DYNAMIC INTELLECTUAL CAPITAL MODEL IN A COMPANY

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Abstract. The aim of this paper is to indicate the relations between company's value added (VA) and intangible assets. Authors declare that Intellectual capital (IC) is one of the most relevant intangibles for a company, and the concept with measurement, and the relation with value creation is necessary for modern markets. Since relationship between IC elements and VA are complicated, this paper is aimed to create a usable dynamic model for building company's value added through intellectual capital. The model is incorporating that outputs from IC elements are not homogeneously received and made some contributions to dynamic nature of IC relation and VA. Variables that will help companies to evaluate contribution of each element of IC are added to the model. This paper emphasizes the importance of a company's IC and the positive interaction between them in generating profits for company.

Keywords: intellectual capital, Information Communication Technologies, value creation, organizational structure, performance.

JEL Classification: G14, L21, M1, M10, M21.

1. Introduction

This study was conducted within the scope of the EKOSOC-LV State research "The Development of Innovation and Entrepreneurship in Latvia in Compliance with the Smart Specialization Strategy" No. 5.2.2.

There is one important question, which has been dominating through history of management, and it is "how do we create value added of company", and thus, enhances shareholder value. Many scientists emphasize the importance of company's value added as the main factor for creating shareholder value (Kay 1995; McLean 2006; Pitelis 2009; Bowman, Ambrosini 2010; Bang *et al*. 2010).

Nowadays, the efficiency of value chain as one of the key inputs to added is well understood (Porter 1979). Today's knowledge intensive companies have more advan-

tages in more complex environment. The changing environment replaced the perception of company's value added (VA) 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). As the primary inputs to organizations' value creation processes are internal resources, but classic economic laws are hardly applicable for knowledge and other intangible resources. These resources traditionally seen as external could make an important contribution to the value creation process of the company. Based on the intellectual capital (IC) approach, the paper begins the research that explores the effect of intangible resource in creation of added value.

Many scientists were analysing the influence of intangible assets on company's value added (Zeghal, Maaloul 2010; Bontis 1999; Edvinsson, Malone 1997; O'Regan *et al*. 2000). Sveiby and O'Regan are assuming that intellectual capital is composed of the following three main parts: external structure, internal structure, and human capital (Sveiby 1997; Drucker 1993).

The IC literature draws on aspects of the practical applications, providing a framework for explaining the value creation process as the link, between resources and shareholder value.

Value creation is not only difference between incomes and expenditures. P. F. Drucker accentuates this and emphasizes that "main producers of wealth have become information and knowledge" and also the knowledge productivity (Brooking 1996).

The aim of this paper is dedicated to evaluate the relationship between company's value added (VA) and intangible assets. Paper's subject is intellectual capital (IC) and information and communications technologies (ICT).

Authors see E-environment as a modern and powerful tool in creation of IC that helps to transfer company knowledge to customers and build product/service value. The IC literature draws on aspects of the practical applications, providing a framework for explaining the value creation process as the link, between resources and shareholder value.

The theoretical and methodological ground-work of the study is formed of scientific articles, monographs, regulatory enactments and researches, conference materials, internet resources, expert opinions published in Latvia and abroad.

The theoretical and methodological ground-work of the study using literature exploratory approach, in the research generally accepted qualitative and quantitative data analysis methods of the economic science were employed, among them, statistical data processing, data grouping, and inductive-deductive data analysis methods. The scientific study employs surveying, observation study method, as well as comparative, and analytical methods, which are used by the authors to compare and analyse facts and assess solutions to specific issues. Authors of the article use tables and figures created with Microsoft Office to ensure visual clarity of the study.

The e-environment dominance in the market increases, as well as interaction of both fields. The paper question is "how to evaluate SME IC using ICT"? Paper deals with the sector of information and communications technologies (ICT) as a result of e-environment development. This paper analyses and describes the role of the ICT sector in modern entrepreneurship and e-environment processes as a part of knowledge management and IC processes. The e-environment is analysed in this context as a factor affecting entrepreneurship development and competitiveness.

The problem, despite the fact that e-environment developed dramatically and companies can benefits by using e-tools, is that many companies are still resistant to e-tools. The authors of the paper make contribution to practical aspects of adaptation of ICT in companies. The e-environment is analysed in this context as a factor affecting entrepreneurship development and competitiveness.

2. Intellectual capital approach

The concept of IC started to formalize in the early 1990s by Leif Edvinsson (Edvinsson, Malone 1997).

The work of Skandia (Fig. 1) was presented as a supplement to the annual shareholders report to describe the "true" value of the company's. This 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".
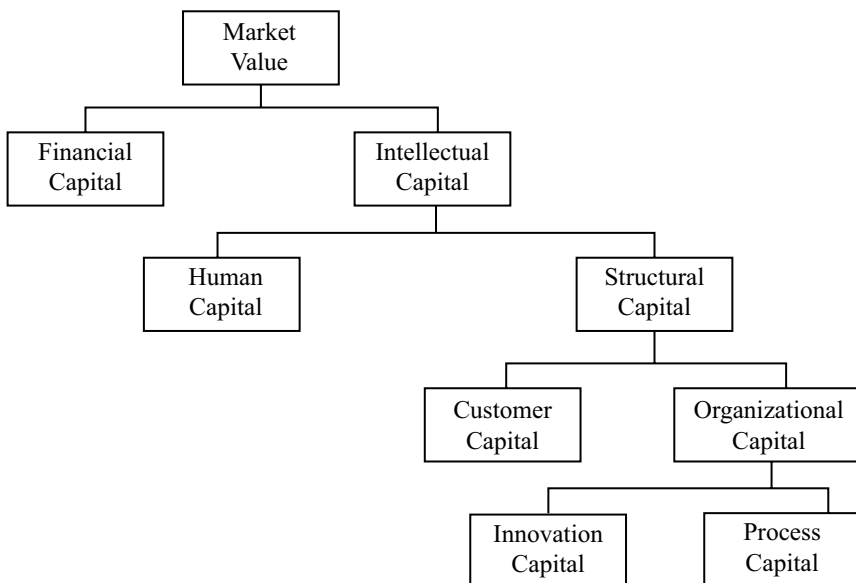

Fig. 1. SKANDIA'S value scheme (source: Edvinsson, Malone 1997)

By the end of the 1990s, references to intellectual capital in contemporary business publications were commonplace (Stewart 1991). Many scientists started to define IC, having a similar opinion about intellectual capital and its definition (Stewart 1991; Edvinsson, Malone 1997; Standfield 1999; Pike *et al*. 2000; Roos *et al*. 1997). Bontis considers that intellectual capital is everything that is in a company: all intangible resources and processes that belong to the company, patents, innovations, and customers, tacit and explicit knowledge (Bontis 1999).

What resources actually make up these generic capital forms is unique to each and every organization, as only those resources that are important for creating value should be included in constructing the distinction tree for an organization (Bontis 1999). The work of Skandia advised to measure the IC through indexes (Fig. 2), recommended 112 metrics. Later IC-Index practice was created by Roos, Dragonetti and Edvinsson (Roos *et al*. 1997).

SAMPLE OF SKANDIA IC MEASURES

Financial Focus	– revenues / employee ($) – revenues from new customers / total revenue ($) – profits resulting from new business operations ($)
Customer Focus	– days spent visiting customers (#) – ratio of sales contacts to sales closed (%) – number of customers gained versus lost (%)
Process Focus	– PCs / employee (#) – IT capacity - CPU (#) – processing time (#)
Renewal and Development Focus	– satisfied employee index (#) – training expense / administrative expense (%) – average age of patents (#)
Human Focus	– managers with advanced degrees (%) – annual turnover of staff (%)

Fig. 2. Scandia IC measures (source: Roos *et al*. 1997)

Roos *et al*. propose that the specific measurement of company IC by weightings and indicators can be decided by knowing the company's strategy. Also Roos *et al*. suggests that the main consideration for assigning the weights to indexes should be the relative importance how they help the company achieve its strategic goals (Roos *et al*. 1997).

Karl-Erik Sveiby gives his own conceptual framework (Fig. 3) of measuring IC assets based on three families of intangible assets: external structure (brands, customer and supplier relations); internal structure (the organization: management, legal structure, manual systems, attitudes, R&D, software); and individual competence (education, experience (Sveiby 1997)).

Visible Equity	Intangible Assets (Stock Price Premium		
(book value) Tangible assets minus visible debt.	External Structure (brands, customer and supplier relations)	Internal Structure (management, legal structure, manual systems, R&D, software)	Individual Competence (education, experience)

Fig. 3. Measuring model of intangible assets (source: Sveiby 1997)

IC approach helps us to develop strategy that focused on intangible resources, allowing them to manage more effective in process increasing in shareholder value.

To conclude, different scientists intellectual capital is understood as the sum of all knowledge in the company that is able to generate company's value added and it is affected by knowledge quality and knowledge productivity.

3. The concept of e-environment

The rapid electronic environment development over the last decade has fostered the e-market growth and has provided companies with opportunities that they previously did not have. By employing advantages offered by the e-environment, entrepreneurs can ensure expedient and effective communication with the target audience, by promoting products on the global market. The performed scientific studies show that proper and skilful use of modern technologies can contribute to significant development of companies.

Up to now, no unequivocal studies have been performed about the use of the electronic environment in ensuring development of micro, small, and medium enterprises. The electronic environment is used for various needs – for trade, marketing, advertisement, studies, communication, training, etc. Simultaneously, there is an opinion claiming that in future, the majority of transactions will be performed on the electronic market, hence advancing the dominant position of the e-environment in achieving entrepreneurship competitiveness.

The electronic environment already now offers companies practically all the necessary marketing and communication tools for ensuring company development by creating competitive advantages, nevertheless, not all companies can employ the opportunities rendered by the e-environment, in order to increase company competitiveness and productivity.

There are several well-known and popular value theories, such as, the Five forces model (Porter 2008), Shareholder value model (Fruhan 1979), as well as the "Value map" theory, intended for analysing the economic gain for consumers (Kambil *et al*. 1997).

Various theories were developed many years ago, when the electronic market was not yet developed, and hence are suitable for the conventional market. Due to this rea-

son, the authors of the article suggest that companies use the Alexander Osterwalder's value proposition concept or the approach that is a constituent element of the author's developed business model canvas. (Osterwalder, Pigneur 2009).

The Osterwalder's business model was formed based on Freeman's stakeholder theory (Freeman 1984). The model is adapted to today's market needs and conditions, and the importance of the electronic environment, i.e. of the electronic market, in entrepreneurship is taken into account. Osterwalder distinguishes between "value proposition" and "elementary value proposition", which is an element of value proposition.

The authors wish to draw attention to Osterwalder's "value life cycle" consisting of five stages: value creation, appropriation, consumption, renewal, and transfer (Osterwalder 2004).

All life cycle stages are linked to value consumption, using the electronic environment: value creation process (based on information and communication technologies (ICT) – adaptation of various products for the needs of an individual consumer, e.g., personal computers, footwear, etc. Value appropriation – "a one click purchase" at an internet shop. Value consumption – listening to music, watching a movie, etc. Value renewal – various software updates, value transfer – disposal of old computers and other machinery, giving away unnecessary books and equipment for further use, etc.

Upon combining analysed models, it can be seen that the information and communication technologies (in the Osterwalder's model) or the information communication technology bear great importance in creating value for consumers and that they undoubtedly affect the company's image. Nevertheless, several empirical studies made by authors in Latvia, show that many Latvian SMEs do not employ ICT and therefore the most suitable way should be sought for how to involve ICT in elaborating business development models.

The value concept is broadly used in various business models, including e-business models. The value forms the basis of several business models.

The e-business model is based on mutual integration of key flows and values and implementation thereof between e-market participants, through the use of the e-environment. Three main e-business model elements can be distinguished: flows, participants, value. The term e-business model describes a broad spectrum of informal and formal models, which may be used in companies to depict various business aspects, such as operational processes, organisational structures, and financial forecasts (Laudon, Traver 2010).

In studying various business model concepts, the authors have come to a conclusion that both business model types (taxonomic and conceptual) can be applied to the Latvian SMEs; however the conceptual business models would still be primary. It is related to the fact that there are many niche and narrow profile companies in Latvia. Moreover, the majorities of companies are operating only on the local market and depend on domestic demand fluctuations.

The conceptual business models enable companies to analyse the current condition more broadly and to evaluate the already existing business. By employing this analysis, companies can develop new business development directions or improve the existing ones, because a modern market demands that companies change and are aware of their global condition. Entering the global market allows companies to reduce their dependency on local market fluctuations.

Taxonomic models, for their part, can serve as a specific type of entrepreneurship. For instance, when developing the conceptual business model, companies will answer the question "How to develop further on?", but the taxonomic model will allow answering the question "What to do in order to develop?"

The use of ICT promotes communication (Fig. 4); moreover, ICT is at the basis of the first stage "value creation" of the value life cycle.
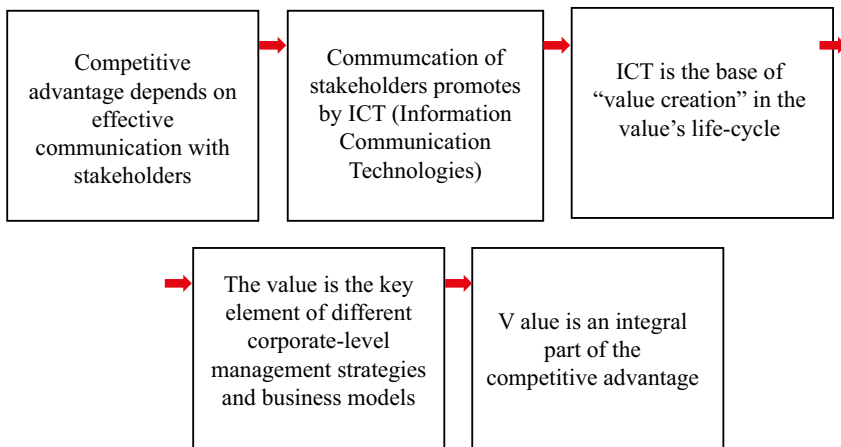

Fig. 4. Competitive advantage, ICT and Value intermediation (source: Ščeulovs 2013)

Based on the authors' performed study about the use of e-environment in Latvian companies (Ščeulovs, Gaile-Sarkane 2010), having studied value formation theories, having analysed the types and theories of business models, the authors have drawn a conclusion that the most suitable course of action would be to base further development on the Osterwalder's Business Model Canvas (Business Model Foundry 2014). Forbes has referred to this business model canvas as a simple instrument for creating innovative business models (Ščeulovs 2013). The model is based on active use of the e-environment in entrepreneurship. There are nine stakeholder groups at the basis of the model. Meanwhile, reciprocal and effective interaction and communication between the stakeholders promotes a company's competitiveness (Osterwalder, Pigneur 2009).

At the same time, value is an intrinsic part of a competitive advantage. It can be concluded that a competitive advantage depends on effective communication with stakehold-

ers and customers. The previous study done by the authors about competitiveness of Latvian companies' shows that it is the use of communications networks, being a constituent element of competitiveness of Latvian companies, that the companies are using the least (Ščeulovs 2013). Thus, the authors of the paper assume that by increasing E-environment element as part of IC system, the competitiveness companies will also increase.

4. ICT, E-Environment and value creation intermediation

The identification of value-drivers elements in IC system and their subsequent management is seen as the key to value added Authors present the model of IC describing the system how IC resources are used to increase value added. Author's model of IC composed of mainly three components: human capital, structural capital (organisational capital) and relational capital (social capital).
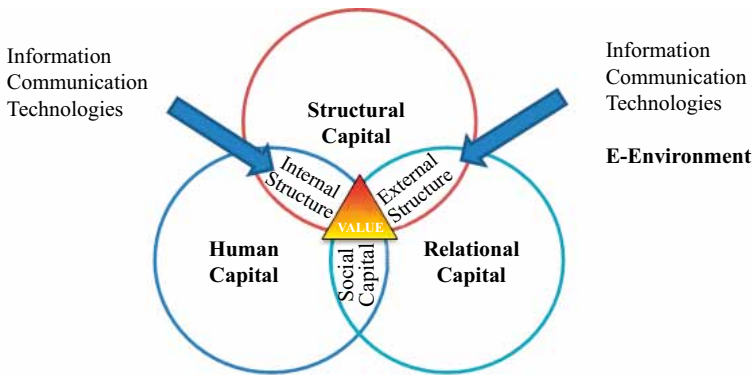

Fig. 5. ICT, E-Environment and Value creation intermediation (source: Hermans, Kauranen 2005)

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

5. Measuring of intellectual capital and information communication technologies

In the context of knowledge, because knowledge itself is invisible, its creation and use are hardly measureable. Nonetheless investing in ICT many valuable outputs are generated (brand, know-how, patents etc.). Value generated by knowledge will probably have

time lag (long-term) and not always have instant impact on profit (short-term). Using this model can describe the methodology of our evaluation model. Promoting investments to ICT and specifically to E-environment, it is possible to evaluate company value. As for beginning should calculate the investment made by company to ICT, comparing to abnormal revenue flow generated by ICT and intangible value created.

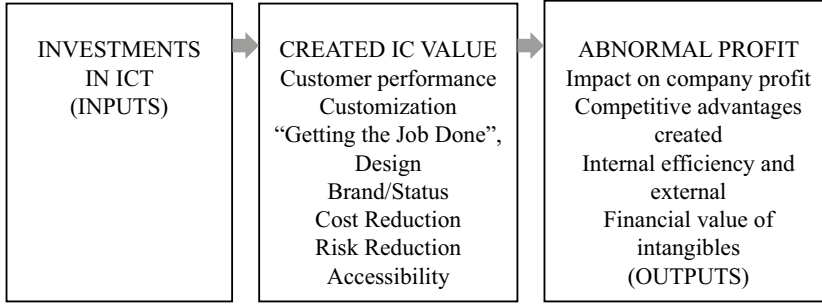| INVESTMENTS IN ICT (INPUTS)	CREATED IC VALUE Customer performance Customization "Getting the Job Done", Design Brand/Status Cost Reduction Risk Reduction Accessibility	ABNORMAL PROFIT Impact on company profit Competitive advantages created Internal efficiency and external Financial value of intangibles (OUTPUTS)

Fig. 6. ICT, E-Environment and Value creation mediation (source: Pulic 2000)

This model helps to describe the methodology of authors of the paper quantitative evaluation model. Based on the model (Fig. 5) puts an emphasis on external efficiency. Current quantitative model concentrates on external reporting, including internet statistics, investment analysis and methods for reporting the nonfinancial value of intangibles. So quantitative model is based mostly on VAIC (Value-Added Intellectual Coefficient) approach.

$$IICT_t = HR_t + SC_t + RC_t, \qquad (1)$$

where: HR_t – Human Resources dedicated to specific ICT project (according to Pulic's concept mainly labour costs) at time t. SC_t – Investments made to structural capital (maintenance, equipment, R&D costs) at time t.

RC_t is the relational capital expenses (advertising costs – e.g. such systems as Google index etc.) at time t. So we present formulae based on Sveiby (Sveiby 1997). VA creation model and author`s model based on Pulic (Pulic 2000) (Figs 3 and 6):

$$VA_t = (-\alpha_t IICT_t + \beta_t (AP_t)) \times \delta_t (IV_t), \qquad (2)$$

where t – value added created at time; α_t – is correlation coefficient (function of time-series properties); $IICT_t$ – capital (physical and financial) invested by company to specific ICT project at time t; β_t – is correlation coefficient (function of time-series properties); AP_t – abnormal profit generated by company through ICT project per t period; δ_t– is correlation coefficient; IV_t – intangible value generated by ICT at time t.

Or it could be seen as:

$$VA_t = (-\alpha_t \sum_{i}^{n-1}(HR_t + SC_t + RC_t) + \beta_t(AP_t)) \times \delta_t(IV_t), \qquad (3)$$

where AP_t – reported abnormal profit are based on a traditional accountant system; IV_t – Intangible value generated by ICT could be calculated using specific parameters:

$$IV_t = f(IndX_1 + IndX_2 \ldots IndX_{17} + etc.), \qquad (4)$$

Authors recommend developing indexes researched in their previous work (see short description on Table 1).

Table 1. IV indexes in value creation based on conducted research (source: Ščeulovs 2013)

$IndX_1$	Market share based on unit sold through ICT
$IndX_2$	Relative market share
$IndX_3$	Penetration
$IndX_4$	Gross active customer volume
$IndX_5$	Information diffusion rate
$IndX_6$	Satisfaction
$IndX_7$	"Willing for searching"
$IndX_8$	"Try & Buy"
$IndX_9$	Penetration(t)
$IndX_{10}$	ICT sales forecast
$IndX_{11}$	Repeated sales
$IndX_{12}$	Trial volume
$IndX_{13}$	Opportunities-to-see
$IndX_{14}$	Clickthrough rate
$IndX_{15}$	Session index
$IndX_{16}$	Client behaviour dynamics
$IndX_{17}$	Client time-spent dynamics

Authors agree with Bontis *et al.* (1999) conclusion and emphasise that every company could include or exclude their own indexes based on specific market condition and working profile, that is why formulae could be modified (Bontis 1999).

Based on previously conducted research (Bontis 1999), authors of the article made description to the VA creation model. VA creation model regarding financial part (formula 1) – α, β coefficients. Authors also conclude that these values are very sensitive to company strategy. After analysing financial figures (expenses and profits) coming from ICT, authors of the article suggests (for more information see also Roos *et al.* (1997) presented conclusions), that α, β coefficients should be based on company strategy. It means that, if company's strategy is sustainable development, these coefficients should

be less sensitive, and, in case, company's shareholder support speculative strategies – more sensitive. It could be easily understood as soon as one of IC capital fundamentals is long-term value creation.

As for nonfinancial part of our model, using previously conducted research (result are provided by SPSS), authors of the paper found that δ coefficient is more complicated and should be expressed as sum of correlations coefficients (Table 2, Sčeulovs 2013).

$$\delta = \sum_i^n f_i^j , \qquad (5)$$

where δ – is sum of correlation coefficients (Table 2); $i = 1$ – corresponding IC factor; $j = 1$ – corresponding IC correlation coefficient.

Table 2. IC factor's correlation coefficients based on conducted research
(source: Sčeulovs 2013: 177–178)

Nr	Factor description	Factors variables	Correlation coefficient (average)
1	Knowledge about use of e-environment tools	7	0.917
2	Knowledge about ICT tools and its usage	3	0.725
3	Knowledge about e-environment models	1	−0.869
4	Communication with interested party online	4	0.795
5	ICT unit as sale and marketing instrument	1	0.701
6	Usage of e-environment tool for customer and marketing research	3	0.770
7	Knowledge about institutional services	5	0.852
8	E-environment tool acceptation in HR	2	0.825
9	E-environment tool diversity	2	0.811
10	Use of institutional services for business goals	2	0.736

6. Dynamic intellectual capital business model

For the practical use of the formulae on e-business authors uses the Business Model Ontology (BMO) (Osterwalder 2004). The BMO's roots are found in management science and information systems research. Its four basic areas of preoccupation of a business model, the value proposition, the customer interface, the infrastructure management and the financial aspects stem from management literature (Kaplan, Norton 1992; Markides 1999; Hagel III, Singer 2000).

The proposed dynamic business model elements are a synthesis of the authors formulae (3), providing practical contribution for business users. It's scientific roots originate in so-called design science (Owen 1997) and its recent upsurge in Information Systems research (March, Smith 1995; Au 2001; Ball 2001; Hevner *et al.* 2004).
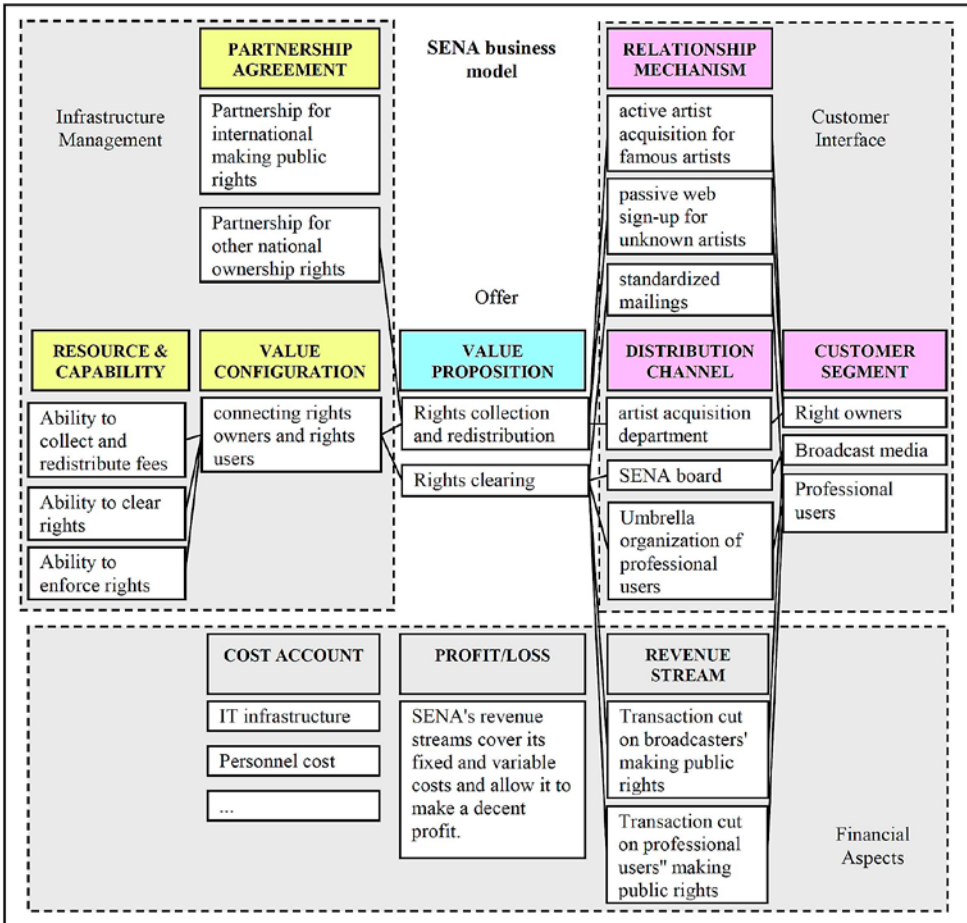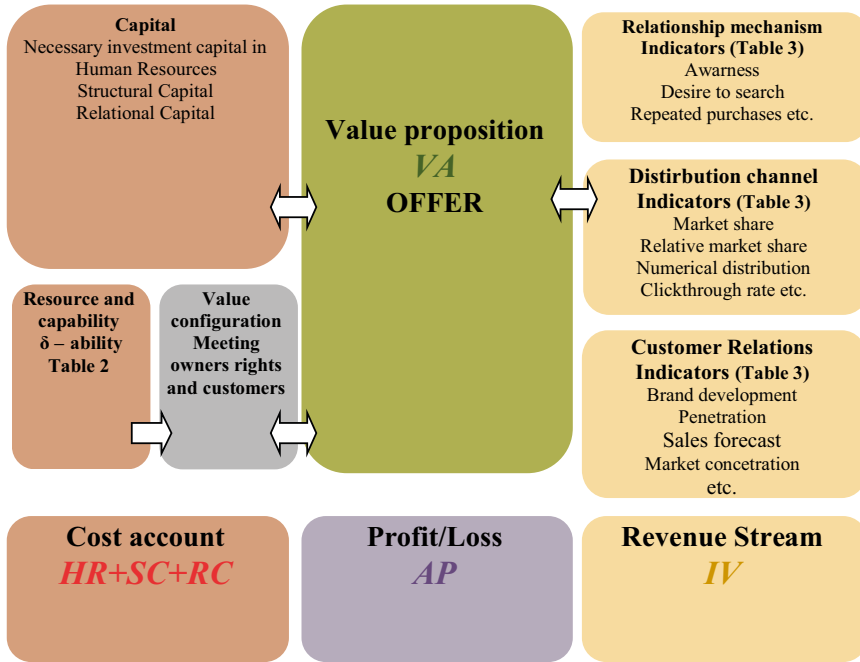
Fig. 7. Sena business model' BMO ontology based on Osterwalder (2004)

For authors a business model is understood as a conceptual tool that contains a set of elements and their relationships and allows expressing the business logic of a company. It is a description of the *what*, the *who*, the *how* and the *how much* in a company (Kaplan, Norton 1992; Markides 1999; Hagel III, Singer 2000). In other words it describes the value a company offers (what?) to one or several segments of customers (who?) and the architecture of the firm and its network of partners for creating, marketing and delivering this value and relationship capital (how?), in order to generate profitable and sustainable revenue streams (how much?). This business model has a good visualization, allowing understanding value creation logic (Fig. 7).

$$VA_t = \left(-\alpha_t \sum_i^n (\,HR_t + SC_t + RC_t\,) + \beta_t \left(AP_t\right)\right) \times \delta_t \left(IV_t\right)$$

Fig. 8. Dynamic intellectual capital business model
(source: authors created model based on BMO ontology by Osterwalder (2004))

The author focus is to integrate IC into the value creation intermediation of the company, as it aims at conceptually representing the way a specific company does business and its logic as to earning revenues (see Fig. 8).

In this approach authors integrates a set of indicators to evaluate relationship mechanism (Table 3). Indicators used by authors in revenue stream could be found on Table 1.

Table 3. Non-financial indicators for company's development determination
(source: Ščeulovs 2013)

#	Indicator name	Formula* *signage: $ – currency unit, % – percentage, # – numerically, R – rating, I – index	Aim (task) / description
1.	Market share by purchased units	$Purchased\ units\ in\ the\ market\,(\%) = \dfrac{Purchased\ units\,(\%)}{Total\ market\ Purchased\ units\,(\%)}$ $Purchased\ units\ in\ the\ market\,(\#) = \dfrac{Purchased\ units\,(\#)}{Total\ market\ Purchased\ units\,(\#)}$	Key indicator of market competitiveness

#	Indicator name	Formula* *signage: $ – currency unit, % – percentage, # – numerically, R – rating, I – index	Aim (task) / description
1.1.	Market share by revenue	$$\text{Market share by revenue}(\%) = \frac{\text{Revenue from sales}(\$)}{\text{Total revenue from market sales}(\$)} \times 100\%$$	
2.	Relative market share	$$\text{Relative market share}(I, \#) = \frac{\text{Brand market share}(\$, \#)}{\text{Biggest competitors market share}(\$, \#)}$$	To measure performance of the company or brand and market position
2.1.	Market concentration (related metrics)	Shows which a relatively small number of companies account for a large market share. It is also known as the concentration ratio. Is usually calculated in relation to the three or four biggest companies on the market.	
3.	Three (four) companies concentration ratio	Total (sum) market share, which mainly consist of 3–4 leading competitors in the market.	
4.	Brand development index	$$\text{Brand development index} = \frac{\dfrac{\text{Brand sales for a group}}{\text{Household in a group}}}{\dfrac{\text{Total brand sales}}{\text{Total household}}}$$	To understand the relative brand performance for certain customer groups
5.	*Penetration*	$$\text{Market penetration}(\%) = \frac{\text{Customers who bought product}(\#)}{\text{Total population}(\#)} \times 100\%$$ $$\text{Brand penetration}(\%) = \frac{\text{Customers who bought brand}}{\text{Total population}} \times 100\%$$ $$\text{Penetration share}(\%) = \frac{\text{Brand penetration}}{\text{Market penetration}} \times 100\%$$ $$\text{Penetration share}(\%) = \frac{\text{Customers, who bought brand}(\#)}{\text{Customers, who bought brand}(\#)} \times 100\%$$	To measure popularity of brand
5.1.	The total number of active consumers (related metrics)	Percentage of consumers who at least once certain periods of time have bought a brand or product. When it refers to a specific brand, it is equivalent to the brand permeability Acceptors: consumers who accept a given product and its benefits. Those who reject: contrary acceptors. "Ever-try-customers" – the part of consumers who have ever tried a particular brand.	
6.	Awareness	Awareness scale (R) with point grading system, for example: from very dissatisfied to very satisfied	To measure consumers' awareness of the product / brand

#	Indicator name	Formula* *signage: $ – currency unit, % – percentage, # – numerically, R – rating, I – index	Aim (task) / description
8.	Desire to search	Desire to search (%) = percentage of the number of consumers who want to postpone purchase, changes stores or reduce purchases volume, focuses on other brands	To measure the trust to the brand/product
9.	Trial rate	$$\text{Trial rate}(\%) = \frac{\textit{Purchased first time in period } t(\#)}{\textit{Total population}(\textit{number of customers})(\#)} \times 100\%$$	To predict the volume of sales volume, as well as to measure changes in the volume of sales
10.	Penetration t	$\text{Penetration } t(\#) = \big[\text{Penetration } t1(\#) \times \text{Replicates rate}(\%)\big] \times$ first purchased in period $t(\#)$	
11.	Sales forecast	Sales forecast $t(\#) = $ Penetration $t(\#) \times$ The average purchase frequency $(\#) \times$ Average number of sold units $(\#)$	
12.	Repeated purchases	Number of repeated number of buyers $(\#) = $ Trial number $(\#) \times$ Repetitions rate $(\%)$	
13.	Trial volume	Trial volume $(\#) = $ Trial number $(\#) \times$ Number of sold units $(\#)$	
14.	Repeated purchases volume	Repeated appliences volume $= $ Repeated buyers number $(\#) \times$ Number of appliences made by one customer $(\#) \times$ Repeat times $(\#)$	
15.	Numerical distribution	$$\text{Numerical distribution}(\%) = \frac{\textit{Number of brand banners}}{\textit{Total number of banners}} \times 100\%$$	To measure a company's distribution (delivery) ability to customers
16.	All products distribution	$$\text{All products distribution}(\%) = \frac{\textit{Total sales volume of all brand`s sales places}}{\textit{Total sales volume of sales places}(\textit{banners})} \times 100\%$$	
17.	Distribution of particular type of product (PTP)	$$\text{Distribution of PTP}(\%) = \frac{\textit{Total PTP brand`s sales places sales volume}(\$)}{\textit{Total sales volume of sales places}(\textit{banners})(\$)} \times 100\%$$	
18.	Premium price	$$\text{Premium price}(\%) = \frac{\textit{Brand's A price}(\$) - \textit{Etalon price}(\$)}{\textit{Etalon price}(\$)} \times 100\%$$	To develop product pricing in competition conditions
18.	Premium price	$$\text{Premium price}(\%) = \frac{\textit{Revenue market share}}{\textit{Product market share}} \times 100\%$$	
19.	Impressions, opportunities-to-see exposures	Impressions (#) = Network Reach (#) × Frequency (#) Impressions, Opportunities-to-See, Exposures – internet users, who individually reacted on concrete ad or other marketing activity in internet. Net Reach, Rating Point) – percentage of reach of the certain audience through the media. Frequency – certain ad or others activity views number, which done by one user.	Modify the overall effect on the number of people and the average frequency, with which they are exposed to advertising

#	Indicator name	Formula* *signage: $ – currency unit, % – percentage, # – numerically, R – rating, I – index	Aim (task) / description
20.	Clickthrough rate	Clickthrough rate $= \dfrac{Clicks}{Effect}$	Initial consumer reaction on conquering web pages.
21.	The industry growth rate	Tu (the company's commercial sales growth rate) > Tn (industry growth rate)	
22.	Visits indicators	Visits, Sessions – a particular company's website first-time attendance of users. Visitors, Unique Visitors – the number of users who visit a particular website of the company for a given period. Clickstream – way, how user find website Abandonment Rate – The percentage of abandoned number of websites. Cookie – small visitor's file, which recorded by website and helps identify user next on visiting time.	To analyse the behaviour of internet users
23.	Website traffic statistics dynamics	Website traffic statistics dynamics, # Shows how many internet users visited a given site during a given period.	
24.	Web site visit duration	Web site visit duration, # Shows average time which users spent on the site. It is important to remember that attendance and viewing sites are different; not always visiting the site matches and the site's viewing are equal.	
25.	Site visitors characterization	Site visitors characterization, # Behaviour: new and repeated visitors, frequency etc. Demographic data: language, location, gender, etc. Etc.	
26.	Technologies	Technologies used in site attendance: – device, from which the attendance made; – browser and operating system, with which help made attendance; – provider used for site visiting; – visitors flow (what content were visited on the site); – in what way was visited site – directly or via link and/or divert from other sites; – others.	

Business Model focuses on the design of a company's value creation model, visualization of value creation in BMO is highly relevant, and such visualisations are used to explain a model to stakeholders. The BMO approach builds on the use of entity-relationship-type models (see Fig. 8). Additionally, it proposes specific diagrams, for instance for distribution channel strategies or activity configurations. The authors' formulae allow to automatically calculating the profitability of the business model of a IC value given.

7. Conclusions

The main aim was to reveal the main theoretical and practical aspects of the relations between company's value added (VA) and intangible assets.

Firstly, we created the concept model of ICT, E-Environment and Value creation intermediation to discover the relation between company's value added and intellectual capital.

Secondly, in order to evaluate the relation between company's value added and intellectual capital, our mathematical model is created to explain the causal relation among these three types of capital in IC model and value added. Authors added the variables that will help companies to evaluate contribution of each element of IC.

Authors declare that Intellectual capital is one of the most relevant intangibles for a company, and the practical concept with measurement, and the relation with value creation is necessary for modern markets. As a second phase of our research, there is not yet fully approved direct correlation between model factors, and therefore authors are forced to use in future researches more information analysis presented by companies. More empirical researches are needed to investigate the relation effect of Intellectual capital on value creation. This paper emphasizes the importance of a company's IC and the positive interaction between them in generating profits for company.

Our findings indicated that the relations between IC elements and VA are complicated; outputs from IC elements are not homogeneously received. This relationship has different inputs with different evaluating methods and specific impact on VA. Therefore, this paper was aimed to create a usable dynamic model for building company's value added through intellectual capital.

Finally, authors presented a dynamic intellectual capital business model. Our practical model is making contribution, both from financial perspective and easy business logic conceptualization, to the research of IC dynamic nature and its relation to VA. The proposed dynamic business model was created to provide practical framework for business users, the authors were focused to represent intermediation of IC and value creation of the company, in order to conceptually visualize the way a specific company does business and its logic in earning revenues.

The main contribution of this paper is that previous BMO models do not allowed such calculations earlier. Visualization is also crucial to observe a complex relationship between IC elements and VA from different business perspectives (e.g. customer perspective, structural capital perspective etc.).

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