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Conceptual Paper

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The significance of intellectual capital in strategies of transnational corporations

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Abstract:

Objective: This study is an attempt to identify crucial assets of intellectual capital (IC) of transnational corporations (TNCs). The author identifies key assets each of the IC layers: organizational, innovative, and institutional. Examining these complex constructions of IC and its comprehensive influence on achieving competitive advantage is justified as the topic has been investigated rarely till now.

Methods: The paper presents literature review and the results of an authorial survey (252 corporations). The author used the following methodology concepts: the Grounded Theory Method, the Social Network Analysis, and the Multidimensional Statistical Analysis.

Findings: The results of the conducted analysis do sustain the postulated hypothesis that the main pillars constituting the intellectual capital of the most powerful transnational corporations (leaders) are the same in terms of the core irrespective of the type of industry. Based on the conducted research, the author points to the three key requirements for each of three IC layers (organizational, innovative, and institutional).

Practical implication: The proposed model of layers of intellectual capital may be used to identify the relationship in question, or its lack of relationship, in other types of international business. Furthermore, the study results provide guidelines for executives of corporations with respect to intellectual capital management.

Originality/value: It is a new, original proposal for measurement and presentation of the relationship between international competitiveness of transnational corporations and their intellectual capital efficiency (pillars of IC-layers).

Keywords: corporation, intellectual capital, competitiveness, knowledge management

JEL Classification: O34, J24, F23, O30, M16

1 Introduction

It is extremely important for the modern international business to recognizing the special role of intellectual capital (IC) in the process of creating international competitiveness in a dynamically changing environment. Moreover, the need for a constant exploration of all three IC layers should be emphasized. It is necessary to identify the elements constituting individual IC-layers and emphasize the need for system exploration. The author puts forward in this paper his claim that this is caused by the requirement to adapt to the three following fundamental principles and new basic challenges for a modern international business: networking, cooperation, and orchestration.

The purpose of the study is to identify methods that allow the most powerful transnational corporations (Top-TNCs) to effectively transform the existing exhaustible resources (tangible assets) into intellectual

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capital so that it is capable of self-improvement and multiplying itself. The study attempted to identify those features typical of individual IC subsystems that can be considered universal and that fulfill the key requirements of a given IC subsystem.

The author puts forward the claim that the three intellectual capital layers (organizational, innovative, and institutional) are a key force in determining international competitiveness of business leaders in the 21st century. The author identifies the key assets of each of the three IC layers: organizational capital (ORGC), innovative capital (INNC), institutional capital (INSC). Based on the conducted research, the author identifies the three key requirements for each of the three IC layers, which can be considered the same or similar for all the leaders of transnational corporations in different industries (TNC leaders).

The study has been divided into the following parts: the introduction, the literature review, three sections (with subdivisions) explaining the procedure and analysis, and conclusions. The author discusses new global challenges and trends in the strategies of contemporary enterprises that have emerged as a consequence of the growing importance of intellectual capital in building international competitive advantage. The present study scrutinizes the modifications to the competitiveness concepts of the Top-TNCs, emerging due to the challenges issued by the growing significance of intellectual capital in modern international business. The key aim of the paper is to determine the main pillars/features determining each of the three IC subsystems—the identification of crucial assets of the organizational, innovative, and institutional IC layers.

2 Literature review

The issues presented in the study are interdisciplinary because the approach combines three research domains: international business, global economy, and international management [Mead and Andrews, 2009; Coviello et al., 2014; McDougall-Covin et al., 2014; Morschett et al., 2015; Massa et al., 2016; Yaraghi and Ravi, 2017; Fatehi and Choi, 2019].

The author refers primarily to the following concepts:

- the behavioral theory of the firm, the concept of knowledge management process [e.g., Bonache and Brewster, 2001; Brandenburger and Stuart, 2005; Reiche et al., 2008; Sekiguchi et al., 2016; Gonzalez and Maertins, 2017; Sobolewska, 2020];
- the intellectual capital, the sustainable development, the management theory, the interdisciplinary theory of the firm [e.g., Zott et al., 2011; Achtenhagen et al., 2013; Bankvall et al., 2016; Leminen et al., 2016; Atalay et al., 2018; Pike and Roos, 2018];
- the concept of international competitiveness, the theory of global economy—different aspects [e.g., Massey et al., 2005; Axford, 2013; Hagen et al., 2014; Rosińska-Bukowska, 2017].

The issue under scrutiny in the present study is to raise awareness of the role of intellectual capital as a key force determining the international competitiveness of modern enterprises. It is necessary to identify the elements constituting the individual IC-layers and emphasize the need for system exploration. This is due to the requirement to adapting the three following fundamental principles and new basic challenges of a modern international business:

- networking and glocalization [e.g., Reagans and Zuckerman, 2001; Wassmer and Dussauge, 2012; Roudometof, 2016; Nyström et al., 2017];
- coopetition [e.g., Lou, 2005; Ritala et al., 2014; Klimas, 2015; Rosińska-Bukowska, 2017];
- orchestration [e.g., Sirmon et al., 2011; Abbott and Hale, 2014; Pedersen et al., 2014; Hurmelinna-Laukkanen and Nätti, 2018].

Therefore, the most powerful transnational corporations (Top-TNCs) develop their global business networks (GBNs) to use the potential of IC-layers effectively. The business concepts are embedded in the extensive and comprehensive business environment. The current debate revolves around the new capabilities and resources that emerge from mutual dependencies between business actors. The foregoing discussion implies that the business model must be based on the “four Cs” (4C): comprehensiveness,

corporateness, congruence, and creativity. There is ample evidence for the claim that a successful strategy is based on the awareness of the merits of knowledge-sharing among the many actors in global business networks. This notion is opposite to the classical view in which enterprises create value on their own as separate entities. [Stahle et al., 2011; Amit and Han, 2017; Nyström and Mustonen, 2017].

Further, this paper makes an attempt to address the issue of the degree to which these challenges are contemplated in the business practices of the Top-TNCs (the leaders of their industry). The author puts forward the view that, in order to analyze this matter, the discussion must focus on the role of intellectual capital in the competitiveness strategies of modern enterprises (based on the 4C concept) and the key determinants of individual layers of intellectual capital. The author's views rest on the assumption that the competitiveness strategies of all the Top-TNCs take into account the growing capacity of the knowledge capital of their own network. The author emphasizes that there is a growing support for the claim that the competitiveness strategies of leaders in international business are based on networking, orchestration, and cooptation. The author's findings support the claim that the development of TNC-leaders in each sector of industry is based on the activation of the same requirements of individual IC-subsystems. The present study attempts to make generalizations beyond the gathered data regarding the Top-TNCs leaders. The aim of this study is to identify several incontrovertible general conclusions for modern enterprises.

The author primarily relies on the following methodology concepts:

- the concept of the Grounded Theory Method [e.g., Savin-Baden and Major, 2013; Ralph et al., 2015; Stol et al., 2016; Hoddy, 2018];
- the concept of the Multidimensional Statistical Analysis [e.g., Barnett, 1976; Gnanadesikan, 1997; Borg et al., 2013];
- the concept of Social Network Analysis [e.g., Mirc, 2015; Yang et al., 2017; De Brún and McAuliffe, 2018].

Here, the analytical model is established on the basis of the assumption that improving competitiveness in the 21st century is the effect of the ability to constantly create added value based on the exploration of the multi-layered intellectual capital. We consider and define that the intellectual capital is one through which an organization's knowledge is improved based on the organizational network, the innovation process, and the use of institutional knowledge.

3 The international competitiveness in the 21st century—new challenges for enterprises

3.1 Theoretical framework

The 21st century brought a radical change in the determinants of building international competitiveness. At present, its key challenge includes the exploration of the knowledge capital of the whole multi-layer structure of a given organization, or the use of the resources collected on various levels and their simultaneous development (exploration).

The analyses of the pillars of strategies of the corporations (leaders of their industry) indicate that the most dynamically developing agents exert greater pressure on the role of knowledge management process (competency based approach, behavioral concepts, theories of innovation). They also treat the diversity of the global surroundings and locality specifically as a source of possible advantages, making use of this potential through a systematic increase of internationalization when doing a business (the theory of international production, the foreign direct investment theory).

However, the most important factor is the introduction of the following qualities into the management model: the understanding of the essence of cooptation, networking and orchestration to create adequate connections on many levels (the theories of mergers and acquisitions, the concepts of economic agglomeration, and industry clustering, and the management theories). This signifies the necessity to abandon traditional competition based on market strength and dominance of a single agent. Instead,, it requires the creation of connections that improve innovation, the refinement of learning procedures, the

search for new methods of implementing skills, and the adaptation of organization methods and forms as well as management structures to fit the dynamic changes happening within the corporation.

It may be concluded here that these requirements may serve to emphasize the role of intellectual capital as a force to activating accumulated resources.

3.2 Conceptual framework

Nowadays, the exploration of knowledge resources of an organization as a whole is primarily important for building a model for competitiveness of the Top-TNCs. In this model, the development potential is based on combining the opposite components—cooperation and competition; localization and globalness; and standardization and adaptation. Further, exerting pressure on qualitative changes associated to both processes and products, particularly the quality of interaction infrastructure, is indispensable. Moreover, regular modifications to the mechanism of system coordination and regulating the procedures to improve the transfer of knowledge from all types of stakeholders are necessary. Further, the system control mechanism must involve the participation of all stakeholders for maintaining a balanced, long-term development of a corporation.

These requirements demand a 4C systemic approach, based on comprehensiveness, corporateness, congruence, and creativity. Comprehensiveness is a holistic approach to fulfill tasks. Corporateness is the ability to build all-level, permanent coalitions, where immanent features must include the possibility to coexist. As a consequence, the system responsible for the effective building of international competitiveness in the 21st century must be based on congruence, thus ensuring a harmonious coexistence with a multicultural global environment and a multitude of stakeholder groups [Kostova and Roth, 2003; Löbbers et al., 2017].

Creativity is a paradigm pillar of the international competitiveness of corporations which can be defines as combining skills, key competences, innovativeness, social responsibility, diversity of organization forms, and cultural dissimilarities into a single change-inspiring system, whose aim is to maximize the effect of synergy. The measure of system effectiveness is the skillfulness to generate added value, understand the ideas of socio-economic values, and co-create values [Porter and Kramer, 2011; Andelin et al., 2015; Rusconi, 2019].

As the above-mentioned principles are considered fundamental in the 21st century, it is necessary to take another look at the capital of corporations as a system enabling continual adjustments. Meeting these requirements is possible because of the existing appropriate structure of the system of resources and the modifications applied to the concept of managing them. So, understanding the essence of the systemic model of corporation resources and the holistic concept of managing a corporation based on this aspect is crucial. It also means emphasizing that the requirement of long-term competitiveness in the 21st century is a skillful exploration of intellectual capital which, in turn, helps increase economic capital.

A corporation's success is largely depends on identifying its own development concept on the basis of its attributes, and an effective composition of the necessary qualities in every layer of the accumulated capital (both economic and intellectual). In order to depict the methods of implementing the principles of building international competitiveness by the Top-TNCs and enabling the fulfillment of the 4C systemic approach, it is necessary to describe the layers of corporate capital. The corporate capital is described in five sub sections, with two describing economic capital and three presenting intellectual capital.

4 The competitiveness of enterprises—the theoretical considerations regarding the role of intellectual capital

4.1 Theoretical framework

The principle of development of TNCs in the 21st century constitutes their specific philosophies of expansion. The strength of the most powerful enterprises is the result of their ability to change in accordance with the

rhythm of the global economy because of an aptitude for the accomplishment of integration and coordination of diverse, globally dispersed activities, taking into account the knowledge capital of the system created. The nature of development potential at present does not merely signify the ability to transfer capital, but the diffusion of its resultant knowledge (technology, qualifications, organization, management, and marketing methods), according to Wilkins [1998]. Therefore, resource ownership is not important and the crucial aspect is the ability to act systemically, which is to organize, integrate, and efficiently coordinate actions of various units in the process of fulfilling the adopted development strategy, which aims to create added value [Dicken, 2007]. Modern enterprises start to abandon centralization, specialization, and standardization and they are replaced with diversity, flexibility, and a creative approach to challenges. As a result, the developed mechanism transmitting the impulses of the dynamically changing environment is primarily significant to the efficiency and long-term competitiveness. Much of the current debate revolves around the role of knowledge capital as a multiplier of resources. This requires a new look at the central components of the development concept of modern enterprises, including appreciation of the non-economic layers of an organization's capital (an impact of intellectual capital) as fundamental.

According to the author, intellectual capital plays a special role in modern organizations. IC fulfills the function of an activator of the competitive system. It is responsible for the uniqueness of the configurations of strategic resources and skills—without it, the accumulated economic capital quickly undergoes devaluation. In an organization, IC is based on innovations, structures, and relationships. A power of successful organization is determined by the unique features of intangible assets: knowledge, intellectual property, organizational culture, management system, and the style of involvement of an organization in the institutional structures of the environment.

Corporation capital is a specific economic category capable of increasing and relying on the collected resources, which is used not only to fulfill purposes as they arise, but also to develop a given agent's business [Wall et al., 2004; Bernstein, 2007]. An immanent feature of the capital perceived as such is its systemic nature, which means that the layers of capital are a system of connected vessels; totally this system is responsible for increasing prosperity as well as a stable and long-term development of the corporation. The capital of modern enterprise can be divided into five subsystems (two economic and three intellectual) and are described as follows [Rosińska-Bukowska, 2017]:

- economic layers of corporate capital (the accumulated economic capital):
 - o market capital—coordination and allocation of rare resources or skills; it reflects possible combinations of their most efficient use in a given moment—global production systems;
 - o financial capital—streams of the flow of financial capital; responsible for maintaining the agent's financial liquidity (both current and long-term);
- non-economic layers of the corporate capital (the intellectual capital):
 - o innovation capital—source of modern solutions and innovative techniques in the organization of the production process; the analysis of the expenditure for research and development and the number of new projects generated; providing the possibility of improvement of individual offers (products and operations), especially regarding key competences;
 - o organizational capital—systematic modifications of the global chain of the creation of added value, due to the creation of paths of structural adjustments; making use of the opportunities provided by the international environment; exchange of work resources (quantitative perspective) into human capital (HC) that generates added value (qualitative perspective);
 - o the institutional capital—it includes norms, habits, institutions that determine the value systems of a given civilization circle, country, region, society, etc.; responsible for skillfully meeting the requirements of multi-institutional global environment and the ability to creatively utilize its potential.

4.2 Conceptual framework

This work focuses only on the non-economic layers of corporation capital. The focus of this study is the impact of intellectual capital on the co-creation of the added value of corporation. The presented model

deals with the challenge of holistically describing the departments of intellectual capital that determine the efficiency of TNC actions. The concept of IC presented in this paper purposefully does not consider human capital (HC) as one of the three layers of intellectual capital, but a factor that permeates and dynamizes the whole system. It is a kind of IC which acts as the integrating force that enables a company to permanently achieve added value, but only with the simultaneous use of all categories of IC-assets—creativity and innovation, management and the organization of the corporate network structure as well as the institutional relations with all types of stakeholders. Human capital is an indispensable factor that bonds the whole organization together. Further, the functioning of both the whole and every individual part would be impossible (systemic approach) without HC.

Human capital is the foundation of intellectual capital [e.g.: Klaila and Hall, 2000; Dowling et al., 2013] which, in turn, is a multiplier of the accumulated economic capital. The function of human capital is utilizing the potential of the three IC subsystems simultaneously—activation of a TNC through:

- structures for knowledge transfers;
- innovations successfully created in the system;
- institutions providing a network of relationships of various forms.

Therefore, the author emphasizes that IC must include three subsystems: organizational capital (ORGC), innovative capital (INNC), and institutional capital (INSC), which are linked through the activity and creativity of human capital.

The current debate revolves around the role of a corporation's knowledge resources [Nielsen and Michailova, 2007; Dijk et al., 2016]; around the creation, accumulation, organization, dissemination, implementation, and exploration of knowledge [Skyrme, 1999; Choong, 2008; Rusly et al., 2015]; around the ability of coopetition (combining competition and cooperation). Generally, different researchers [e.g., Bounfour, 2003; McCutcheon, 2008; Lefebvre et al., 2016; Dane-Nielsen and Nielsen, 2017; Rosińska-Bukowska, 2019] focus on their preferred aspects of knowledge management and intellectual capital and their role on building the competitive advantage.

4.3 Research gap identification

According to the author of this article, the key guidelines for intellectual capital to improve the effectiveness of competitiveness strategies include [Rosińska-Bukowska, 2019]:

- networking— (ORGC) the full pro-development openness, also extra-sectoral, the ability to combine globalness with locality (glocalization); the development of owner links, strategic connections and cooperative relations; the issue under scrutiny is the implementation of the strategy of networking internationalization [Blankenburg, 1995] which takes into account the socio-economic context;
- orchestration— (INNC) the management of the knowledge capital accumulated in the network on many levels in order to successfully create solutions, including socially-useful innovative values; the replacement of hierarchic management with the regulatory model [Shleifer, 2005]; innovations as directions for strategy in order to explore all possible types of creating value [Gereffi et al., 2005];
- coopetition— (INSC) the ability to use competitive advantage based on the idea of sustainable development; a concept of establishing connections with a multi-cultural institutional environment by putting together cooperation with competition and benchmarking [Wireman, 2004], isomorphism [DiMaggio and Powell, 2000].

These valuable assets take the form of sub-systems of intellectual capital, providing access to the most valuable resources. Those resources create long-term competitiveness, because they allow us to permanently maintain the ability of a corporation (business system) to create added values.

In total, the assessment of the capital of modern organisations should be based on the assumption that all of resources of an organization are made up of tangible assets, the combination of market and financial capital (economic capital), and intangible assets (intellectual capital), which encompass innovation, organizational, and institutional capital, which determine the development potential. IC comprises not only

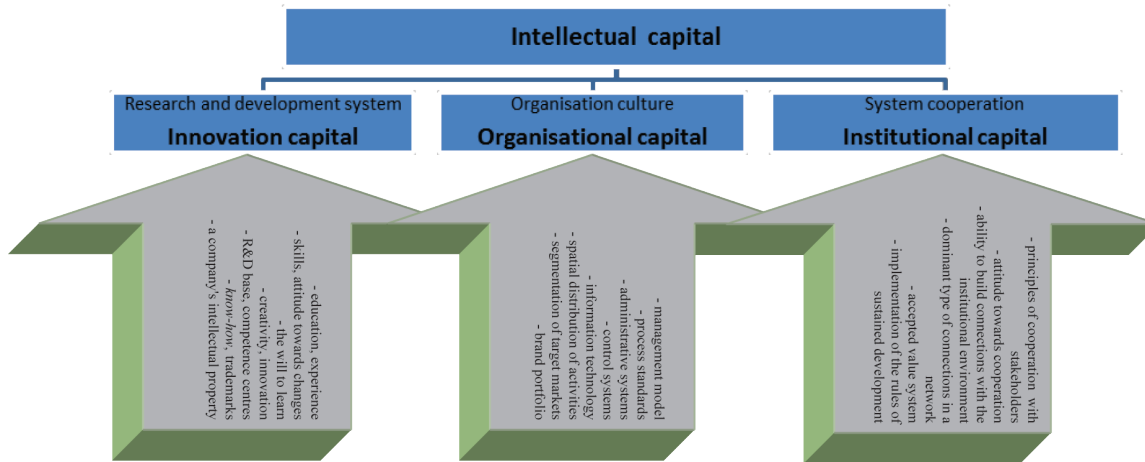


Figure 1. The systemic model of intellectual capital.

Source: Own elaboration.

the intellectual property that can be evaluated but also a complicated series of processes and determinants, such as cultural or social ones, including organization and management.

To sum up, the competitive advantage of the Top-TNCs (constantly developing their GBNs) relies on understanding the essence of the systemic model of the intellectual capital (Figure 1) responsible for maintaining international competitiveness in a dynamic contemporary environment. Given the centrality of this issue and the fact that there is insufficient research on sub-systems of intellectual capital, the author presents the concept of the study on the key determinants of the three IC-subsystems which work as a system to create added or additional values.

5 The corporate systemic model of intellectual capital—the analysis of the three IC-subsystems based on empirical studies for the Top-TNCs

5.1 Research assumptions and development of hypotheses

The international competitiveness of the contemporary corporation is, to a greater degree, the contemplation of advantages of its intellectual capital. The changed business models of corporations in the 21st century are based on three IC subsystems: organizational, innovative, and institutional.

The key challenge is to identify the pillars of development of the strategy, which will help achieve unity in the goals of individual participants of a corporate network and fulfill the long-term aims of the whole organization. Choosing adequate ways of implementing a corporate strategy is highly significant, since it makes it possible to translate knowledge, skills and competences of individual participants of GBNs (built around the major corporation) into individual intellectual capital subsystems.

The strategy guidelines (formulated in the strategy and presented in the annual reports of TNCs) should be properly formulated and understandable for members of the corporate system to serve this purpose. The main challenge involves understanding the idea of the systemic operation of IC layers (ORGC, INNC, and INSC) simultaneously and clearly formulating the requirements for these components, i.e. networking, orchestration, and cooptation in relation to a particular entity.

It has been a long time that the researchers have called on others to include the influence of interpersonal and institutional relations on the organizations' business processes in the studies of competitiveness concepts. These organizations could be internal (employees, managers), external (suppliers, subcontractors, clients, service providers) or institutional (education and administration units,

all types of stakeholders). The international competitiveness of enterprises in the 21st century is based on the deeply rooted organizational, innovation, and institutional network connections. This view is of essentially crucial when discussing intellectual capital and its layers.

This study is an attempt to address the issue of the degree to which these challenges are presented in the business strategies of the Top-TNCs and the leaders of their industry sectors. Further, attention should be paid to the role of intellectual capital in the competitiveness strategies of TNCs and the determinants of individual layers of IC to analyze this matter. Current research seems to validate the view that the role of intellectual capital in the competitiveness strategies of companies is huge. The debate about components of IC is still inconclusive. The author puts forward the claim that there is insufficient research to draw any firm conclusions about determinants of individual layers of IC. The research hypotheses of this paper are as follows:

- H1: the Top-TNCs make intellectual capital the main/central point of their competitiveness strategies;
- H2: the intellectual capital of the Top-TNCs is based on the three subsystems: organizational, innovative, and institutional;
- H3: the development of the Top-TNCs (leaders in each sector of industry) is based on the activation of the same features/requirements of individual IC-subsystems.

5.2 Research methods, types, and sources of data

The main objective of the article is to emphasize the growing importance of intellectual capital in modern international business and its role as a potential key factor in determining international competitiveness. The author draws on the concept of the Grounded Theory Method (GTM) and indicates the main pillars constituting every one of the three IC subsystems in the strategies of the Top-TNCs. The analysis of corporate documents is aimed at identifying three basic values/requirements for each of the three layers of intellectual capital which are the same or almost the same for TNC-leaders.

The conducted research involves:

1. the selection of study subjects (the Top-TNCs); this study draws on the classification titled *Top 100 non-financial TNCs*;
2. the obtained research samples (252 TNCs) are divided into the following industry sectors: automotive—17, electronics—26, pharmaceutical—30, telecommunications and media—38, petroleum—25, industrial goods and services—40, consumer goods and services—36, public goods and services—29, multi-branch—11;
3. the ranking of corporations are in accordance with the constructed synthetic indicator of the creation of added value (SICAV), done on the basis of the method of linear ordering (Multidimensional Statistical Analysis);
4. the identification of three leaders in each sector; the leaders of individual sectors are chosen on the basis of the author's own calculations using SICAV;
5. the analyses of the corporations' complex annual reports for all three leaders in each sector in order to recognize the key factors of IC, included in the given corporations' development strategies;
6. the identification of the three key assets for each IC-layer: organizational, innovative, and institutional ones, which can be considered the same for all TNC leaders; this research draws on conducted research in accordance with the principles of the GTM.

The measure (SICAV) that was calculated in step 4 encompassed the values of parameters including all layers of TNC capital—both economic and intellectual. The component reflecting the condition of the economic capital of a corporation is the return on equity which connects three important factors—operational effectiveness, the expressed return on sales as well as the effective use of purchased assets, and financial leverage—on profitability. After accepting the role of economic capital, it is necessary to focus on the key aspects of each IC layer. This should be ensured by building parameters that enable the assessment of varying methods for building a competitive position based on intellectual capital into the measure.

Issues such as how much they draw on the multicultural potential of human capital, arbitrage abilities that stem from investing assets in an international market, and the significance of intangible assets in the ability to create value-added are stressed. The following indexes reflect the state of intellectual capital: the percentage of non-material assets in creating sales value; the costs of research and development per single employee; the indexes of the internationalization of assets and employment [Rosinska-Bukowska, 2017].

The GTM is a permanent comparative method and its three main purposes are: (1) to reduce the gap between theory and empirical research; (2) to suggest the logic of the theoretical framework for the phenomenon being studied; and (3) to justify careful qualitative research as important and necessary for a comprehensive description of complex social phenomena as well as for structures and subjects which are difficult to identify.

The GTM provides practical and simple explanations about complex phenomena by converting them into constructs that include descriptions of elements and their relationships. Using the GTM often begins with the collection of qualitative data. The in-depth analyses of strategic concepts involved the study through the Social Network Analysis method (SNA). The most extensive stage of the research (step 5) involved the study of the SNA through the analysis of the annual reports of individual corporations.

It is worth mentioning that the GTM is a research methodology which operates inductively, which is in contrast to the hypothetico-deductive approach. The GTM is quite different from the traditional model of research because, with the GTM, we do not choose an existing theoretical framework and then collect data to show how the theory does or does not apply to the phenomenon under study. Here, the order of research is reversed: behavior patterns (data) are collected on the basis of observation. After processing and coding, new theoretical structures emerge. It is a step away from a repetitive and well-established practice toward theory.

Further, the objects (the Top-TNCs) are examined and based on this examination, regularities are identified. The author looked for patterns when exploring intellectual capital. As a last step, the author selected the approach of the companies when dealing against a given market situation, where the measure of success is becoming a leader. The author assumed that since the behaviors of the leaders of various sectors are the same, their patterns of behavior can be treated as a model. Then, on the basis of the data systematically repeated in different entities, the author developed a concept of categories of IC-layers. This concept is based on the presuppositions of the grounded theory.

In conclusion, the last step (6) of the research involved the identification of the three crucial assets of each IC-layer on the basis of the GTM namely organizational, innovative, and institutional, which can be perceived as the same for all TNC-leaders. The conducted research made it possible to determine that there is a remarkable comparability of development principles among the greatest TNCs. The expansion of the most powerful corporations was supported by the strength of economic capital (which is fundamental for sustainable development as a factor required, although not sufficient), however, the advancement of intellectual capital is decisively important in the strategies of leaders.

The author, when researching corporations (the leaders of individual industry sectors), used the key assumptions of the GTM based on Strauss's procedures of analysis [Glaser and Strauss, 1967] to show how they can be combined with the case study. It can be said that the collected data (systematically repeated, the same in different entities) has been properly ordered (grouped, categorized, named) to show that the studied phenomena create a new system—a new filling/refinement for the existing theoretical framework.

Further, the author worked on the assumption that repeated behaviors, i.e. the same responses to market situations/challenges, shaping specific routines for specific opportunities or as responses to specific stimuli, indicate that different entities (enterprises) acting in different domains have the same priorities (in this study: leaders of various sectors). This indicates that there is a process of creating a new theory/concept/model that can be described by analyzing and conceptualizing repetitive practice.

Moreover GTM and the SNA helped to discovering the theory on the basis of the repeated practices of many corporations. The conducted research has provided ample evidence for the assertion that the Top-TNCs presented changes in their strategies that considered significantly the growing role of intellectual capital in the improvement of competitiveness. Development priorities were described by systematically identifying the crucial elements of the strategies of the studied Top-TNCs. The study puts forward the view that management models of the Top-TNCs are based on the development of the three IC subsystems.

5.3 Summary of the findings

It was possible to confirm that the development strategies of the studied TNC-leaders were based on three pillars in accordance with the intellectual capital subsystems:

- building a network of global structures, while taking into account local specifics (networking combined with the requirements of glocalization);
- creating a growth model using all possibilities of the innovative process to meet the requirements of sustainable development (orchestration);
- harnessing the potential of the entire diverse environment at all levels, including creatively drawing on from the competition and seeking consensus among all stakeholder groups (coopetition).

The research evaluated the selected attributes that are considered crucial for an organization's knowledge capital, including the system of R&D, types of value creation chains, types of innovations, the organization of internationalization structures, brand portfolio, leadership style, partnership model, map of stakeholders, and competition model. The author assessed the importance of the indicated attributes for achieving development goals (three in each subsystem: INNC, ORGC, INSC), assigning them weights which indicated their role as factors in the strategic concept of a given corporation.

The three key assets that determine the development of the IC innovations layer are:

- multi-center R&D systems—skillful use of local specifics to create innovative solutions;
- models of creating value—market, modular, relational, captive, and hierarchy;
- management innovations—use of the full range of innovative possibilities, including product, process, and structure management.

The three key assets that determine the development of the IC organizational layer are:

- brand strategy—diversification of the brand portfolio;
- business network—reorganization of global business structures;
- types of business connections—diversity, stages of change.

The three key assets that determine the development of the IC institutional layer are:

- institutional relations—development of the institutional network (local, regional, global);
- coopetition—balance between cooperation and direct competition; the use of all possible types of benchmarking and isomorphism;
- stakeholders—the diversification of the environment of stakeholders (internal, external).

Table 1 presents a synthetic assessment of the scope of fulfilling general requirements based on individual concepts of implementing key assumptions for a given category by sector leaders. The research results for TNC-leaders in each sector were juxtaposed with the base categories of three layers of intellectual capital—INNC, ORGC, INSC. The research related to IC subsystems was qualitative in nature. The level of importance of a given category of relation was assessed on the following scale: irrelevant (−1), underlying (0), significant (+1), crucial (+2), of the utmost importance (+3).

It was confirmed that the studied group of TNC-leaders constructed their developmental strategies based on three pillars similar to the subsystems of intellectual capital. However, it should be emphasized that the degree to which the requirements of individual categories are met differs among the subjects of the study (in consequence, also the sectors). It is the result of, among other things, the diversity of the starting base—the economic capital and the fundamental principles of the formation of individual IC-subsystems. The aspects associated with IC development and most frequently specified or found in corporation strategies are [Rosińska-Bukowska, 2019]: building an international system of development management (of high significance); creating a network of interpersonal connections and relations (of high significance); broadening the intercultural experience of the corporation (significant); creating a system of knowledge transfer between an organization and local operators and more efficient coordination in the global business network of a given corporation (more than crucial, in many cases of utmost importance); training the local

Table 1. The significance of the key factors of IC (included in the given corporations' development strategies)

TNCs by sectors	Sector	Automotive	Electronics	Petroleum	Pharmaceutical	Media & Telecommunications	Consumer goods&services	Industry goods&services	Public goods&services	Multi-branch	9 industry sectors
	The most powerful transnational corporations (leaders of sectors)	Toyota Motor Volkswagen Group Honda Motor	General Electric; Siemens; Samsung Electronics	Royal Dutch Shell; British Petroleum; Exxon Mobil	Sanofi; Roche Group; Pfizer	Vodafone Group; Telefónica; France Telecom	Procter&Gamble; Nestle; Kraft	Arcelor Mittal; Rio Tinto; Lafarge	Electricité de France; E.ON; GDF	Vivendi Universal; Hutchison Whampoa; Marubeni Corporation	Value of the average Leaders of different sectors (27 Top-TNCs)
Layers of intellectual capital (IC)	INNC										
	R&D systems	3	3	2	3	3	2	2	1	1	2.22
	Models of created value	3	3	2	3	2	3	2	1	2	2.33
	Management innovations	2	2	1	3	3	3	2	2	1	2.11
	ORGC										
	Brand strategy	3	2	2	2	3	3	1	0	0	1.78
	Business network	3	2	3	1	3	2	1	3	1	2.11
	Types of connections	3	3	3	2	3	3	2	3	2	2.67
	INSC										
	Institutional relations	2	2	2	2	3	2	2	3	1	2.11
	Cooperation	3	3	2	2	1	3	2	1	0	1.89
	Stakeholders	3	2	1	3	3	3	1	3	1	2.22

*Significance (weight in the strategic concept): irrelevant (−1), underlying (0), significant (+1), crucial (+2), of the utmost importance (+3).

Source: personal elaboration based on the author's own study with the GTM and the SNA.

personnel in order to adapt to the corporation's business model by transferring knowledge, technological, and organizational skills (of utmost importance); including the shaping of attitudes in conformity with the model of the corporation's organizational culture (significant); building a corporate identity (more than crucial).

The most important common aspect related to this context emerged from research is the systematic approach to intellectual capital management composed of three interpenetrating layers. The most significant conclusion of the conducted research is that three requirements, similar or the same in all Top-TNCs can be presented for each of the three IC layers. On the basis of the research, it can be stated with absolute certainty that (regardless of the sector) the intellectual capital (comprising three subsystems) is indeed seen as an accelerator of improving competitiveness and a basis for long-term development for the Top-TNCs.

The research has provided ample support to the claim that although individual corporations portray the principles of their developmental concepts in various ways in accordance with the specificity of their work, the nature of these descriptions is similar. The analysis of TNC-leaders' strategies has shown that corporations perceive and interpret the importance of individual layers homogeneously. Three factors for each subsystem of intellectual capital (ORGC, INNC, and INSC) are identified and described, which are found to be almost the same.

It should be emphasized that the weight of individual subsystems varies depending on the industry. For the Top-TNCs in the five sectors such as pharmaceutical, automotive, consumer goods, media & telecommunication, electronics, the innovative IC subsystem is of the utmost importance (more than crucial). The last conducted research has provided ample support for the claim that leaders of automotive and telecommunications & media sectors highlighted the significance of the organizational IC subsystem. This IC-layer is most appreciated in sectors such as petroleum; consumer goods & services, and public goods & services. Evidence for the growing significance of the institutional IC subsystem is provided by the latest in-depth studies. The institutional IC subsystem is most highly regarded by leaders from four industries (automotive, telecommunications & media, the public goods & services as well as the consumer goods & services sectors) [Rosińska-Bukowska, 2019].

Based on the research, the data collected in the study suggested that corporations (in all sectors) highlighted the growing role of intellectual capital and claimed that creative thinking about the exploration of knowledge resources at all levels of an organization's relations is the catalyst for creating international competitiveness. There is an overwhelming evidence for the notion that the TNC-leaders of their sectors establish pillars of their developmental concepts based on the three IC-subsystems. Because of the importance of these issues, when preparing the principles of fulfilling strategic guidelines, essential instructions regarding baseline requirements/recommendations should be reflecting: network creation (networking), the orchestration model, and the appreciation of the benefits of coopetition.

6 Conclusions

The most powerful transnational corporations which are leaders in modern business, irrespective of the industry, implemented the business model that fulfilled base management strategy, the dominant type of organizational structures, the adopted board structure etc., refer to the three IC-subsystems as new pillars of their development strategies. In order to achieve long-term international competitiveness, they rely on the system model of intellectual capital in which three subsystems (organizational, innovative, and institutional) can be clearly described.

The GTM-based study of the development strategies of the Top-TNCs can be advanced to support that the skillful use of IC leads to the creation of prosperous pillars of competitiveness strategies which are almost the same for all TNC-leaders. Finally, the conducted study made it possible to determine three assets/requirements for each of the three IC layers: organizational, innovative, and institutional, which are either similar or the same in all Top-TNCs. Ultimately, the emerging modern model of strategic management in international business is based on the values and principles showing the huge importance of the multi-layer intellectual capital in the successful development of companies.

A closer look at the gathered data made it possible to notice the similarities of developmental concepts of the Top-TNCs, and allowed to identify key assets that make up the IC-layers, which are commonly recognized (in the assigned group) as the foundation of their dynamic development. This can be considered as the effect of the Top-TNCs adopting a systemic-situational approach, in which intellectual capital takes over the growing role of the accelerator of all accumulated assets.

Referring to hypotheses, the author puts forward the following conclusions:

H1: The author's findings support the claim that, in spite of the fact that individual corporations describe the fundamental pillars of their business strategies in various ways, the essence of the elaborations always focuses on the growing, major role of intellectual capital.

H2: The closer look at data (e.g. Annual Reports with using the SNA) indicates that all of the most powerful corporations highlight the validity of IC subsystems. Corporations refer to parameters of organizational, innovation, and institutional capital.

H3: The development of the Top-TNCs (leaders in each sector of industry) is based on the activation of the same necessary conditions of individual IC-subsystems. These subsystems are described with an emphasis on slightly different aspects, because companies take advantage of parameters individually selected for the specifics of the entity. There are compelling arguments for the notion that corporations always describe three leading areas: organizational, innovative, and institutional. This study seems to validate the view that identification of the three universal requirements per each of the three IC layers is in line with corporate practice.

So, we can conclude that the hypotheses under discussion can be considered confirmed. There are arguments that can be used to support the claim that the international competitiveness strategies of transnational corporations (and, to generalize beyond the data, of other modern enterprises) highlight the major role of intellectual capital in their business concepts. It was fully confirmed for all Top-TNCs studied. The conducted study has shown that the competitiveness strategies of the Top-TNCs are based on the three subsystems of intellectual capital: organizational, innovative, and institutional. These results proved that the three key assets of each IC-layer point to the implementation of universal values in corporate strategies.

Evidence for this claim comes from the foregoing research that identifies the key assets that determine the development of IC-subsystems:

- organizational: brand strategy, business network, and types of connections;
- innovative: R&D system, models of creating value, and management innovations;
- institutional: coopetition, groups of stakeholders, and long-term institutional relations.

It should be emphasized that the development of the Top-TNCs (leaders in each sector of industry) is based on the activation of the same features of individual IC-subsystems. The identification of the three key assets of each IC-layer, which is presumed as the same for all TNC-leaders, based on the GTM theory, has been successful. However, to fully verify the hypotheses and clarify the essence of each of the three requirements for the three IC layers, it is necessary to continue the study on a larger group of entities, and in accordance with the more in-depth sophisticated research. Therefore, based on the evidence currently available, it seems reasonable to suggest that the next stage of research should be planned to draw clear-cut conclusions.

The author ponders over specific guidelines for future studies based on the conceptual model developed (Figure 2). The author plans to conduct a study of at least six to ten corporations representing the same sector/industry in the following sequence—automotive, electronics, media & telecommunication, pharmaceutical, petroleum, consumer goods & services, industry goods & services, and public goods & services sectors. The study will be based on the selection of facilities from the annual list of the most admired companies (MAC) prepared by Fortune (since 2005) and then, the obtained results will be compared with the previous ones.

However, it should be emphasized that the degree to which the requirements of individual categories of IC are met differs among the subjects of the study (also within sectors, i.e. in corporations in the same industry). It is the result of, among other things, the diversity of the starting base—the economic capital and the time needed to shape individual IC subsystems.

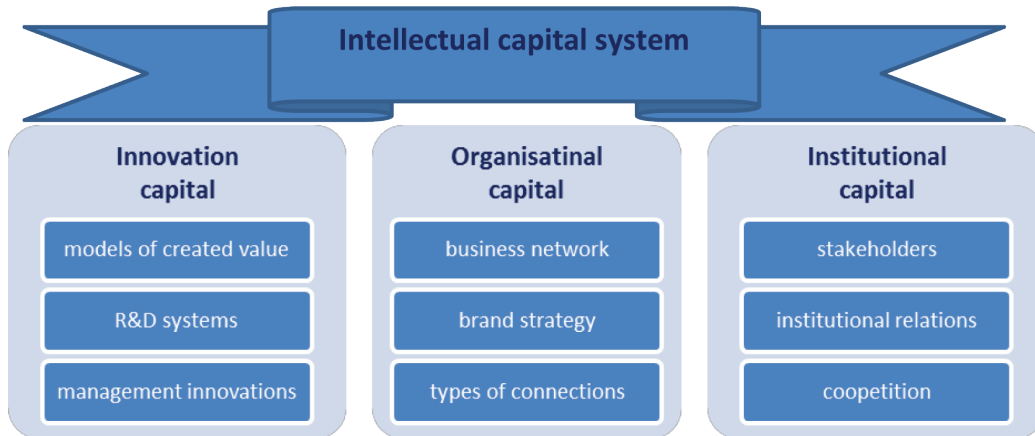


Figure 2. The conceptual model of the pillars of each of the layers of intellectual capital.

Source: Own elaboration.

Generally, the research which explored the data regarding TNC-leaders using the GTM and the SNA methodology represents a sectoral approach. It can be used to indicate trends—repeated ideas—in changes in the strategies of corporations that operate in a given industry market that are considered crucial and significant for successful development. By comparing the results of observations in different sectors, an attempt can be made to generalize and give general recommendations for improving international competitiveness in the 21st century. The proposed model of layers of intellectual capital may be used to identify the relationship in question, or its lacking, in other types of international business. Furthermore, the study results provide important practical guidelines for executives of corporations with respect to intellectual capital management.

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