



INTELLECTUAL CAPITAL AS A BASE FOR DESIGNING A VIRTUAL ORGANIZATION

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Abstract

In today's global business world, intellectual capital is becoming increasingly important for companies to stay competitive, especially when it comes to virtual organisations. This paper discusses how human and structural capital is the backbone of virtual organisations' innovation, collaboration, and flexibility. It also highlights intellectual capital's crucial role in helping virtual organisations thrive in fast-moving markets. Finally, the paper discusses how human and structural capital are interdependent and offers ideas for how companies can develop their intellectual resources to support the growth of virtual organisations.

Key words: *virtualization, globalization, specialization, virtual enterprises, intellectual capital*

Introduction

Rapid globalisation and technological advancements have changed how companies operate and compete in today's business environment. One significant change is the rise of intellectual capital as a critical factor for success [1]. While traditional companies focus on physical assets and financial resources, modern enterprises increasingly rely on intangible assets like knowledge and expertise to stay ahead [2]. This shift is driven by the need for businesses to be more flexible, scalable, and responsive to shifting market conditions.

Intellectual capital refers to knowledge, experience, intellectual property, and organisational capabilities that give a company its competitive advantage [3]. It includes human capital—the skills, creativity, and innovation potential of employees—and structural capital, which refers to the systems, processes, and intellectual property that support an organisation's functions. Together, these two components create a strong foundation for long-term success.

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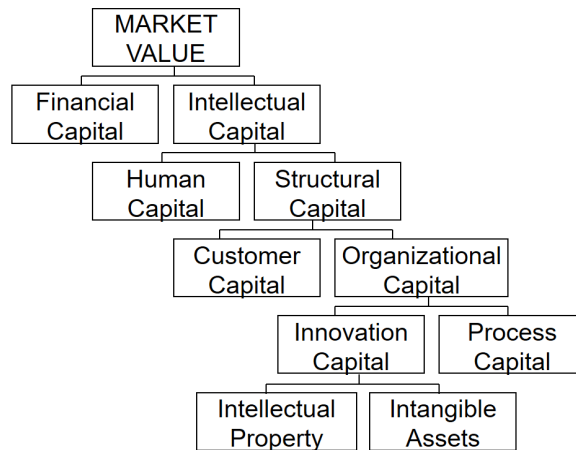


Figure 1. Elements of intellectual capital based on the scheme of Skanda's market value²⁹

This focus on intellectual capital is necessary and a significant advantage for virtual organisations that rely on something other than a centralised physical presence [4]. Instead, virtual organisations are networks of legally independent entities or individuals who work together through shared information systems. By heavily depending on intellectual capital, these organisations have the unique ability to leverage knowledge, expertise, and collaboration across different geographical locations, thereby enhancing their competitive edge.

Globalisation has been a driving force behind the adoption of virtual organisational models. As companies expand globally, they need to be more agile and adaptable, particularly when responding to changes in international markets [5]. Advances in information and communication technologies (ICTs) have made it easier for companies to coordinate activities across countries [6]. In this context, virtual organisations can utilise intellectual capital from anywhere in the world, gaining access to specialised expertise and developing innovative solutions that would be hard to achieve within a traditional organisation.

Another key factor driving the rise of virtual organisations is the trend toward specialisation. Today's businesses increasingly focus on their core competencies while outsourcing non-core activities to external partners or specialists [7]. This trend creates networks of entities that work together to deliver value, requiring virtual organisations to manage intellectual capital effectively. They must ensure that knowledge is shared across the network while remaining flexible enough to adapt to changing market needs.

²⁹ A Swedish insurance company that has created a model of managing the intellectual capital called Scandia Navigator

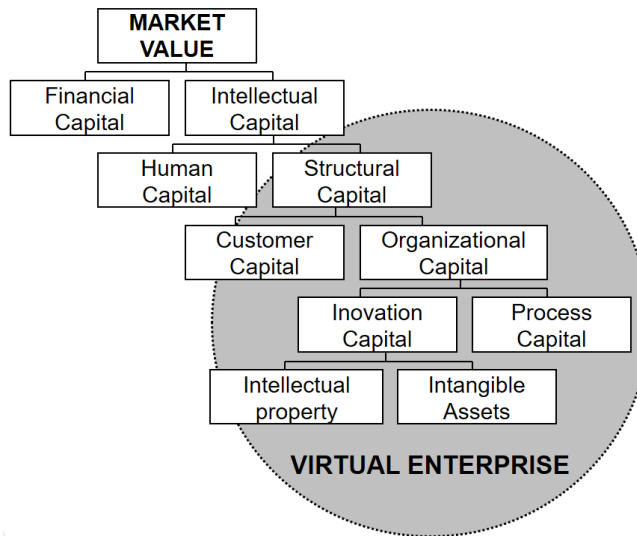


Figure 2. The virtual enterprise observed through concept the intellectual capital by the scheme of Skandia's market value

Although virtual organisations offer many benefits, they face significant challenges, particularly in managing intellectual capital. For example, maintaining a cohesive company culture in a virtual environment is challenging [8]. Additionally, enterprises must protect and manage intellectual capital carefully, especially when handling sensitive or proprietary information [9].

Human capital, employees' collective knowledge, skills, and problem-solving abilities, plays a pivotal role in virtual organisations. In a virtual setting, human capital becomes even more critical since employees often work independently and need to collaborate remotely. Their capacity to innovate and solve problems is what drives the success of businesses in these knowledge-driven industries [10].

Structural capital, the systems, processes, and infrastructure that help organisations use their knowledge effectively, is of utmost importance in virtual organisations. This includes databases, organisational routines, and intellectual property that keep the organisation running smoothly [11]. In virtual organisations, structural capital is not just essential, but a key factor for success, as it is responsible for coordinating activities across locations and ensuring that intellectual capital is used to its full potential [12].

Theoretical framework

Intellectual capital, with its two primary components (human and structural capital), is the foundation of success for virtual organisations. Human capital refers to employees' knowledge, skills, and creativity, while structural capital includes the systems, processes, and intellectual property that support efficiency [11]. These



elements drive innovation, collaboration, and competitiveness in virtual environments [13].

Virtual organisations depend heavily on human capital, particularly geographically dispersed teams. In these settings, employees must work independently and collaborate effectively using digital tools [10]. Innovating and solving problems is essential for businesses in knowledge-driven industries [3]. Structural capital helps make this possible by capturing, storing, and sharing knowledge across the organisation [14].

The relationship between human and structural capital is more complex in virtual organisations than in traditional firms. Virtual organisations rely on intangible assets without a physical office to maintain competitiveness [1]. By tapping into intellectual capital, virtual organisations can quickly assemble specialised teams worldwide to address specific challenges.

However, the success of virtual organisations depends on the interdependence between human and structural capital. While human capital drives innovation and problem-solving, substantial structural capital is also needed [11]. Structural capital ensures that human capital is used effectively by coordinating activities and supporting communication across different locations [12].

Globalisation has been vital in the rise of virtual organisations, giving companies access to specialised expertise. ICTs have made it easier for businesses to coordinate activities worldwide, improving their ability to innovate and respond to market changes [5]. Specialisation has also driven the need for effective intellectual capital management as companies focus on core competencies and outsource other activities [7].

Managing intellectual capital in virtual organisations comes with challenges, such as creating a cohesive organisational culture and protecting sensitive information. Often widely spread, virtual teams can struggle to establish trust and communicate effectively [8]. Structural capital, particularly information systems and cybersecurity measures, is crucial in overcoming these challenges.

Croatian companies have been slower in adopting virtual organisational models, mainly due to a lack of ICT infrastructure and cultural resistance to remote work. However, by investing in human and structural capital, these companies can improve their competitiveness and take full advantage of global intellectual capital [2].

Discussion

Intellectual capital plays a crucial role in determining how well these organisations function, and the relationship between its two core components—human and structural capital—defines how efficiently knowledge and innovation can be leveraged.

Human capital, which encompasses employees' skills, creativity, and problem-solving capabilities, is the heart of any virtual organisation. In traditional settings, employees work in proximity, which allows for spontaneous collaboration and exchange of ideas. However, in virtual environments, teams often operate in geographically dispersed



locations, making physical interaction impossible. This is where human capital becomes even more critical. Employees in virtual organisations must be capable but also self-driven and innovative, as much of their work relies on their ability to function independently and collaboratively through digital platforms. These platforms, in turn, act as the virtual organisation's backbone, allowing teams to share ideas, work together on projects, and solve problems efficiently despite being spread across different time zones [10].

Human capital also brings the creative spark that fuels innovation, particularly important in industries that rely on knowledge and expertise as their primary assets. Employees' ability to think outside the box, develop new solutions, and drive innovation sets virtual organisations apart in an increasingly competitive market. However, much of this potential can only be tapped with a solid structure to support and channel these capabilities. This is where structural capital plays a vital role.

Structural capital includes the systems, processes, databases, and organisational routines that allow the organisation to function smoothly and efficiently. It is the framework that supports human capital and ensures that today's knowledge and skills are utilised effectively. This aspect is even more pronounced for virtual organisations, as the absence of a physical office means the organisation's digital infrastructure becomes its primary operational platform. This infrastructure must be robust enough to facilitate communication, collaboration, and information sharing while also being flexible enough to adapt to the organisation's changing needs. Structural capital thus acts as a bridge that connects and supports human capital, ensuring that intellectual resources are stored, protected, accessible and actionable [14].

The symbiotic relationship between human and structural capital highlights the importance of having both elements for a virtual organisation to succeed. If an organisation has highly skilled and innovative employees but needs the proper systems to support them, their abilities may need to be improved. Conversely, if the organisation has excellent systems but needs a talented and driven workforce, it may fail to generate the innovative solutions necessary to stay competitive. For virtual organisations, success lies in nurturing human talent and building the structural framework that allows that talent to flourish.

Globalisation and specialisation have been major drivers of the rise of virtual organisations. By removing the limitations imposed by physical locations, globalisation has enabled businesses to access expertise and talent from across the globe. This has allowed organisations to form diverse teams, combining different perspectives and skills to develop innovative solutions that would be difficult to achieve in a more localised setting [5]. On the other hand, specialisation has allowed businesses to focus on their core competencies while outsourcing non-core activities to external partners. This division of labor enables companies to operate more efficiently, leveraging their intellectual capital to create value in areas with the most expertise.

However, these trends also present challenges, especially when managing virtual teams. One significant challenge is cross-cultural communication. Virtual teams often



consist of members from different cultural backgrounds so that misunderstandings can arise due to differences in communication styles, work ethics, and expectations. Managing these differences effectively requires not only strong leadership but also the implementation of systems that foster open communication and collaboration. Through digital platforms and collaboration tools, structural capital plays a critical role in bridging these cultural gaps by enabling seamless communication and knowledge sharing, regardless of geographical or cultural differences.

Another challenge is consistency in processes across different regions. Virtual organisations must ensure that their systems and workflows remain consistent, even when operating in multiple countries with varying regulations, market conditions, and customer expectations. This requires a solid structural capital foundation that allows the organisation to maintain standardised processes while adapting to local conditions. With this balance, virtual organisations may be able to maintain quality and efficiency across their global operations.

The challenges are even more pronounced for Croatian firms that need to adopt virtual organisational models. As a result, many Croatian companies have found themselves at a disadvantage in the global market, where flexibility, innovation, and access to global talent have become essential for success. Croatian firms must recognise the importance of human and structural intellectual capital in driving their competitiveness. By investing in ICT infrastructure and fostering a culture that encourages innovation and collaboration, Croatian companies can better harness their intellectual capital to compete globally.

To fully realise the benefits of intellectual capital in virtual organisations, Croatian firms must also prioritise the development of both human and structural capital. Human capital development can be achieved through training and development programs that enhance employees' digital literacy, problem-solving abilities, and capacity for innovation. On the other hand, structural capital requires investment in technology and systems that enable efficient communication, collaboration, and information sharing. By aligning these two elements, Croatian firms can overcome the barriers that have limited their adoption of virtual organisational models and unlock the potential of their intellectual resources.

Conclusion

Intellectual capital has proven to be an essential element in shaping the success of virtual organisations, especially in a world where flexibility, innovation, and collaboration are increasingly important. By understanding and leveraging human and structural capital, virtual organisations can effectively tap into knowledge and expertise, regardless of geographic limitations. This has allowed them to remain competitive and thrive in today's fast-paced, global business environment. However, managing intellectual capital, particularly in dispersed and digital environments, requires more than the right knowledge or technology; it requires a deep understanding of integrating these elements for the organisation's benefit.



As virtual organisations continue to grow in number and influence, they must emphasise fostering a culture of innovation, securing intellectual property, and ensuring that their systems and processes can support the dynamic nature of remote teams. This paper underscores the critical role that intellectual capital plays in driving business success and highlight the challenges and opportunities associated with managing it in virtual settings.

The research provides several contributions to the existing body of knowledge on intellectual capital, particularly in the context of virtual organisations. While prior studies have thoroughly examined intellectual capital in traditional organisations, this paper extends those ideas to the unique setting of virtual organisations. This paper further highlights the idea that intellectual capital is not just a resource to be managed but a core driver of organisational success in a digital, globalised world. Moreover, the paper adds nuance to the theory of virtual organisations by demonstrating that intellectual capital's role becomes more pronounced when physical proximity is removed, making its management a key determinant of success.

This research offers clear guidelines for practitioners on developing and managing intellectual capital within virtual organisations. Companies must recognise that investing in both human and structural capital is crucial for fostering innovation and maintaining competitiveness. Human capital should be effectively integrated into the organisation's digital infrastructure. The study also emphasises the importance of cultural cohesion in virtual environments. Managers should build a strong virtual organisational culture that fosters trust and engagement among remote employees. Moreover, protecting intellectual property in a virtual setting requires robust cybersecurity measures and clear protocols to ensure that sensitive information is used and shared appropriately.

This study opens up several potential avenues for future research. First, future studies could explore how different industries adapt intellectual capital management strategies to fit the specific needs of their virtual organisations. For instance, knowledge-intensive industries like technology and consulting may have different approaches compared to more traditional sectors. Second, there is a need for empirical studies that explore the practical outcomes of various intellectual capital management strategies in virtual organisations. Case studies or large-scale surveys could provide insights into how companies successfully – or unsuccessfully – use intellectual capital to drive innovation and growth. Additionally, further research could investigate how emerging technologies such as artificial intelligence and blockchain could enhance the management and protection of intellectual capital in virtual environments.

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