusions

Drucker's "Theory of Business" and Intellectual Capital emphasize how important it is for companies to change and innovate as market conditions evolve within the current digital era. Drucker emphasizes the importance of reevaluating the basic beliefs about an organization's environment, mission, and core competencies. This method relates to the concept of Intellectual Capital, which focuses on using Human, Structural, and Relational Capital (Customer Capital) to create and keep value.

The herein performed analysis shows that both frameworks have similar goals, such as being adaptable, aligning with strategies, and creating value. Combining Drucker's strategic ideas with Intellectual Capital management tools can help organizations become more resilient, encourage innovation, and gain a competitive edge in a knowledge-driven economy. For instance, the importance of Relational Capital (Customer Capital), aligns with Drucker's call to engage with external stakeholders and understand the broader environment. In the same way, human skills help boost creativity and problem-solving, which aligns with Drucker's emphasis on key strengths.

The results of this study show that being open about internal communication measures and regularly reviewing them is essential for organizations to stay relevant. Empirical evidence, such as the positive correlation between Intellectual Capital disclosures and institutional performance in higher education, reinforces the practical implications of adopting these frameworks. Future studies should keep looking at how these ideas fit together, especially in creating useful ways to measure the relationship between company beliefs and intangible assets. This includes examining how Intellectual Capital reporting can incorporate ethical and environmental considerations, aligning with the broader demands of stakeholders.

In the end, merging Drucker's Theory with the strategic management of Intellectual Capital not only provides businesses with a solid foundation for long-term growth and innovation but also fosters a culture of transparency, adaptability, and stakeholder alignment-key drivers of sustainable competitive advantage in an increasingly complex and dynamic global economy.

References

1. Bontis, N. (1998). Intellectual capital: An exploratory study that develops measures and models. Management Decision, 36(2), 63–76.
2. Drucker, P. F. (1994). The theory of the business. Harvard Business Review, 72(5), 95–104.
3. Nicou, M., Ribbing, C. and Ading, E. (1994), Sell Your Knowledge, Kogan Page, London.
4. Quintero-Quintero, W.; Blanco-Ariza, A.; Garzón-Castrillón, M. (2021) Intellectual Capital: A Review and Bibliometric Analysis. Publications 2021, 9, 46.
5. Rastogi (2000), P.N. Knowledge management and intellectual capital-The new virtuous reality of competitiveness. Hum. Syst. Manag. 2000, 19, 39–48.
6. Serenko, A., & Bontis, N. (2013). Investigating the current state and impact of the intellectual capital academic discipline. Journal of Intellectual Capital, 14(4), 476–499.
7. Stewart, T.A. (1997), Intellectual Capital: The New Wealth of Organizations, Doubleday/Currency, New York, NY.
8. Vallet D., Mylonas P., Corella M.A., Fuentes J.M., Castells P., Avrithis Y., A semantically-enhanced personalization framework for knowledge-driven media services, Proceedings of IADIS International Conference on WWW/Internet (ICWI 2005)
9. Sveiby, K.E. (1997), The New Organizational Wealth: Managing and Measuring Knowledge Based Assets, Berrett-Koehler, New York, NY
10. Wikipedia contributors. (n.d.). Intellectual capital. In Wikipedia. Retrieved December 27, 2024, from https://en.wikipedia.org/wiki/Intellectual_capital
11. Mylonas P., The evolution of contextual information processing in informatics, Information, MDPI, Volume 9, Issue 3, March 2018