DEMONSTRATING HOW UNIVERSITIES EXTEND VALUE CREATION AND PERFORMANCE: CONVERGENCE BETWEEN INTELLECTUAL CAPITAL CONTRIBUTIONS AND RESEARCH QUALITY – A ROMANIAN COLLECTIVE INTELLIGENCE FRAMEWORK

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Abstract

The research paper entitled “Demonstrating how universities extend value creation and performance: convergence between intellectual capital contributions and research quality – A Romanian collective intelligence framework” emphasizes the key role played by intellectual capital in both universities and research institutes. Moreover, it shows the importance of intellectual capital contributions as well as the benefits derived from a high quality research when addressing the case of how universities extend their value creation process and enhance their performance. Furthermore, the necessity of creating a collective intelligence framework is brought into discussion and the case of Romanian universities and research institutes is emphasized while referring to the potential, perspectives and benefits derived from creating such a model.

First of all, this work underlines the key findings encountered in other similar studies addressing the role played by intellectual capital in the education field. Moreover, the study acknowledges previous work on intellectual capital management and collective intelligence in universities and research institutes setting. Second of all, the paper focuses on demonstrating how universities can extend their value creation potential and enhance their performance, starting from the main idea that there is a convergence between intellectual capital contributions and research quality, in terms of generating knowledge and developing human capital. In addition, it presents the drivers of intellectual capital in the education filed and the way in which a comprehensive intellectual capital assessment in educational institutions could be done. Third of all, the case of Romanian universities and research institutes is addressed, by stressing the fact that their outcomes have a great impact on the society, communities and businesses. In addition, the need to create a collective intelligence framework in the case of Romanian universities and research institutes is emphasized and the potential benefits are presented, namely: the universitites and institutes could export their knowledge, become more socially engaged, strive to generate innovation, advocate for technology transfer and continuing education.

All things considered, on the one hand, only a few studies have considered the convergence between intellectual capital contributions and research quality and, on the other hand, only a few studies have shown ways in which universities can extend value creation and performance. Extremely helpful in this regard are this paper’s findings on the case of Romanian universities and research institutes, which were gathered by using several research methods: (a.) literature review thorough analysis; (b.) questioner sessions; (c.) interviews sessions; and (d.) focus groups sessions. According to the results obtained, Romanian universities and research institutes are major players in socio-economic development and regional growth. Moreover, Romanian universities and research institutes should focus much more on creating valuable knowledge in a dynamic operating environment in order to consolidate their position as critical players at an international level. Furthermore, Romanian educational institutions should apply the concept of intellectual capital to assess intangible resources for the quality of their educational process as well as for the quality of their research processes.

Keywords: Intellectual capital, education, collective intelligence, value creation, performance, competition, intangible assets, accounting value, convergence, Romania.

1 INTRODUCTION

The study “Demonstrating how universities extend value creation and performance: convergence between intellectual capital contributions and research quality – A Romanian collective intelligence framework” tackles the subject of measuring performance and assess the process of value creation in
universities, in the context in which there is an extensive need of convergence between intellectual capital contributions and research quality and, in the same time, establishes as key target the creation of a Romanian collective intelligence framework.

Step 1: General introduction – The Romanian education system is going for several years through a process of redefining, rebranding and reimplementation, under the circumstances in which Romania needs to align its educational models, methods, tools and general framework to the European and international criteria of educational settings and evaluations requirements. Research on education systems has a long tradition and, in addition, for decades, one of the most popular ideal in this field is the idea that the whole education system needs to be completely renewed and all the elements connected with it need to be put in a new more innovative and full of initiative and potential light. Moreover, it should be stressed that, in our opinion, one the defining elements concerning intellectual capital is represented by a new philosophy of development: namely, sustainable development through innovation and technology transfer. In the case of Romania as one of the member states of the European Union, sustainable development through the aid of intellectual capital is the most rational perspective as well as the most important step that should be addressed. Furthermore, in the case of Romania, establishing a new paradigm of development through the confluence of intellectual capital and other economic, social and environmental factors is essential, since we are talking about the principles and practices of developing sustainably in the context of globalization. In addition, Romania has an economy based on intensive resources consumption and its natural capital is affected by the risk of damage that may become irreversible. In this case, Romania should focus more on the power of intellectual capital by creating strategy sets with concrete targets for switching from the present natural capital consumptions models to the high value added generating development model, driven by the interest in knowledge and innovation, oriented towards the continuous improvement of people’s quality of life and their economic and social relations in harmony with the natural environment.

Step 2: Problem definition – This seems to be a common problem worldwide, so the idea of restructuring and redeveloping as well as improving the Romanian education system is not at all new and the attempts made so far along this process are far from reaching an end or some sort of agreement or even a common ground. The interest of this current study is to demonstrate how universities extend value creation and performance and, in the same time, address the aspects related with the convergence between intellectual capital contributions and research quality, having in mind the creation of a Romanian collective intelligence framework. So, this remains an open problem in this area.

Step 3: Gaps in literature – To our knowledge, no study has yielded to create a collective intelligence framework, since the aspects related to intellectual capital, education, collective intelligence, value creation, performance, competition, intangible assets, accounting value, and convergence in regard to intellectual capital and value creation are extremely delicate and sensible. Nonetheless, this work will address the particular case of the Romanian education system and will propose a model of collective intelligence framework in this respect.

Step 4: Problems solutions – Most studies tended to focus on the relationship between intellectual capital and performance in companies rather than in the education system. First of all, this paper calls into question the importance of valuing intellectual capital in the education system in terms of criteria, standards and performance indicators applied to quality assurance in internal and external evaluation processes for periodic evaluation and accreditation. In this given context, the aim of this study is to validate the importance of intellectual capital in higher education institutions, as follows: (a) In the quality management appraisal system of higher education institutions; (b) In the process of providing the framework for the construction of databases and information on which institutions can use for internal monitoring and external demonstration of academic quality assurance; (c) In the process of external quality assessment and assurance for the accreditation and development of a culture of quality based on the advantages, strengths and benefits offered by intellectual capital. Second of all, this paper takes a new look at quality assessment in higher education institutions in terms the advantages, strengths and benefits offered by intellectual capital, in the context in which quality assessment in higher education institutions is done in the areas specified by law, based on the information corresponding to standards and performance indicators, correlated with the mission declared and made public by the institution concerned.

Step 5: Study motivation – This paper “Demonstrating how universities extend value creation and performance: convergence between intellectual capital contributions and research quality – A Romanian collective intelligence framework” sheds new light on how universities might extend value creation and performance by analyzing the convergence between intellectual capital contributions and
research quality, bearing in mind that the scientific research activity and the results of the scientific research activity represent key criteria in order to acknowledge intellectual capital’s influence on universities’ performance indicators values. Within the framework of this criterion, the work revisits the following key elements: (a) the impact of research programs on universities’ intellectual capital, under the circumstances in which the education provider or educational institution has a long-term strategy and medium and short-term programs that refer to the objectives, the projects and the expected results of the research, as well as the resources for realization and the power of intellectual capital existents in the way in which capitalizing the research results is done; and (b) the valorization of research on universities’ intellectual capital, under the circumstances in which research is exploited through transfer to education in publications for didactic purposes and direct activities with students, scientific publications, technology transfer through consultancy centers, scientific workgroups or other liaison structures with the economic and social environment, the realization of new products, etc.

Step 6: Aims and objectives – This paper “Demonstrating how universities extend value creation and performance: convergence between intellectual capital contributions and research quality – A Romanian collective intelligence framework” show how universities can extend value creation and performance and describe the benefits of convergence between intellectual capital contributions and research quality, having as key objective to present a Romanian collective intelligence framework.

Step 7: Significance and advantages of the work – In our opinion intellectual capital in universities should be associated with the following key elements: the annually scientific or didactic work published by professors or researchers; the way in which the dissemination of research results is done; the way in which the evaluation of the valorization of the research results is done by competent authorities; the manner in which the research results are valued at national level through awards, quotations, quotations, publications, patents, works of art; the methods used by the education provider or the educational institution in order to facilitate the transfer of the results obtained by professors and researchers in didactic and formative activities for the students.

2 LITERATURE REVIEW

The literature review section for this scientific work entitled “Demonstrating how universities extend value creation and performance: convergence between intellectual capital contributions and research quality – A Romanian collective intelligence framework” takes into consideration four phases, as follows: step 1: previous literature; step 2: limitations of previous literature; step 3: research questions; and step 4: research to be explored.

Step 1: Previous literature – In the light of reported attempts to measure intellectual capital (Z. Xiaohong & Li Sijing, 2007) and assess knowledge management’s potential (B. Marr & G. Schiuma, 2001), it is conceivable to emphasize the fact that intellectual capital and knowledge management are not reflected, in most cases, in the monetary, financial-accounting records of companies, reporting being voluntary rather than compulsory (C.R. Popescu, 2011a; C.R. Popescu, 2011b). Moreover, the way in which a company appreciates the role of intellectual capital and knowledge management as part of the process of generating performance depends mostly on the specific of activity of the company (B. Lev, 2001). So, over time, an extensive literature has developed on methods of evaluating and measuring intellectual capital (C.M. Jardon & A. Dasilva, 2017) and there has been acknowledged that there is a very large difference between reporting methods used by companies (T.A. Stewart, 1997), or by the organizations activating in the education system (C.R. Popescu, 2019c) and the typology of reported indicators (G.N. Popescu, Popescu, V.A., Popescu, C.R., 2015). In short, the literature pertaining to the measurement of intellectual capital – as valuable intangible assets for organizations, strongly suggests that is quite controversial due to the fact that all the assessment methodologies may be challenged in some respects (R.S. Kaplan, Robert S., and David P. Norton, 1996). However, in our opinion a large number of existing studies in the broader literature have examined practitioners and international organizations suggestions on measuring intellectual capital and assessing knowledge management’s potential and it was revealed that they are constantly looking for new ways to improve the models and frameworks (C.R. Popescu, Popescu, V.A. & Popescu, G.N., 2014; C.R. Popescu, 2016a; C.R. Popescu, 2016b; C.R. Popescu, Popescu, G.N. & Popescu, V.A., 2017a). As has been previously reported in the literature, we stress the fact that the most important methods and models of evaluation are the following ones: The Intangible Assets Monitor (K.E. Sveby, 1997), Balanced Scorecard (R.S. Kaplan & D.P. Norton, 1996), Edvinsson and Malone’s approach on intellectual capital, respectively the business navigator at Scandia (the business navigator of Scandia) (L. Edvinsson & M. Malone, 1997), IC-Index (J. Roos & Roos, Göran & C. Dragonetti, Nicola & Edvinsson, Leif, 1997, January). Some authors have driven the further development of intellectual
capital by revealing that the most important features of successful international organizations in terms of intellectual capital valuation are the ones: (a.) having employees with specialized skills and capabilities (J. Mouritsen, P. N. Bukh, B. Marr, 2004); (b.) the ones that have a niche expertise (K.E. Sveiby, 1997; C.R. Popescu, 2019a; C.R. Popescu, 2019b); (c.) the ones focused on intercultural competences (OECD, 2001; OECD, 2018); (d.) the ones having the ability to be reflexive being developed on three dimensions, namely awareness, responsiveness and adaptation to change (R. Tamošiūnienė & S. Survilaitė, 2015; C.R. Popescu, Popescu, G.N. & Popescu, V. A., 2017b).

Step 2: Limitations of previous literature – A number of questions concerning demonstrating how universities extend value creation and performance as well as creating convergence between intellectual capital contributions and research quality remain to be addressed (S. Pike & G. Roos, 2000; R.H. Peters & L. A. Taylor, 2017, February).

A closer look to the literature on demonstrating how universities extend value creation and performance as well as creating convergence between intellectual capital contributions and research quality, however, reveals a number of gaps and shortcomings:


(b.) another issue could be the importance of intellectual capital when analyzing the organizations’ corporate social responsibility concerns (A. Serenko & N. Bontis, 2013), in relation with examples of good practices (C.R. Popescu, 2017; C.R. Popescu & Popescu, G.N., 2018a; C.R. Popescu & Popescu, G.N., 2018b) and good governance (C.R. Popescu, 2018).

3 METHODOLOGY

In terms of materials and methods used for this particular scientific research, the authors focused on the following research questions and methods:

Research questions – In terms of main research questions the focus of this paper is on the next key aspects:

(RQ1) “Do universities extend value creation and performance by the aid of convergence between intellectual capital contributions and research quality?”

(RQ2) “Are we able to talk about a collective intelligence framework (such as the Romanian collective intelligence framework)?”

In terms of secondary research questions, the following issues were seen as the most important ones to be addressed:

(Q1) “Can the difference between the market value and the value of the assets of companies / organizations / institutions be explained through the aid of intellectual capital?”

(Q2) “Which are the most important indicators and measurement dimensions for the intellectual capital?”

(Q3) “Do the frameworks, models and methods that valuate intellectual capital include the specific weight of the indicators specific to intellectual capital (namely, the customers, processes, innovations and human capital) used in the decision-making process?”

(Q4) “Are there significant association between the organizations market value and the investment processes in research and development and advertising?”

Materials and methods – In this study we used several research methods in order to gather answers for the above research questions: (a.) literature review thorough analysis; (b.) questioner sessions; (c.) interviews sessions; and (d.) focus groups sessions.

First of all, it should be stated that the literature analysis focused on numerous relevant studies which offered the possibility to understand the importance of intellectual capital at a general level and, in the
same time, to acknowledge its influences in different domains, such as in economics, education, accounting, auditing, finance, and environmental sciences.

Second of all, the questioner sessions included a number of open-ended-questions as well as a number of multiple-choice questions, which offered the respondents the possibility to express the ideas freely, on the one hand, while facing the open-ended-questions and offer answers from a given list of choices, on the other hand. The questioner sessions included a number of 50 respondents from two Romanian universities and were given to the respondents between the 1st of February 2019 and the 7th of February 2019.

Third of all, the interviews sessions included a number of five individuals working / collaborating in two Romanian universities. The interviews sessions took place between the 8th of February and the 14th of February 2019, and the questions addressed to the interviewees had as a starting point for the discussions the results obtained from the questioners sessions analysis.

Fourth of all, the focus group sessions included a number of four individuals working / collaborating in two Romanian universities. The focus group session and the results from the focus group session were done between the 15th of February 2019 and the 20th of February 2019.

4 RESULTS AND DISCUSSIONS

In this section the authors describe the results of the study “Demonstrating how universities extend value creation and performance: convergence between intellectual capital contributions and research quality – A Romanian collective intelligence framework”. Significantly, due to the importance of this section, the authors chose to present here besides the key findings of their work a comparison with prior studies as well as the limitations of this work.

Key findings – The present study confirmed the findings that have already emphasized the idea that the difference between the market value and the value of the assets of companies or organizations or institutions can be explained through the aid of intellectual capital.

Moreover, another promising finding, that also confirmed existing works in this field, was that the most important indicators and measurement dimensions are for the intellectual capital are customers, processes, innovations and human capital.

Furthermore, this research also acknowledges, as other studies have already stressed, that the frameworks, models and methods that valuate intellectual capital do not include the specific weight of the indicators specific to intellectual capital (namely, the customers, processes, innovations and human capital) used in the decision-making process. Nonetheless, our results came to confirm the results promoted in other studies on intellectual capital which emphasized the fact that between the organizations market value and the investment processes in research and development and advertising there are significant association.

Based on the methods used in this work (namely, the questioner sessions; the interviews sessions; and the focus groups sessions), the results obtained are the following ones:

1 first of all, by analyzing the effects of the three dimensions of intellectual capital in the Romanian universities (namely human, relational and structural capital) having in mind the employees’ satisfaction, the results that we obtained demonstrate that there is a positive influence of human capital as a whole, but there are differences between the influences of the three dimensions, under the circumstances in which both human capital and relational capital do not affect directly the satisfaction and retention of universities employees, but they are intermediate to the structural capital;

2 second of all, the results of this study identify some measures that positively influence intellectual capital and contribute to the employees’ satisfaction and retention in the Romanian universities, namely by: (a.) a good level of communication between the employer and the employees, (b.) by aligning the employees to the universities’ strategy – focusing in this way both on the employees’ needs and expectations as well as on the employers objectives, and also (c.) by building a collaborative organizational environment in which knowledge and information circulate freely, thus stimulating the development of relational capital – for example, by coaching and mentoring sessions among the employees, by offering examples of good practice both in teaching techniques and teaching results as well as in research methods and
results and valuable opportunities to work in teams for specific national or international projects
and exchanges.

Together, the present findings confirm that in terms of intellectual capital measurement in universities
reporting and counting can refer to: (a.) the size and development of resources of knowledge; (b.) the
employees’ competencies, the employees’ relationship with the customers – which are, in fact, the
students, or institutions having teaching and training contracts with universities or counseling for
specific projects, including the projects with the business environment; (c.) the financial relationships
that exist in universities, especially in the cases in which some the system of evaluation determines
the system of payment (for example, different payment systems, for valuable professors, with a high
reputation, or for professors bringing new projects in the universities, or for professors implicated in
publishing in highly rated publishing houses, journals, or conferences); (d.) the information and
communication technology.

All in all, it is our strong believe that by using several research methods (such as, (a.) literature review
thorough analysis; (b.) questioner sessions; (c.) interviews sessions; and (d.) focus groups sessions)
we obtained good results concerning the indicators that can be used to appraise intellectual capital in
universities:

1 for example, in terms of customer capital (namely, the students or other parties interested in
training sessions or coaching or counseling for different types of projects) one indicator that
could be used is the customer growth rate, or the satisfaction index customers – taking into
consideration the feedback received by professors from students, or the customer retention rate
– taking into consideration the number of students that graduated and found a place to work in
the exact filed in which they studied in, or the average revenue per customer – taking into
consideration the salaries obtained by students while they are enrolled in the university system
or immediately after graduation;

2 another example refers to human capital, case in which the indicators could be the motivation
index, leadership index, quality of programs training and staff training;

3 the third example refers to the structural capital which is based on indicators such as the
universities’ investments in information and technology programs and systems, the index of
satisfaction of the universities’ business partners, the new products developed by the
universities which may be used in the business sector, or the quality of universities performance
which may be reflected by the national or international ranking systems.

Comparison with prior studies – It should be acknowledged that some of our findings are connected
with the results addressing intellectual capital, its role, importance, valuation methods as well as future
implications and perspectives encountered on other studies (I. Ajzen & M. Fishbein, 1980, March 17; I.
Ajzen, 1991; R. J. Baker, 2007, November; W.A. Bhatti, M.N. Khan, A. Ahmad, N. Hussain, K.
Rehman, 2011, April 18; W.A. Bhatti, A. Zaheer, 2014, December; C.R. Popescu & Popescu, G.N.,
2019; C.R. Popescu, 2019a; C.R. Popescu, 2019a) which comes to validate our work done in this
paper.

5 CONCLUSIONS AND FUTURE WORK

This section presents the conclusions (the overall summary) and the future work (future research) of
the study entitled “Demonstrating how universities extend value creation and performance:
convergence between intellectual capital contributions and research quality – A Romanian collective
intelligence framework”.

Overall summary – Based on our main findings, we see the following short, medium and long term
strategic objectives: first of all, the process of organic incorporation of developmental principles and
practices sustainable innovation through the region’s overall programs and policies border regions as
regions of EU Member States started through Horizon 2013 should be continued in the case of
Romania; second of all, achieving the current average level of the EU countries to the main indicators
of innovation development which is a target of Horizon 2020 should be seriously taken into
consideration; thirdly, significant approximation of the cross-border area to the average level of that
year of the EU member countries from the point of view of innovation development indicators, which is
a target of Horizon 2030 should represent a key focus these days. All in all, these aspects emphasize
the fact that Romania, as member states of the European Union, will have to concentrate in the next
time period on the following elements: (1.) rationally aligning innovation objectives with the potential
and ability to support natural capital and human capital; (2.) accelerate the modernization of education
and training systems taking into account their impact on the labor market; (3.) using economically and environmentally friendly technologies in public and private investment decisions; (4.) introducing the eco-efficiency criteria in all production or service activities; (5.) proposing a vision of regional development as well as increasing competitiveness through innovation and technology transfer, by focusing on the role and the importance of intellectual capital. The present study “Demonstrating how universities extend value creation and performance: convergence between intellectual capital contributions and research quality – A Romanian collective intelligence framework” confirmed the findings that have already emphasized the idea that the difference between the market value and the value of the assets of companies or organizations or institutions can be explained through the aid of intellectual capital. Moreover, another promising finding, that also confirmed existing works in this field, was that the most important indicators and measurement dimensions are for the intellectual capital are customers, processes, innovations and human capital. Furthermore, this research also acknowledges, as other studies have already stressed, that the frameworks, models and methods that valuate intellectual capital do not include the specific weight of the indicators specific to intellectual capital (namely, the customers, processes, innovations and human capital) used in the decision-making process. Nonetheless, our results came to confirm the results promoted in other studies on intellectual capital which emphasized the fact that between the organizations market value and the investment processes in research and development and advertising there are a significant association. Based on the methods used in this work (namely, the questioner sessions; the interviews sessions; and the focus groups sessions), the results obtained are the following ones: (1.) first of all, by analyzing the effects of the three dimensions of intellectual capital in the Romanian universities (namely human, relational and structural capital) having in mind the employees’ satisfaction, the results that we obtained demonstrate that there is a positive influence of human capital as a whole, but there are differences between the influences of the three dimensions, under the circumstances in which both human capital and relational capital do not affect directly the satisfaction and retention of universities employees, but they are intermediate to the structural capital; (2.) second of all, the results of this study identify some measures that positively influence intellectual capital and contribute to the employees’ satisfaction and retention in the Romanian universities, namely by: (a.) a good level of communication between the employer and the employees, (b.) by aligning the employees to the universities’ strategy – focusing in this way both on the employees’ needs and expectations as well as on the employers objectives, and also (c.) by building a collaborative organizational environment in which knowledge and information circulate freely, thus stimulating the development of relational capital – for example, by coaching and mentoring sessions among the employees, by offering examples of good practice both in teaching techniques and teaching results as well as in research methods and results and valuable opportunities to work in teams for specific national or international projects and exchanges. Together, the present findings confirm that in terms of intellectual capital measurement in universities reporting and counting can refer to: (a.) the size and development of resources of knowledge; (b.) the employees’ competencies, the employees’ relationship with the customers – which are, in fact, the students, or institutions having teaching and training contracts with universities or counseling for specific projects, including the projects with the business environment; (c.) the financial relationships that exist in universities, especially in the cases in which some the system of evaluation determines the system of payment (for example, different payment systems, for valuable professors, with a high reputation, or for professors bringing new projects in the universities, or for professors implicated in publishing in highly rated publishing houses, journals, or conferences); (d.) the information and communication technology. All in all, it is our strong believe that by using several research methods (such as, (a.) literature review thorough analysis; (b.) questioner sessions; (c.) interviews sessions; and (d.) focus groups sessions) we obtained good results concerning the indicators that can be used to appraise intellectual capital in universities: (1.) for example, in terms of customer capital (namely, the students or other parties interested in training sessions or coaching or counseling for different types of projects) one indicator that could be used is the customer growth rate, or the satisfaction index customers – taking into consideration the feedback received by professors from students, or the customer retention rate – taking into consideration the number of students that graduated and found a place to work in the exact filed in which they studied in, or the average revenue per customer – taking into consideration the salaries obtained by students while they are enrolled in the university system or immediately after graduation; (2.) another example refers to human capital, case in which the indicators could be the motivation index, leadership index, quality of programs training and staff training; (3.) the third example refers to the structural capital which is based on indicators such as the universities’ investments in information and technology programs and systems, the index of satisfaction of the universities’ business partners, the new products developed by the
universities which may be used in the business sector, or the quality of universities performance which may be reflected by the national or international ranking systems.

Future work – In the next studies focused on demonstrating how universities extend value creation and performance as well as creating convergence between intellectual capital contributions and research quality a number of topics remain to be addressed. For example, one issue could be related to the green intellectual capital which addresses the importance of the relationship between human activities, organizations’ performance as well as environmental equilibrium; another issue could be the importance of intellectual capital when analyzing the organizations’ corporate social responsibility concerns, in relation with examples of good practices and good governance.

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