VERSLAS: TEORIJA IR PRAKTIKA / BUSINESS: THEORY AND PRACTICE
ISSN 1648-0627 / eISSN 1822-4202
http://www.btp.vgtu.lt
2015 16(1): 31–44
doi:10.3846/btp.2015.553

INTELLECTUAL CAPITAL APPROACH TO MODERN MANAGEMENT THROUGH THE PERSPECTIVE OF A COMPANY'S VALUE ADDED

Simona SURVILAITĖ[1], Rima TAMOŠIŪNIENĖ[2], Vladimir SHATREVICH[3]

[1]Mykolas Romeris University, Ateities g. 20, LT-08303 Vilnius, Lithuania
[2]Department of Financial Engineering, Vilnius Gediminas Technical University, Saulėtekio al. 11, LT-10223 Vilnius, Lithuania
Economics and Business Institute, Mykolas Romeris University, Ateities g. 20, LT-08303 Vilnius, Lithuania
[3] Department of Management, Riga Technical University, Kaļķu iela 1, LV-1048 Riga, Latvia
E-mails: [1]simona.fortress@gmail.com; [2]rimtam@vgtu.lt, rimtam@mruni.eu (corresponding author); [3]vladimirs.satrevics@rtu.lv

Received 9 November 2014; accepted 14 January 2015

Abstract. The importance of value creation in small and medium-sized business companies has always been in focus. The changing environment makes a strong impact on all companies all over the world. Nowadays, the value added, which is created by the company, not only depends on tangible but also on intangible assets. It is not enough just to manage internal resources to be efficient or generate high value added. Knowledge and information as an important tool for the management of the external environment have become a new factor of a company. Since elements of the intellectual capital system are intangible and hardly measurable in company's value added, this paper aims to create a model for the analysis of the creation of a company's value added through intellectual capital. Subsequent to the review of literature on value creation and management, the authors proposed a model for value creation through intermediate, which presented three main elements of value added creation.

Keywords: intellectual capital, information communication technologies, value creation, organisational structure, performance.

JEL Classification: D83, G32, M21.

MODERNAUS ĮMONĖS VALDYMO POVEIKIS INTELEKTINIAM KAPITALUI PRIDĖTINĖS VERTĖS POŽIŪRIU

Simona SURVILAITĖ[1], Rima TAMOŠIŪNIENĖ[2], Vladimir SHATREVICH[3]

[1]Mykolo Romerio universitetas, Ateities g. 20, LT-08303 Vilnius, Lietuva
[2]Vilniaus Gedimino technikos universitetas, Finansų inžinerijos katedra, Saulėtekio al. 11, LT-10223 Vilnius, Lietuva
Ekonomikos ir verslo institutas, Mykolo Romerio universitetas, LT-08303 Vilnius, Lietuva
[3]Rygos technikos universitetas, Vadybos katedra, Kaļķu iela 1, LV-1048 Riga, Latvija
El. paštas: [1]simona.fortress@gmail.com; [2]rimtam@vgtu.lt, rimtam@mruni.eu; [3]vladimirs.satrevics@rtu.lv

Įteikta 2014-11-09; priimta 2015-01-14

To link to this article: http://dx.doi.org/10.3846/btp.2015.553

Santrauka. Vertės kūrimo svarba mažose ir vidutinėse verslo įmonėse visada buvo dėmesio centre. Kintanti ekonominė, socialinė ir teisinė aplinka padarė didelį poveikį daugeliui įmonių visame pasaulyje. Šiandien pridėtinė vertė, kurią sukuria įmonė, priklauso ne tik nuo materialiojo turto, bet ir nuo nematerialiojo turto, kuris užima vis stipresnes rinkos pozicijas. Neužtenka tiesiog valdyti vidinius išteklius, kad būtų veiksmingai sukuriama didelė pridėtinė vertė. Žinių ir informacijos svarba tapo nauju įmonės sėkmės veiksniu. Nors intelektinio kapitalo sistemos elementai yra nematerialūs ir sunkiai išmatuojami, šiame straipsnyje siekiama sukurti modelį, kuriuo remiantis analizuojamas įmonės pridėtinės vertės kūrimas atsižvelgiant į intelektinio kapitalo elementus.

Reikšminiai žodžiai: intelektinis kapitalas, informacinės komunikacinės technologijos, vertės kūrimas, organizacinė struktūra, veiklos rezultatai.

Introduction

It can be observed that starting from Taylorian organisations that prevailed between 1945 and 1975, operations improvement was synonymous with maximisation of profit growth. Performance expressions were purely financial: efficiency or the workmanship, productivity ratios computed every month, or the turnover computed every year (Chandler 1988). During the modern period between 1975 and 2014, performance has progressively become expressed using multiple criteria, integrating such technical and knowledge criteria as quality levels and delivery dates in addition to costs (Kaplan, Norton 1992; Lebas 1995; Grabot, Geneste 1998). From this perspective, technical and knowledge reports on the status of processes have been introduced (Fortuin 1988; Kay 1995; Berrah *et al*. 2000) as provided in Table 1.

Table 1. Evolution of the organisational context (Source: created by the authors based on L. Berrah *et al*. 2000)

Factors	Taylorian organisation	Post-Taylorian organisation
Durability	Cost (productivity)	Cost (productivity)–delivery–quality–environment, etc.
Improvement	Maximisation	Maximization/Compromise
Control	A "posteriori" verification	A "posteriori" verification and reactive "apriori" control
Decision	Strategic level, managers	Strategic, tactical and operational levels; managers and engineers
Performance expression	Financial and linear operator	Financial/technical/knowledge operators and complex relationship.

Moreover, nowadays performance does not only depend on production processes; therefore, new performance expressions are considered not only at the strategic level but also at all decision levels (strategic, tactical and operational). Thus, in terms of performance expressions in a modern company, knowledge must be considered from top to bottom for all the activities or processes to be controlled (Bititci 1995; Rangone 1996; Ghalayini *et al*. 1997; Suwignjo *et al*. 2000).

The authors believe that the study of the process of value creation through intellectual capital as a model, will allow using a more efficient integration of industrialisation elements into a business strategy. In the Information Age, effective use of intellectual capital is the most important factor that determines the success or failure of a business (Grabot *et al.* 1996; Goh 2005). To achieve superior performance and competitive advantage, companies have shifted their focus from investment in tangible assets to investment in intangibles. Intellectual capital is one of these intangibles with human capital, structural capital, and customer capital as its components (Chang 2004).

Internal resources used to be primary inputs into processes of organizational value creation; however, classical economic laws are hardly applicable to knowledge and other intangible resources. Based on the intellectual capital approach, the paper begins the research that explores the effect of intangible resource on the creation of added value. In the modern knowledge-based economy, the growing distance between the market and book value is attributed to intangible assets that cannot be properly measured and reported within the traditional accounting framework. It is also possible for each company to use a different accounting method (Laing *et al*. 2010). Although various methods have been proposed for measuring intellectual capital, none of these methods can, in and of itself, satisfy all the needs of an organisation for measuring intellectual capital.

1. Intellectual capital approach

The concept of intellectual capital started to formalise in the early 1990s, once Edvinsson and Malone (1997), presented the work of Skandia as a supplement to the annual shareholders report to describe the "true" value of the company. A new model was created to identify the roots of a company's value by measuring hidden dynamic factors that underlie "the visible company of buildings and products". By the end of the 1990s, references to intellectual capital in contemporary business publications were regular (Bontis 1999; Stewart 1991). Various definitions have been given by researchers to the concept of intellectual capital (Brooking 1996; Bontis 1996; Roos *et al.* 1997; Stewart 1997; Bontis 1999; O'Donnel *et al.* 2000; Bowman, Ambrosini 2010). Many scientists started to define intellectual capital and

ended up with similar opinions (Bontis 1999; Stewart 1991; Brooking 1996; Standfield 1999; Rylander *et al.* 2000). What resources actually make up these generic capital forms is unique to each and every organisation, as only those resources that are important for creating value should be included in constructing the distinction tree for an organisation (Bontis 1999).

Intellectual capital approach helps us to develop a strategy that focuses on intangible resources, allowing them to be managed more effectively and increasing in shareholder value. To conclude, different scientists understand intellectual capital as the sum of all knowledge in the company that is able to generate company's value added and is affected by knowledge quality and knowledge productivity (Bang *et al.* 2010). Various approaches were developed before the concept of intellectual capital appeared (Table 2).

The efficiency of a value chain as one of the key inputs to value added was well understood by Porter (1979). Contemporary knowledge intensive companies have more advantages in a more complex environment. The changing environment replaced the perception of company's value added sources. Reliance on productive tangible assets such as "raw materials, fixed capital, and even managerial knowledge" no longer account for investments made and wealth created by new and prospering companies (OECD 1996). The intellectual capital literature draws on aspects of practical applications, providing a framework for explaining the value creation process as the link between resources and shareholder value.

The authors of the article offer a model of intellectual capital, which is composed of mainly three components: human capital, structural capital (organisational capital)

Table 2. Approaches to measurement of intellectual capital

Methodology	Description	Authors
Balanced Scorecard (BSC)	BSC of is both a strategic approach and a performance management system that allows organisations to translate their vision and strategy into tactical and operational management reality.	Kaplan and Norton (1992)
Skandia Navigator	This model integrates the assumptions about intellectual capital that reflects the difference between the book and market value of a firm.	Edvinsson and Malone (1997)
Intellectual Capital Index	This index tries to provide dispersed indices into a single index and to link changes in intellectual capital to changes in the market value of firms.	Roos *et al.* (1997)
Measuring model of intangible assets	Measuring intellectual capital assets based on three families of intangible assets: external structure (brands, customer and supplier relations); internal structure (the organisation: management, legal structure, manual systems, attitudes, R&D, software); and individual competence (education, experience).	Sveiby (1997, 2001)
Direct Intellectual Capital Method	The focus of this method is to identify and evaluate each of the components of intellectual capital.	Saint-Onge (1996), Stewart (1997), Bontis (1998), Roos *et al.* (1997), Brinker (1998), Zéghal and Maaloul (2010)
Human Resource Accounting	This method reports the expenditures related to human resources as assets on the balance sheet, as opposed to the traditional accounting approach, which treats costs related to a company's human resources as expenses on the income statement that reduce profit.	Stahle *et al.* (2011)
Book-to-Market Ratio	Intellectual capital is often defined as the difference between market and book value of a business.	Edvinsson and Malone (1997)
Tobin's Q	This method has traditionally been used for predicting investment decisions. Tobin's Q is the ratio between the market value and replacement value of the same physical asset.	Luthy (1998)
Value Added Intellectual Coefficient (VAICTM)	This method was introduced by Pulic (1998) as an analytic tool for measuring a company's performance (Van der Zahn *et al.* 2004). The value of VAICTM can be compared across different companies and can be reported to external investors.	Pulic (1998, 2000)
EVA	EVA is perhaps the most recent method of organisational performance evaluation. Its focus is on maximisation of shareholder wealth. In other words, EVA is a measure of whether the intellectual capital of a firm has been effective or not. Obviously, EVA is a substitute metric for intellectual capital and provides accurate information about the effect of intellectual capital on firm performance (Ghosh, Mondal 2009).	Janis *et al.* (2005), Stewart (1991)

and relational capital (social capital). Intellectual capital is present in three dimensions of business or in one of these three dimensions: its staff (Human Resource Capital), its structures (Structure Capital) and its customers (Relational Capital). Studies by Bontis *et al*. (2000), Moon and Kym (2006), Martinez-Torez (2006) and Hsu and Fang (2009) show that there exist interactions between the components of intellectual capital that lead to improving the performance of a company and, therefore, the value creation.

1.1. Structural capital features

Structural capital can be described as a bunch of knowledge owned by a respective enterprise and embracing corporate culture, information technology and explicit knowledge (Halim 2010; Kamukama *et al*. 2011).

Some scientists in regards to structural capital accentuate the importance of organisational capacity and skills (Hermans, Kauranen 2005; Martin de Castro *et al*. 2006; Jardon, Martos 2009). Jardon and Martos (2012) proposed a model (Fig. 1) of a competitive advantage, where organisational capabilities play an important role in a company's performance. Organisational capabilities are considered within the structural capital due to the fact, that they are maintained as skills of the respective enterprise. According to Jardon and Martos (2012), "When organizational capability is formalized as part of the operation of the company, then becomes firm resource and can belong to structural capital. This resource combines a package of corporate resources, some lie in people and others in organization. However, when the process is sufficiently formalized, people can be replaceable within this capability and therefore can be considered are source owned by the company, therefore structural capital. When the process is less structured, the resources package has not a specific use, and then this package can be considered organizational capability but is not structural capital, because it is not company asset. Capabilities do not belong to company as are source until they are updated to performance or until they are formalized to be always used in the same way in the process of obtaining performance. The formalization of a process belongs to the company and in that sense the company is able to do it".

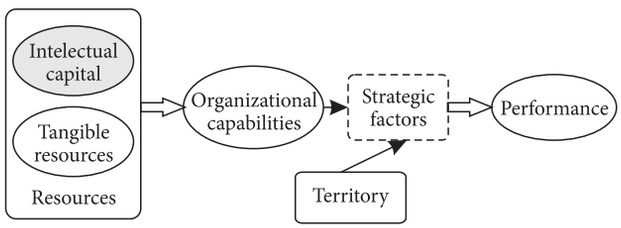

Fig. 1. Model of competitive advantage according to Jardon and Martos (2009)

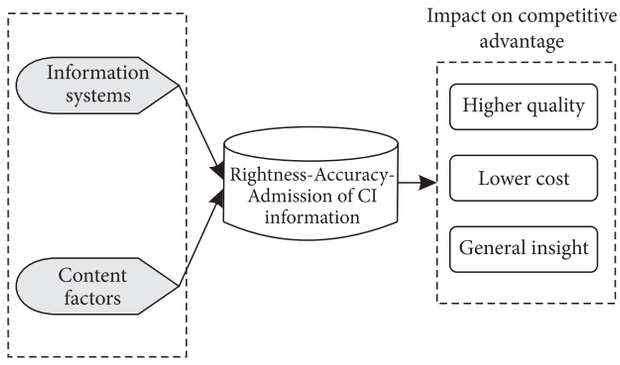

Fig. 2. Conceptual research model of structural capital according to Zangoueinezhad and Moshabaki (2009)

From the empirical model of Jardon and Martos (2012), it can be observed that special attention is given to resources. Every enterprise has a certain amount of resources and they are needed in order to perform particular tasks. Authors divided resources into two main parts: tangible resources and intellectual capital, which is of an intangible origin. The resources are considered as a basis of organisational capabilities: if resources are developed at a high effectiveness, this leads to a higher organisational capability. In addition to this, enterprises are faced with strategic factors deriving from the strongest points of organisational capabilities: they are creating a value, which evolves into the final value transformed for a customer. Jardon and Martos (2012) accentuate that "external factors are key success factors of industry and territory". Basically, strategy of a respective enterprise determines and connects every variable in the model of competitive advantage. According to Jardon and Martos (2012), "when organizational capability is formalized as part of the operation of the company, then becomes firm resource and can belong to structural capital. This resource combines a package of corporate resources, some lie in people and others in organization".

Other authors (Zangoueinezhad, Moshabaki 2009) presented the structural capital model (Fig. 2) that influences competitive advantage, where information systems and content factors play an important role. Authors investigated and provided empirical evidence that information systems, which are a part of structural capital, and the content factors, which are elements of organisational capital, are significantly related with competitive intelligence. The quantity of competitive intelligence successfully increases competitive advantage of a respective company. The impact of competitive advantage, according to Zangoueinezhad and Moshabaki (2009) can be evaluated by using three elements: higher quality, lower costs and general insight.

According to Zangoueinezhad and Moshabaki (2009), information systems in the conceptual model of structural capital can be described by internal operations and external operations. Internal operations could be evaluated by using individual costs or revenues, problem solution time,

reinforcement of planning, increase of prediction power, sharing of competitive intelligence data among departments and strength of decision making and risk taking. External operations, according to Zangoueinezhad and Moshabaki (2009), can be measured by using three main features, such as exchange of competitive intelligence data with external consultants, exchange of competitive intelligence data with suppliers and exchange of competitive intelligence data with customers. In addition to this, content factors can be explained as the sum of cultural and social intelligence. The main features of cultural intelligence could be explained by organisational structure and the culture of make-facilities, ability of entrepreneurship, having foresight leader, systematic approach, obligation to goals of an organisation and want of feedback. Social intelligence could be described as the amount of collaboration and coordination, flexibility, facility to gain experience, preference of a customer for an employee and employee for a manager, learning from others, conscious and creative staff, upgrading of skills and continuous education. Authors confirmed the existing model and it appeared that there is a positive relationship between structural capital and competitive advantage of a respective enterprise.

1.2. Relational capital features

Relational capital is found in every company, but it is not defined and measured. The impact of relational capital can be noticed only when relational capital disappears and does not function at all. No company can operate in isolation and is required to have a circle of specific groups of people, depending on the type and size of a company, such as the following:

- clients – customers – consumers;
- partners – suppliers – associates;
- shareholders – proprietors – companions;
- governmental institutions – financial institutions – legal (law) institutions;
- competitors – rivals – contenders.

According to Welbourne and Pardo del Val (2008), "relational capital is based on developing, maintaining and nurturing high-quality relationships with organizations, people or groups that influences on firm business". High quality relationships are the essential element of relational capital and the basic idea is to be able to form such organisational culture that could help to reach this goal. The rules or guidelines derived from structural capital could help in determining the process of successful usage of relational capital.

Some authors (Drucker 1993; Smith 2007; Paiva, Goncalo 2008; Zangoueinezhad, Moshabaki 2009) accentuate the importance of information sharing between partners and associates. According to studies, conducted by authors, "the greater the amount of data exchanged between partners, the greater the possibility for mutual understanding of each others' goals, which can lead to increased cooperation". It is rather hard to find the best method of communication, which could easily be implemented in every enterprise. Nevertheless, it is essential that information communicated through electronic systems is accurate, right and precise. What is more, it is very important to be fast in communicating with partners, clients, suppliers, associates and other groups of people, with which an enterprise is in contact. If messages or requests are not accomplished on time or if there is always a lack of willingness to respond quickly to concerns raised, the relational capital starts deteriorating. The result of such behaviour could possibly lead to rejection by clients, customers and other groups of people. The expected outcome could be severe due to the domino effect, where every bad opinion generates the pull of bad opinions widely spread all over the region. The chain reaction spreading bad news usually is very fast and could lead to negative consequences.

The better understanding of relational capital can be gained through central dimensions. Johansson (2007) identified and classified central dimensions of relational capital (Fig. 3) related to analysts and classified relational capital throughout the value added perspective.

According to the picture (Fig. 3), relational capital can be classified into two main groups: relational capital of a company and relational capital of a customer. The values

Central dimensions on analysts' relational capital	
Types of relational capital	Company relational capital Client relational capital
Values added through the relational capital	Value added information and knowledge Trading businesses for the investment bank Other types of businesses for the investment bank
Usage of value added information and knowledge	Validating and justifying oro conclusions Dealing with uncertain situations Dealing with ambiguous information Dealing with problems of information overflc Building of relations
Characteristics of value added information and knowledge	Timely Adjusted to the users need for information and knowledge Situation specific of both tacit and explicit character Exclusive in character Includes novelty
Outcomes from the relational capital	Competitive advantages Top ratings Profitability Long-term survival

Fig. 3. Relational capital by central dimensions according to Johansson (2007)

generated through the relational capital are information and knowledge, trading businesses for the investment bank and other types of businesses. What is more, relational capital can be used productively for validating and justifying the conclusions, dealing with an uncertain situation, ambiguous information or with problems of information overflow. Also, building of relations is an advantage of relational capital. In addition to this, Johansson (2007) distinguishes information that has value added. The information should be provided in a timely manner and must be adjusted to its users, who require certain information or knowledge. It is also very important to provide specific tacit and explicit information and knowledge, which is exclusive in character. The author also emphasises the magnitude of innovations and expresses the opinion that value added information and knowledge should be novel. As a consequence, outcomes of the effective use of relational capital would manifest as competitive advantages leading to the top ratings. Due to this reason, a company becomes more profitable and this could turn into a long-term survival.

2. Creation of company's value added – the intellectual capital model

Every organisation expects a minimum profit/performance from their stakeholders and some change in the "external environment", within which it operates. Given these parameters, each organisation has to decide on the strategy/ies and the organisational form that would enable the organisation to operate in the external environment and earn the expected profit. Environmental conditions are subject to the strategic choice of organisations (Child 1972; Fruhan 1979) and a strategy is viewed as "a mediating force between the organization and its environment" (Mintzberg 1979: 25). Then, an organisation's strategy should mirror or reflect the most critical elements of its environment. Organisations that fail to structure properly to implement their strategies, or to fit the environmental conditions implied by these strategies, should find themselves at a relative disadvantage in exploiting their environments (Egeihoff 1982). Managers engage in a variety of activities designed to manipulate their environments in their favour (Hall 1991). A part of literature deals with the strategy development process (Porter 1979, 1985, 2008; Ansoff 1988; Schroeder, Lahr 1990) to address the environmental needs.

Literature research suggests that the surrounding environment can and should influence a strategy (Burns, Stalker 1961; Dess, Beard 1984; Hambrick 1983; Miller, Friesen 1984; Zaltman *et al*. 1973). Lawrence and Dyer (1983) argued that an organic structure is best suited to coping with or adapting to a turbulent environment. Mintzberg (1979) indicated that an organic structure, with its low degree of formality and high degree of information sharing and decentralisation, improves an organisation's flexibility and ability to adapt to continual environmental change.

A constraining external factor is the manner in which organizations gather and process information regarding their external environments (Daft, Macintosh 1981; Katz, Kahn 1978; Morgan 1986). For example, information about the environment, which is needed to determine whether a change is required in strategy or a structure is costly. Organisations with scanty resources may limit their information collection activities. In addition, such information may be distorted by the nature of the sensory mechanisms already in place within the organisation (Miller 1989).

In today's fast changing environments, companies need to be innovative in order to sustain their market positions and competitive advantages (Bartlett, Ghoshal 2000; Chiesa 1999; Dunning 1994). Managers cope with changes in their firm's external environment through the choice of an appropriate structure and design of a matching strategy (Andrews 1971; Ansoff 1979; Schendel, Hofer 1979); thus, the strategic choices made by organisational managers are an important aspect of the adaptation process (Child 1972; Galbraith 1973; Miles 1980; Perrow 1979).

Although certain theorists (Andrews 1971; Chaffee 1985; Child 1972; Miles 1982; Schendel, Hofer 1979) suggest that organisational managers change their strategies to reflect changing conditions in their environment, other strategy theorists (Boeker 1989; Hannan, Freeman 1984; Kelly, Amburgey 1991; Pfeffer, Salancik 1978; Quinn 1980) have argued that organisations are constrained in their ability to adapt.

The transformation of data into information, and the communication and storage of information in the organisation (Galbraith 1973; Tushman, Nadler 1978). The conceptual underpinning for an information-processing perspective of contingency theory was suggested by Thompson (1967) and more elaborately developed by Galbraith (1969, 1973, 1977) and Tushman and Nadler (1978). Galbraith viewed organisations as having good structural fit when the information-processing capacities of an organisation's structure fit the information processing requirements of its environment and technology. A number of empirical studies have used some form of information-processing approach (Burns, Stalker 1961; Lawrence, Lorsch 1967; Duncan 1973; Van de Ven *et al*. 1976; Galbraith 1977; Tushman 1978).

The optimal strategy-structure match would have a superior performance when compared to other organisations in the same adaptive state. Chakravarthy (1982), "goodness of fit" theme was described by the proponents of the contingency school of organisational behaviour (Scott 1987).

Organisational effectiveness was a function of the correctness and tightness of "fit" between the structure and processes of an organisation and of its environment (Burns, Stalker 1961; Dill 1958; Hage, Aiken 1970; Lawrence, Lorsch

1969; Lorsch, Morse 1974). According to these theorists, organisational adaptation was the process, by which organisational managers adjusted their scale of operations or structure to conform to the dictates of the immediate environment.

The identification of value-driver elements in the intellectual capital system and their subsequent management is seen as the key to value added (Pitelis 2009). The authors present the model of intellectual capital describing the system that uses intellectual capital resources to increase value added. The model (Fig. 4) of intellectual capital was composed by the authors from mostly three components: human capital, structural capital (organisational capital) and relational capital (social capital).

This model presented three main elements of value added creation: Human Capital is defined as the combined knowledge, skill, innovativeness, and abilities of individual employees of a company to perform tasks at hand. It also includes the company's values, culture and philosophy. Structural Capital is the hardware, software, databases, organisational structure, patents, trademarks, and everything else of organisational capability that supports the productivity of employees. In other words, everything that gets left behind at the office when employees go home. Customer capital (Relational Capital) is provided by structural capital, the relationships developed with key customers.

The link between the environment strategy process, organisational structure and performance has been changing over time. Firstly, Chandler (1962) indicated that strategy precedes structure because an increase in diversification requires a new and more decentralised structure (Chandler School), called the multidivisional form (decentralised multidivisional structure is the solution to the problem of diversity management. Ansoff stated that "the strategy imposes operating requirements and, in turn, the administrative structure must provide the climate for meeting them" (Ansoff 1965: 7). Ansoff (1965) refered to operating, administrative and strategic decisions in organisations, Andrews affirmed that "corporate strategy must dominate the design of organization structure" (Andrews 1971: 543). Researchers like Chandler (1962), Burns and Stalker (1961), Lorsch and Allen (1973), Child (1974, 1975)

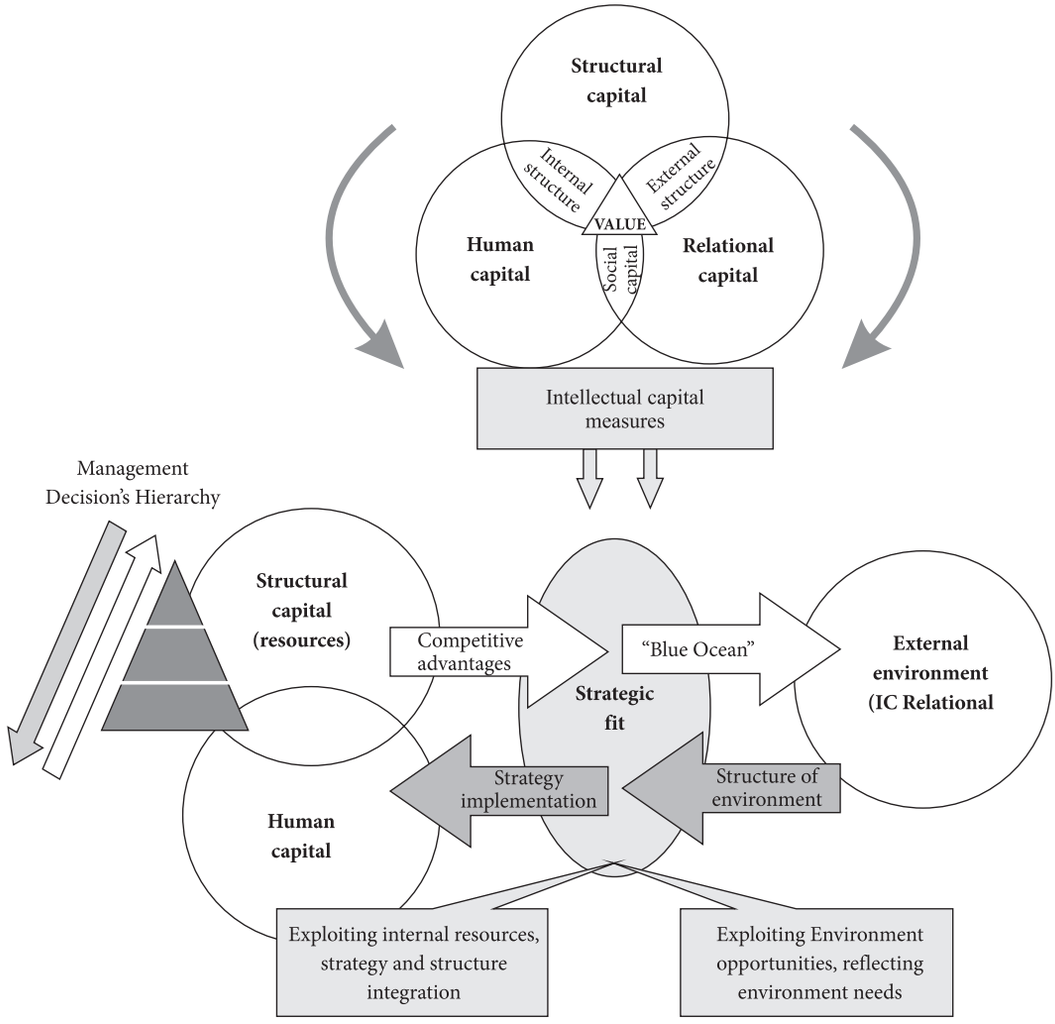

Fig. 4. Value creation framework

postulated that an organisation must align its structure to its strategy, which in turn has to be developed to suit the environment. This argument, whereby "structure follows strategy", has also been corroborated in many studies, not only in the United States (Amburgey, Dacin 1994; Ansoff 1965), but also in other countries (Channon 1973; Dyas, Thanheiser 1976; Andrews 1971). The strategy-structure-performance paradigm developed by Chandler (1962) and Scott (1973) has become a dominant paradigm in the strategic management literature. This paradigm suggests that a company adopts different strategies at different stages in its life cycle in order to meet growth and profit objectives. Many contingency studies have sought to define structures that are the best for implementation of certain strategies (Chandler 1962; Wrigley 1970; Pavan 1976; Channon 1973; Rumelt 1974; Dyas, Thanheiser 1976; Grinyer 1977; Brooke, Lee Remmers 1970; Stopford, Wells 1972; Hulbert, Brandt 1980; Kambil *et al.* 1997). The key feature of this stage is the intellectual capital measurement relationship as shown in Figure 4. The relationship is bi-directional, i.e. the environment determines the strategy, which in turn determines the organisational structure, or conversely, a company creates its internal structure based on internal resources. The authors support this bidirectional approach, but state that the market structure is a primary factor affecting the profitability of a corporate strategy as this corresponds to the empirical work by Christensen and Montgomery (1981), Bettis (1981), and Rumelt (1982).

Structural and relational capital overlaps in the process of value creation

There is a concept that considers structural and relational capital as the main elements in creation of the competitive advantage (Kamukama *et al.* 2011; Jardon, Martos 2012). A strong structural organisational chain implemented in a respective company can make an immense difference while competitors usually do not have it or just are in the process of implementing it. The same logic is adapted for relational capital. There are companies, which have implemented a strong and powerful network of communications. Such companies are usually very far from their competitors and gain significant amount of advantage and benefits. A widely developed network of communications helps to reduce time and production costs, which leads to a bigger portion of value added generated by such enterprise.

Structural capital itself is the amount of knowledge, which is transformed into procedures, processes and routines. The process of intangible variables conversion into documents also includes and strictly defines the culture of every enterprise. In this case, structural capital is closely connected with relational capital as the communication of employees depends on procedures implemented in that particular company. The culture of cooperation and communication derives from guidelines accommodated in the procedural documentation. Usually, there are restrictions and penalties if an employee brakes the rules. According to Wilkinson (1999), some enterprises provide regulations for employees in order to improve communication and even the working environment.

Jardon and Martos (2012) conducted an empirical research and revealed the main elements of structural and relational capital. According to them, structural capital can be evaluated through market knowledge, teamwork, internal communication, corporate culture, processes and product technologies. In addition, relational capital can be measured using variables, such as the attitude toward cooperation and partnerships of the company, distribution network, corporate image, type of distribution channels, the direct relationship with end customers, type of customers and types of providers. The results revealed that structural capital increases relational capital and this can be explained by a learning process, which is essential in order to compete within modern markets. The need to adapt to changes within markets leads to implementing technologies, which can help to enter new markets. As a result, strong communication skills are needed to improve relationships with clients, suppliers, service providers, governmental institutions and financial organisations. According to Jardon and Martos (2012), "intellectual capital of people (human capital) creates structural capital (intellectual capital within an organisation) and structural capital creates relational capital (intellectual capital with the environment)".

3. Measuring of intellectual capital and information communication technologies

As knowledge is invisible, its creation and use are hardly measureable. Nonetheless, investments in ICT generate many valuable outputs (brand, know-how, patents, etc.). Value generated by knowledge will probably have a time lag (long-term) and will not always have an instant impact on profit (short-term). Using this model (Fig. 5), we can describe the methodology of our evaluation model. Promoting investments into ICT and evaluating company value. At the begining the investment made by company into ICT must be calculated, comparing to abnormal revenue flow generated by ICT and intangible value created.

This model helps to describe the methodology used by the authors of the paper to design a quantitative evaluation model. The current quantitative model (Fig. 5) concentrates on external and internal reporting, including Internet statistics, investment analysis and methods for reporting the non-financial value of intangibles. The authors present the key-drivers that help to evaluate necessary internal investments and control results (Table 3). The table is built according to empirical researches conducted by various scientists

and researchers. The basis of value creation is information and its use. Also, good quality information plays an essential part in value creation.

Based on key-drivers, the authors present different approach to value creation relationship, mainly focusing on overlapping dimensions – External Structure, Internal Structure and Social Capital. Authors prepared and classified the table according to the empirical researches conducted by Rodov and Leliaert (2002), Kennedy (1998), Cricelli, Greco and Grimaldi (2014). Table 4 reveals the main factors for intangible assets that generate value added. The assets are classified into three broad groups: external structure, internal structure and social capital.

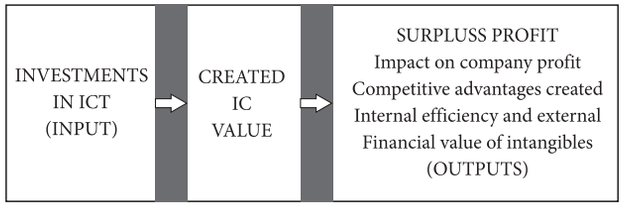

Fig. 5. Link between ICT and value creation

Table 3. Key-drivers for intellectual capital, ICT and value creation

Recognised key drivers	Reflection	Authors
Enacted information	Reuse of routines and work settings that facilitate storage and easy access to work practice information and performance feedback	McIver *et al.* (2013)
Accumulated information	Use of and finding ways to transfer and share expertise	McIver *et al.* (2013)
Know-how	Work design is based on skills and unique talents able to facilitate communication, self-leadership and social network development	McIver *et al.* (2013)
Standardization and simplification of KIP (Knowledge-in-Practice)	Codifying and reusing information, procedures and routines in order to increase effectiveness of management	Alvesson and Karreman (2001)
Investments in KM (Knowledge Management) storage activities	A codification strategy emphasising behavioural control. The purpose of this strategy is to provide reliable codified information in order to ease decision-making	Hansen *et al.* (1999)
Innovation as path-dependent	Investments in innovation and research and development enables the company to create new and improved products or services	Nelson and Winter (1982), Alexy *et al.* (2013)
Company's stock of knowledge	Knowledge tie indicates, which knowledge elements may combine into useful elements. Useful combinations lead to fruitful strategies and do not depend of the researchers who create and implement them	Wang *et al.* (2014)
Knowledge network	Effectiveness of a researcher (employee or employer) with knowledge elements out of all knowledge elements	Wang *et al.* (2014)

Table 4. Empirical research factors for intangible assets

	Overlapping relationship of intangible assets *(Stock Price Premium)*		
	External Structure *(brands, customer and supplier relations)*	Internal Structure *(management, legal structure, manual systems, R&D, software)*	Social Capital Individual Competence *(education, experience)*
Visible Equity (book value) *Tangible assets minus visible debt*	Reputation Innovation Patents Partners' network Profitability per customer Organic growth Satisfied customer's index Win/loss index Sales per customer Proportion of big customers Devoted customers ratio Frequency of repeat orders	Organisational structure Organisational process Software Databases Revenue potential Investments in systems Sales per support person Corporate culture poll Codified knowledge Technology transfer Strategy and vision Trade secrets Internal collaboration	Human competence Skills Experience Training hours per employee Organisational IQ Value added per professional Training costs Proactive abilities Emotional intelligence Entrepreneurial spirit

Conclusions

Value creation has been a concern for many years and companies have always been trying to find out the best ways for its improvement. Authors believe that the process of value creation must be perceived through intellectual capital, and such concept could use more efficient integration of industrialisation elements into a corporate strategy. In the era of information and knowledge, effective use of intellectual capital is the most important factor that determines the success of a business. The traditional point of view has changed and companies have shifted their focus from investments into tangible assets to investment in intangibles. Intellectual capital is considered to be an intangible with human capital, structural capital, and customer capital as its components. The authors proposed a model of value creation, which presents three main elements pertaining to creation of value added. Nevertheless, it is strongly recommended that the model would be empirically tested and improved.

The proposal of empirical research could be developed further as the authors also created a list of factors and value drivers, which can be evaluated and assessed by various experts or respondents of a chosen target group. The empirical research would be helpful in order to determine and set aside value drivers that have no significant influence on the value added of a company.

References

Alexy, O.; George, G.; Salter, A. J. 2013. Cui Bono? The selective revealing of knowledge and its implications for innovative activity, *Academy of Management Review* 38(2): 270–291. http://dx.doi.org/10.5465/amr.2011.0193

Alvesson, M.; Karreman, D. 2001. Odd couple: making sense of the curious concept of knowledge management, *Journal of Management Studies* 38: 995–1018. http://dx.doi.org/10.1111/1467-6486.00269

Amburgey, T. L.; Dacin, T. 1994. As the left foot follows the right? The dynamics of strategic and structural change, *Academy of Management Journal* 37(6): 1427–1452. http://dx.doi.org/10.2307/256794

Andrews, K. R. 1971. *The concept of corporate strategy*. Homewood, IL: Dow Jones-Irwin.

Ansoff, H. I. 1988. *The new corporate strategy*. Canada: John Wiley and Sons.

Ansoff, H. I. 1965. *Corporate strategy: an analytic approach to business policy for growth and expansion*. New York: McGraw-HilI.

Ansoff, H. I. 1979. *Strategic management*. New York: Witey.

Bang, A.; Molgaard, C. C.; Pia, B. 2010. How to create business value in the knowledge economy: accelerating thoughts of Peter F. Drucker, *Management Decision* 48(4): 616–627. http://dx.doi.org/10.1108/00251741011041382

Bartlett, C. A.; Ghoshal, S. 2000. *Transnational management*. 3rd edition. New York: McGraw Hill.

Berrah, L.; Mauris, G.; Foulloy, L.; Haurat, A. 2000. Global vision and performance indicators for an industrial improvement approach, *Computers in Industry* 43: 211–225. http://dx.doi.org/10.1016/S0166-3615(00)00070-1

Bettis, R. A. 1981. Performance differences in related and unrelated diversified firms, *Strategic Management Journal* 2: 379–393. http://dx.doi.org/10.1002/smj.4250020406

Bititci, U. S. 1995. Modelling of performance measurement systems in manufacturing enterprises, *International Journal of Production Economics* 42: 137–147. http://dx.doi.org/10.1016/0925-5273(95)00172-7

Boeker, W. 1989. Strategic change: the effects of founding and history, *Academy of Management Journal* 32: 489–515. http://dx.doi.org/10.2307/256432

Bontis, N. 1996. There's a price on your head: managing intellectual capital strategically, *Business Quarterly* 60(4), Summer.

Bontis, N. 1998. Intellectual capital: an exploratory study that develops measures and models, *Management decision* 36(2): 63–76. http://dx.doi.org/10.1108/00251749810204142

Bontis, N. 1999. Managing organizational knowledge by diagnosing intellectual capital: framing and advancing the state of the field, *International Journal of Technology Management* 18(5/6/7/8): 433–462.

Bontis, N.; Chua Chong Keow, W.; Richardson, S. 2000. Intellectual capital and business performance in Malaysian industries, *Journal of Intellectual Capital* 1(1): 85–100. http://dx.doi.org/10.1108/14691930010324188

Bowman, C.; Ambrosini, V. 2010. How value is created, captured and destroyed, *European Business Review* 22(5): 479–495. http://dx.doi.org/10.1108/09555341011068903

Brinker, B. 1998. *Intellectual capital: tomorrow's assets, today's challenge* [online], [cited 12 September 2014]. Available on the Internet: http://www.cpavision.org/vision/wpaper0b.cfm

Brooke, M. Z.; Lee Remmers, H. 1970. *The strategy of multinational enterprise*. New York: Elsevier.

Brooking, A. 1996. *Intellectual capital: core assets for the third millennium enterprise*. London: Thomson Business Press.

Burns. T.; Stalker. G. M. 1961. *The management of innovation*. London: Tavistock.

Chaffee, E. 1985. Three models of strategy, *Academy of Management Review* 10: 89–98.

Chakravarthy, B. S. 1982. Adaptation: a promising metaphor for strategic management, *Academy of Management Review* 7: 35–44.

Chandler, A. D. 1962. *Strategy and structure: chapters in the history of the American industrial enterprise*. Cambridge, MA: MIT Press.

Chandler, A. C. 1988. *The visible hand: the managerial revolution in American business*. Cambridge: Belknap.

Chandler, A. D., Jr. 1962. *Strategy and structure: chapters in the history of industrial enterprise*. Cambridge, MA: M. I. T. Press.

Chang, C. J. 2004. The study of relationships among intellectual capital, business performance and business value for the biotechnology industry in Taiwan, *Management Decision* 36(2): 63–76.

Channon, D. F. 1973. *The strategy and structure of British enterprise*. Palgrave Macmillan.

Chiesa, V. 1999. Technology development control styles in multinational corporations: a case study, *Journal of Engineering & Technology Management* 162: 191–206. http://dx.doi.org/10.1016/S0923-4748(99)00005-3

Child, J. 1972. Organizational structures, environment and performance: the role of strategic choice, *Sociology* 6: 1–22. http://dx.doi.org/10.1177/003803857200600101

Child, J. 1974. Managerial and organisation factors associated with company performance. Part 1, *Journal of Management Studies* 11(3): 175–189. http://dx.doi.org/10.1111/j.1467-6486.1974.tb00693.x

Child, J. 1975. Managerial and Organisation Factors Associated with Company performance. Part 11 A. Contingenq' Analysis, *Journal of Management Studies* 12(1–2): 12–27. http://dx.doi.org/10.1111/j.1467-6486.1975.tb00884.x

Christensen, H. K.; Montgomery, C. A. 1981. Corporate economic performance: diversification strategy versus market structure, *Strategic Management Journal* 2: 327–343. http://dx.doi.org/10.1002/smj.4250020402

Cricelli, L.; Greco, M.; Grimaldi, M. 2014. An overall index of intellectual capital, *Management Research Review* 37(10): 880–901. http://dx.doi.org/10.1108/MRR-04-2013-0088

Daft, R. L.; Macintosh, N. B. 1981. A tentative exploration into the amount and equivocality of information processing in organizational work units, *Administrative Science Quarterly* 26: 207–224. http://dx.doi.org/10.2307/2392469

Dess, G.; Beard, D. 1984. Dimensions of organizational task environments, *Administrative Science Quarterly* 29: 52–73. http://dx.doi.org/10.2307/2393080

Dill, W. R. 1958. Environment as an influence on managerial autonomy, *Administrative Science Quarterly* 2: 409–443. http://dx.doi.org/10.2307/2390794

Drucker, P. F. 1993. *Post-capitalist society*. New York, NY: Harper business.

Duncan, R. B. 1973. Multiple decision-making structures in adapting to environmental uncertainty: the impact of organizational effectiveness, *Human Relations* 26: 273–291. http://dx.doi.org/10.1177/001872677302600301

Dunning, J. H. 1994. Multinational enterprises and the globalization of innovatory capacity, *Research Policy* 23: 67–88. http://dx.doi.org/10.1016/0048-7333(94)90027-2

Dyas, G. P.; Thanheiser, H. 1976. *The emerging European enterprise: strategy and structure in French and German industry.* London: MacMillan.

Edvinsson, L.; Malone, M. S. 1997. I*ntellectual capital: realizing your company's true value by finding its hidden brainpower*. New York: Harper Business.

Egeihoff, W. G. 1982. Strategy and structure in multinational corporations: an information-processing approach, *Administrative Science Quarterly* 27(3): 435–458. http://dx.doi.org/10.2307/2392321

Fortuin, L. 1988. Performance indicators – why, where and how, *European Journal of Operational Research* 34: 1–8. http://dx.doi.org/10.1016/0377-2217(88)90449-3

Fruhan, W. 1979. *The NPV model strategy – the shareholder value model in financial strategy: studies in the creation, transfer, and destruction of shareholder value*. Homewood: Irwin, 122–124.

Galbraith, J. R. 1977. *Organization design*. Addison-Wesley Publishing Company.

Galbraith, J. R. 1969. *Organization design: an information processing view*, Working Paper No. 425-69, M.I.T. Sloan School of Management.

Galbraith, J. R. 1973. *Designing complex organizations*. Reading, MA: AddisonWesley.

Ghalayini, A. M.; Noble, J. S.; Crowe, T. J. 1997. An integrated dynamic performance measurement system for improving manufacturing competitiveness, *International Journal of Operations and Production Management* 15: 80–116.

Ghosh, S.; Mondal, A. 2009. Indian software and pharmaceutical sector IC and financial performance, *Journal of Intellectual Capital* 10(3): 369–388. http://dx.doi.org/10.1108/14691930910977798

Goh, P. C. 2005. Intellectual capital performance of commercial banks in Malaysia, *Journal of Intellectual Capital* 6(3): 385–386. http://dx.doi.org/10.1108/14691930510611120

Grabot, B.; Blanc, J. C.; Binda, C. 1996. A decision support system for production activity control, *Decision Support Systems* 16: 87–101. http://dx.doi.org/10.1016/0167-9236(95)00003-8

Grabot, B.; Geneste, L. 1998. Management of imprecision and uncertainty for production activity control, *Journal of Intelligent Manufacturing* 9(5): 431–446. http://dx.doi.org/10.1023/A:1008892415960

Grinyer, P. H. 1977. *Organization design*. Reading, MA: Addison-Wesley.

Hage, J.; Aiken, M. 1970. *Social change in complex organizations*. New York: Random House.

Halim, S. 2010. Statistic analysis on the intellectual capital statement, *Journal of Intellectual Capital* 11(1): 61–73. http://dx.doi.org/10.1108/14691931011013334

Hall, R. H. 1991. *Organizations: structures, processes and outcomes*. 5th ed. Englewood Cliffs, NJ: Prentice-Hall.

Hambrick, D. C. 1983. Some tests of the effectiveness and functional attributes of Miles and Snow's strategic types, *Academy of Management Journal* 26: 5–26. http://dx.doi.org/10.2307/256132

Hannan, M.; Freeman, J. 1984. Structural inertia and organizational change, *American Sociological Review* 29: 149–164. http://dx.doi.org/10.2307/2095567

Hansen, M. T.; Nohria, N.; Tierney, T. 1999. What's your strategy for managing knowledge? *Harvard Business Review* 2(77): 106–116.

Hermans, R.; Kauranen, I. 2005. Value creation potential of intellectual capital in biotechnology – empirical evidence from Finland, *R&D Management* 35(2): 171–185. Blackwell Publishing Ltd. http://dx.doi.org/10.1111/j.1467-9310.2005.00381.x

Hsu, Y.-H.; Fang, W. 2009. Intellectual capital and new product development performance: the mediating role of organizational learning capability, *Technological Forecasting and Social Change* 76(5): 664–677. http://dx.doi.org/10.1016/j.techfore.2008.03.012

Hulbert, J. M.; Brandt, W. K. 1980. *Managing the multinational subsidiary*. New York: Holt, Rinehart and Winston.

Janis, R. Z., *et al*. 2005. The MVA-EVA relationship: separation of market driven versus firm driven effects, *Review of Accounting and Finance* 4(1): 32–49.

Jardon, C. M.; Martos, M. S. 2009. Intellectual capital and performance in wood industries of Argentine, *Journal of Intellectual Capital* 10(4): 600–616. http://dx.doi.org/10.1108/14691930910996670

Jardon, C. M.; Martos, M. S. 2012. Intellectual capital as competitive advantage in emerging clusters in Latin America, *Journal of Intellectual Capital* 13(4): 462–481. http://dx.doi.org/10.1108/14691931211276098

Johansson, J. 2007. Sell-side analysts' creation of value – key roles and relational capital, *Journal of Human Resource Costing & Accounting* 11(1): 30–52. http://dx.doi.org/10.1108/14013380710746393

Kambil, A.; Ginsberg, A.; Block, M. 1997. *Rethinking values propositions*, Working Paper. NYU Centre of Research of Information Systems, 34–36.

Kamukama, N.; Ahiauzu, A.; Ntayi, J. M. 2011. Competitive advantage: mediator of intellectual capital and performance, *Journal of Intellectual Capital* 12(1): 152–164. http://dx.doi.org/10.1108/14691931111097953

Kaplan, R. S.; Norton, D. P. 1992. The balanced scorecard – measures that drive performance, *Harvard Business Review* 70(1): 71–79.

Katz, D.; Kahn, R. L. 1978. *The social psychology of organizations*. Rev. ed. New York: John Wiley & Sons.

Kay, J. 1995. *Foundations of corporate success: how business strategies add value*. Oxford: Oxford university press. http://dx.doi.org/10.1093/019828988X.001.0001

Kelly, D.; Amburgey, T. L. 1991. Organizational inertia and momentum: a dynamic model of strategic change, *Academy of Management Journal* 34: 591–612. http://dx.doi.org/10.2307/256407

Kennedy, F. 1998. Intellectual capital in valuing intangible assets, *Team Performance Management* 4(4): 121–137. http://dx.doi.org/10.1108/13527599810224606

Laing, G.; Dunn, J.; Hughes-Lucas, S. 2010. Applying the VAICTM model to Australian hotels, *Journal of Intellectual Capital* 11(3): 269–283. http://dx.doi.org/10.1108/14691931011064545

Lawrence, P. R.; Dyer, D. 1983. *Renewing American industry*. New York: Free Press.

Lawrence, P. R.; Jay, W. L. 1967. *Organization and environment*. Homewood, IL: Irwin. Harvard Business School.

Lawrence, P. R.; Lorsch, J. W. 1969. *Organizations and Environment*. Homewood, IL. Richard D. Irwin, Harvard Business School.

Lebas, M. J. 1995. Performance measurement and performance management, *International Journal of Production Economics* 41: 23–35. http://dx.doi.org/10.1016/0925-5273(95)00081-X

Lorsch, J. W.; Morse, J. J. 1974. *Organizations and their members: a contingency approach*. New York: Harper and Row.

Lorsch, J.; Allen, S. 1973. *Managing diversity and interdependence*. Boston: Harvard University Press.

Luthy, D. H. 1998. Intellectual capital and its measurement, in *The Asian Pacific Interdisciplinary Research in Accounting (APIRA) Conference*, 1998, Osaka, Japan.

Martin de Castro, G.; Navas Lopez, J. E.; Lopez Saez, P.; Alama Salazar, E. 2006. Organizational capital as competitive advantage of the firm, *Journal of Intellectual Capital* 7(3): 324–337. http://dx.doi.org/10.1108/14691930610681438

Martinez-Torres, M. R. 2006. A procedure to design a structural and measurement model of intellectual capital: an exploratory study, *Information and management* 43: 617–626. http://dx.doi.org/10.1016/j.im.2006.03.002

McIver, D., *et al*. 2013. Understanding work and knowledge management from a knowledge-in-practice perspective, *Academy of Management Review* 38(4): 597–620. http://dx.doi.org/10.5465/amr.2011.0266

Miles, R. H. 1980. *Macro organization behavior*. Goodyear, Santa Monica, CA.

Miles, R. H. 1982. *Coffin, nails, and corporate strategies*. Englewood Cliffs, NJ: Prentice-Hall.

Miller, D. 1989. Matching strategies and strategy making: process, content, and performance, *Human Relations* 42: 241–260. http://dx.doi.org/10.1177/001872678904200303

Miller, D.; Friesen, P. H. 1984. A longitudinal study of the corporate life cycle, *Management Science* 30(10): 1161–1183.

Mintzberg, H. 1979. *The structuring of organizations*. Englewood Cliffs, NJ: Prentice-Hall.

Moon, Y. J.; Kym, H. G. 2006. A model for the value of intellectual capital, *Canadian Journal of Administrative Sciences* 23(3): 253–269. http://dx.doi.org/10.1111/j.1936-4490.2006.tb00630.x

Morgan, G. 1986. *Images of organizations*. Beverly Hills, CA: Sage.

Nelson, R. R.; Winter, S. G. 1982. *An evolutionary theory of economic change.* Cambridge, MA: Harvard University Press.

O'Donnel, D.; O'Regan, P.; Coates, B. 2000. Intellectual capital: a habermasian introduction, *Journal of Intellectual Capital* 1(2): 187–200. http://dx.doi.org/10.1108/14691930010377496

OECD. 1996. *Measuring what people know*. Organization for Economic Co-operation and Development, Paris.

Paiva, E. L.; Goncalo, C. R. 2008. Organizational knowledge and industry dynamism: an empirical analysis, *International Journal of Innovation and Learning* 5(1): 66–80. http://dx.doi.org/10.1504/IJIL.2008.015948

Pavan, R. J. 1976. Strategy and structure: the Italian experience, *Journal of Economics and Business* 28(3): 254–260.

Perrow, C. 1979. *Complex organizations: a critical essay*. 2nd ed. Random House.

Pfeffer, J.; Salanick, G. R. 1978. *The external control of organizations: a resource dependence perspective*. New York: Harper & Row.

Pitelis, C. N. 2009. The co-evolution of organizational value capture, value creation and sustainable advantage, *Organization Studies* 30: 1115–1139. http://dx.doi.org/10.1177/0170840609346977

Porter, M. E. 1979. How competitive forces shape strategy, *Harvard Business Review*. Retrieved 9 September 2013.

Porter, M. E. 1985. *Competitive advantage: creating and sustaining superior performance*. Free Press, USA.

Porter, M. E. 2008. The five competitive forces that shape strategy, *Harvard Business Review* 86(01): 78–93.

Pulic, A. 1998. Measuring the performance of intellectual potential in knowledge economy, in *2nd World Congress on Measuring and Managing Intellectual Capital*, 1998, McMaster University, Hamilton.

Pulic, A. 2000. VAIC TM: an accounting tool for IC management, *International Journal of Technology Management* 20(5,6,7,8): 14–24. http://dx.doi.org/10.1504/IJTM.2000.002891

Quinn, J. B. 1980. *Strategies for change: logical incrementalism*. New York: Irwin.

Rangone, A. 1996. An analytical hierarchy process framework for comparing the overall performance of manufacturing departments, *International Journal of Operations and Production Management* 16: 104–119. http://dx.doi.org/10.1108/01443579610125804

Rodov, I.; Leliaert, P. 2002. FiMIAM: financial method of intangible assets measurement, *Journal of Intellectual Capital* 3(3): 323–336. http://dx.doi.org/10.1108/14691930210435642

Roos, J. G.; Dragonetti, N. C.; Edvinsson, L. 1997. *Intellectual capital: navigating in the new business landscape*. London: Macmillan.

Rumelt, R. P. 1974. *Strategy, Structure, and Economic Performance*. Boston: Harvard University Press.

Rumelt, R. P. 1982. Diversification strategy and profitability, *Strategic Management Journal* 3: 359–369. http://dx.doi.org/10.1002/smj.4250030407

Rylander, A.; Jacobsen, K.; Roos, G. 2000. Towards improved information disclosure on intellectual capital, *International Journal of Technology Management* 20(5–8): 715–741. http://dx.doi.org/10.1504/IJTM.2000.002892

Saint-Onge, H. 1996. Tacit knowledge the key to the strategic alignment of intellectual capital, *Strategy* & *Leadership* 24(2): 10–16.

Schendel, D.; Hofer, C. 1979. *Strategic management: a new view of business policy and planning*. Little Brown Boston, MA.

Schroeder, R. G.; Lahr, T. N. 1990. Development of manufacturing strategy: a proven process, in *Joint Industry University Conference on Manufacturing Strategy*, January 1990, Ann Arbor, USA.

Scott, B. R. 1973. The industrial state: old myths and new realities, *Harvard Business Review* 57: 133–148.

Scott, W. R. 1987. *Organizations: rational, natural, and open systems*. 2nd ed. Englewood Cliffs, NJ: Prentice-Hall.

Smith, A. D. 2007. Collaborative commerce through web-based information integration technologies, *International Journal of Innovation and Learning* 4(2): 127–144. http://dx.doi.org/10.1504/IJIL.2007.011689

Stahle, P.; Stahle, S.; Aho, S. 2011. Value added intellectual coefficient (VAIC): a critical analysis, *Journal of Intellectual Capital* 12: 531–551. http://dx.doi.org/10.1108/14691931111181715

Standfield, K. 1999. *Knowcorp* [online], [cited 22 March 2014]. Available on the Internet: http://www.knowcorp.com

Stewart, T. A. 1991. Brainpower: how intellectual capital is becoming America's most valuable asset, *Fortune* June 3, 1991, 44–60.

Stewart, T. A. 1997. *Intellectual capital: the new wealth of organizations*. New York: Doubleday Dell Publishing Group.

Stopford, J. M.; Wels, L. T. Jr. 1972. *Managing the multinational enterprise*. New York: Basic Books.

Suwignjo, P.; Bittitci, U. S.; Carrie, A. S. 2000. Quantitative models for performance measurement system, *International Journal of Production Economics* 64: 231–241. http://dx.doi.org/10.1016/S0925-5273(99)00061-4

Sveiby, K. E. 1997. *The new organizational wealth: managing and measuring knowledge-based assets*. San Francisco: Barrett-Kohler Publishers.

Sveiby, K. E. 2001. Acknowledge based theory of the firm to guide in strategy formulation, *Journal of Intellectual Capital* 2(4): 344–358. http://dx.doi.org/10.1108/14691930110409651

Thompson, J. D. 1967. *Organizations in action*. New York: McGraw-Hill.

Tushman, M. 1978. Technical Communication in R&D Laboratories: impacts of Project Work Characteristics, *Academy of Management* 21(4): 624–645.

Tushman, M. L.; Nadler, D. A. 1978. Information processing as an integrating concept in organizational design, *Academy of Management Review* 3: 613–624.

Van de Ven, A. H.; Delbecq, A. L.; Koenig, R. Jr. 1976. Determinants of coordination modes within organizations, *American Sociological Review* 41: 322–338. http://dx.doi.org/10.2307/2094477

Van der Zahn, *et al*. 2004. *Intellectual capital and the efficiency of value added: trends in the Singapore capital market 2000–2002*. Burleigh: Poseidon Books.

Wang, C., *et al*. 2014. Knowledge networks, collaboration networks, and exploratory innovation, *Academy of Management Journal* 57(2): 484–514. http://dx.doi.org/10.5465/amj.2011.0917

Welbourne, T. M.; Pardo del Val, M. 2008. Relational capital: strategic advantage for small and medium-size enterprises (SMEs) through negotiation and collaboration, *Group Decision and Negotiation* 18(5): 483–497. http://dx.doi.org/10.1007/s10726-008-9138-6

Wilkinson, A. 1999. Employment relations in SMEs, *Employment Relations* 21(3): 206–217. http://dx.doi.org/10.1108/01425459910273062

Wrigley, L. 1970. *Divisional autonomy and diversification*: Unpublished PhD dissertation. Harvard Graduate School of Business.

Zaltman, G.; Duncan, R.; Holbek, J. 1973. *Innovations and organizations*. New York: Wiley.

Zangoueinezhad, A.; Moshabaki, A. 2009. The role of structural capital on competitive intelligence, *Industrial Management* & *Data Systems* 109(2): 262–280. http://dx.doi.org/10.1108/02635570910930136

Zéghal, D.; Maaloul, A. 2010. Analysing value added as an indicator of intellectual capital and its consequences on company performance, *Journal of Intellectual Capital* 11(1): 39–60. http://dx.doi.org/10.1108/14691931011013325

Simona SURVILAITĖ. PhD Candidate at Mykolas Romeris University. Senior for anti-money laundering analyst. Research interests: intangible assets, intellectual capital, value added, finance, financial markets, investments.

Rima TAMOŠIŪNIENĖ. Assoc. Prof., PhD at the Financial Engineering Department, Faculty of Business Management, Vilnius Gediminas Technical University. Professor, PhD at the Economics and Business Institute, Faculty of Economics and Finance Management of Mykolas Romeris University. Director of the Economics and Business Institute, Faculty of Economics and Finance Management of Mykolas Romeris University. Research interests: intellectual capital, human capital, social capital, investment evaluation and management, business project management and evaluation, risk management.

Valdimir SHATREVICH. PhD Candidate at the Department of Management of Riga Technical University. Research interests: manufacturing, production, productivity, production management, manufacturing/production engineering, economics.