

A META-ANALYSIS OF 20 YEARS OF STUDIES ON INTELLECTUAL CAPITAL (1997-2017)

Driss Tsouli

PhD student in intellectual capital, National school of management Tangier, MOROCCO

&

Bouchra Elabbadi

Research professor, National school of management Tangier, MOROCCO

ABSTRACT

Leif Edvinsson introduced the intellectual capital in his 1997 Long Range Planning journal article. 2017 marks 20 years since that article. This anniversary had motivated us to review the state of research on intellectual capital, to highlight a number of research questions pertaining to country, institutional and individual productivity, publication frequency, and favorite inquiry methods were proposed. To this end, we reviewed 372 articles published in business, management and accounting journals in the period 1997-2011. The findings of this literature review are presented in three parts. First, the reviewed articles are categorized by topics, research settings, and research method. Second, the contributions of research to the field and the lessons learned from these studies are discussed. Third, knowledge gaps in existing intellectual capital research are identified, leading to consideration of several ideas for future research.

Keywords: Intellectual capital, accounting business and management, literature review.

INTRODUCTION

2017 marks 20 years since the first publication of the intellectual capital article by Leif Edvinsson in the June issue of long range planning journal. After a year's research activity inside the Swedish insurance company Skandia, Edvinsson [11] disseminated their findings through an Intellectual Capital measurement framework which he developed and called the Skandia navigator. Edvinsson's original version of developing intellectual capital at Skandia expanded on mere value creation measures based on intangible assets, categorized by three perspectives: human capital, structural capital and customer capital. Following that article, there has been a remarkable increase in articles, books, and conferences. In June 2001 Thomas Stewart former editor at Harvard business review has published on the cover of this review: the brainpower and intellectual capital was becoming America's most valuable asset. So intellectual capital became part of a new form of value creation.

10 years later Guthrie, Ricceri and Dumay [15] published a critique review of the field of intellectual capital accounting research, they showed that there is an increase in research in the field of intellectual capital, with focus on developed countries, public listed companies and on management control and strategy areas, and more empirical studies.

As a starting point our paper considers the argument of Guthrie, Ricceri and Dumay [15], "Reflections and projections: A decade of Intellectual Capital Accounting Research", as published in the British Accounting Review and it's an extension of the seminal paper seminal paper on ICA, "Intellectual capital literature review: Measurement, reporting and management" as published in the Journal of Intellectual Capital.

Guthrie, Ricceri and Dumay [15] was chosen as the starting point because it appeared in the first volume of British accounting review and has to date been cited 120 times (Scopus at 1 January 2017), we develop a descriptive meta-analysis of over 945 journal articles, using a method previously employed to select and categorise academic papers (see also [4] [16]). This analysis is used to evaluate, identify and address future research agendas. In doing so, our paper answers four inter related research questions:

1. What is the scholarship field of intellectual capital?
2. What has happened in the field of IC over the 20 years?
3. How and why is the field changing?
4. What is the future of IC?

Our paper has four further sections. Section two offers a brief review of the original article and a general review of contemporary IC literature, establishing what constitutes the field of IC. Section three outlines our research method followed by a descriptive meta-analysis of the IC papers. Section four discusses issues associated with the field of IC. Last, a conclusion outlining an agenda of future IC research is provided.

The evolving research on intellectual capital

The concept of intellectual capital (IC) is complex and poorly understood [22] .there are various viewpoint about IC, its components and structure and its role in value creation of an organization.

In the 1990s, many scholars focused their research on the nature of IC, its structure and role in an organization's value. Different authors made an attempt to formulate a definition of IC by means of many approaches, by including some elements characterizing the concept, by using the structure of intellectual capital and by broadening the concept of knowledge, etc. Edvinsson and Malone [12] defined intellectual capital as knowledge that can be converted into value. This work inspired others and after 1997 saw the proliferation of conferences on IC; the myriad of books, working papers, and journal articles; and the large number of consulting firms offering products and services centered around IC, are testament to the growing awareness in the area [22].

According to Guthrie, Ricceri, Dumay [15], and Giuliani [19], the research on IC has passed by three stages:

- The first-stage: focused on why recognizing and understanding the potential of IC towards creating and managing sustainable competitive advantage is important. And to make the invisible visible, relied on the old adage "what gets measured gets managed" .The publications has target to argue that "intellectual capital is something significant and should be measured and reported", without referring to specific empirical research [12] [22] [23] [24].
- The second stage: established IC research on how capital and labour markets react to the potential for IC to create value and how IC should be managed in order to create and maintain a sustainable competitive advantage. In this case, the attention of scholars and practitioners moved from the analyses of production of IC measurements In other words, in this stage the focus was on how IC measurements, together with images and narratives, affect an organization or the capital market [9] [20].
- The third stage: the implementation of IC and it utilizations inside organizations. In other words, this stage is focused on the analysis of the use of IC measurements in

practice, to the exam of the interplay between them and IC mobilization and management and to the investigation of the effects, the benefits and the drawbacks of measuring IC [6] [15]. Thus, this stage is devoted to critically investigate how organizations understand and adopt IC as a management technology [7] [20].

Research method

Our method for selecting and reviewing the papers utilized in our study is similar to method used by to Broadbent and Guthrie [4], and Guthrie, Ricceri , and Dumay [15].

The review process was conducted in five different stages. In the first stage, the core research objectives were formulated based on the work of Petty and Guthrie [22]. Based on this research objective, several classifications/codes, boundaries and definitions were determined in order to select articles on IC. The data set was restricted to a twenty year period from 1997 to 2016.

The second stage involved the selection of journals. The journals consist of two specialist journals, journal of intellectual capital (JIC), and International Journal of Learning and Intellectual Capital (IJLIC).

In the third stage, we analyzed the titles and abstracts of all articles published in the journals during the period (a total of 372) with Scopus (Scopus is a bibliographic database containing abstracts and citations for academic journal articles. It covers nearly 22,000 titles from over 5,000 publishers).

The fourth stage pilot tested and adapted our classification system, based on the framework employed in [4], on a sample of papers (Table 1). The first criterion is Organisational Focus (A). The second criterion is the country Focus of the study (B). The third criterion is Focus of IC Literature (C). The fourth criterion is based on the Research Method used (D).

Finally, in the fifth stage we utilized the classifications to establish a range of descriptive statistics, allowing us to understand the patterns emerging from the reviewed articles. This provides the basis for our meta-analysis and discussion of the IC field over the period in question. The following section outlines the meta-analysis and is followed by an open discussion of our findings.

Table 1 Classification system for analysing IC articles.

- A. Organisational focus
 - A1. Public listed
 - A2. Private - SMEs
 - A3. Public sector
 - A4. General/other

- B. Location
 - B1. North America
 - B2. Asia
 - B4. Continental Europe
 - B5. Other

- C. Focus of ICA literature
 - C1. Auditing
 - C2. Accountability and governance
 - C3. Management control/strategy
 - C4. Performance measurement
 - C5. Other (including general)

- D. Research methods
 D1. Case/field study/interviews
 D2. Survey/questionnaire/other empirical
 D3. Theoretical: literature review/empirical

Source: Adapted from Broadbent and Guthrie (2008) [4].

Meta-analysis

The purpose of this section is to provide a meta-analysis of the IC articles selected and to answer our proposed question two: “What has happened in the field of IC over the past twenty years?” and question three: “How and why is the field changing?”

The total number of articles focusing on IC was 372 and, of these, 287 articles were published in JIC (see Table 2).

Table 2 number of articles focusing on IC

Journal name	Journal code	IC articles	% articles
Journal of intellectual capital	JIC	287	77.15
International Journal of Learning and Intellectual Capital	IJLIC	85	22.85
Total IC articles		372	100

Table 2 highlights how journal of intellectual capital published 287 of the 372 (77.15%) total IC articles. The yearly pattern of published articles in Fig. 1 shows a spike in 2015 of articles.

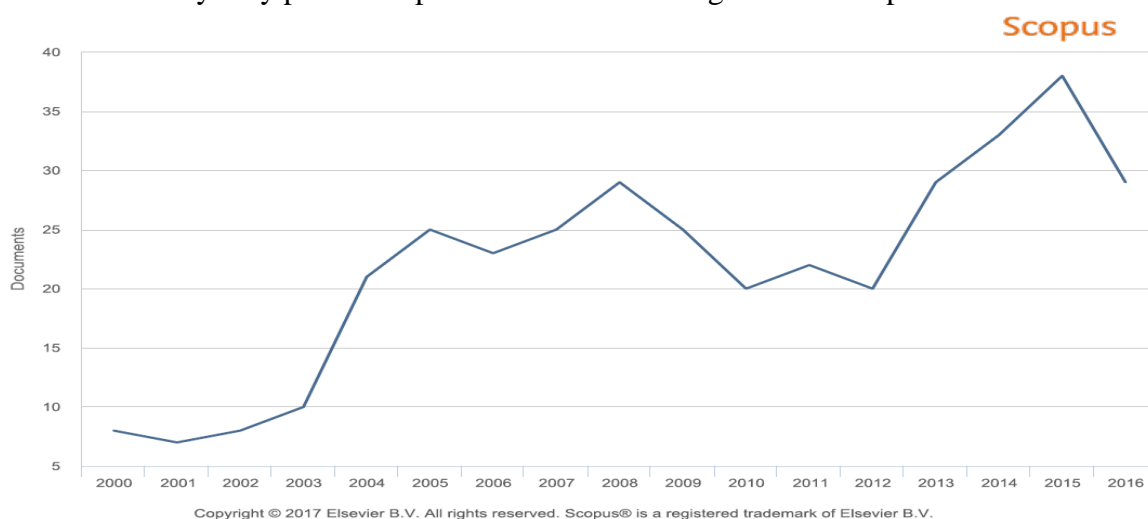


Figure 1: evolution of publications per year

Organisational focus

Table 4 highlights the extent of research in terms of different types of organisations. It demonstrates that apart from general other (A4), the most commonly researched organisation is public sector (A3) with 99 articles and Public listed companies. There are very few articles on SME. In examining public sector, as an organisational focus, it was found that many of the studies focused on the content, determinants and measurements. For Public listed companies it was found that many of research focused on the consequences of IC disclosure in capital markets and relation between human capital disclosure and value creation ([1] [3] [14] [9] [21]).

Table 3: Organisational focus

	Total	%
A1. Public listed	65	17.46%
A2. Private - SMEs	20	5.72%
A3. Public sector	99	26.62%
A4. General/other	188	50.2%
Total	372	100%

Location

Table 4 illustrates the country focus or the geographical location of the work undertaken. As highlighted in the table for the selected journals the most active regions were: continental Europe with 121 (**32.5%**) papers, followed by Asia with **63 (16.9%)** and North America with 72 (17%). The North America (Canada and USA), as a research site, and its authors have been relatively silent with only 47 (12.6%) papers. Not surprisingly, Continental Europe is in the forefront of IC because, since the 1990s, European authors, especially Scandinavian countries, have continuously published IC articles and books [5]. Continental European articles mainly focus on the European nations, indicating the strong tradition of IC research in Europe.

Table 4 Location

	Total	%
B1. North America	47	12.6%
B2. Asia	63	16.9%
B4. Continental Europe	121	32.5%
B5. Other	141	38%
Total	372	100%

Focus of IC literature

Table 5 represents the focus of the IC literature. The most popular focus of IC is Performance measurement which has 89 papers. We also observe how more than two thirds of the published articles use a “management control/strategy” (C3). Little has been published about accountability, governance (C2) and auditing (C1). The extent of publications in Performance measurement, as the most researched area of interest, is highlighted in Table 5, representing 89 articles covering a wide range of management-related subjects. For instance, there were articles on the Balanced Scorecards [13] and its use for managing IC.

Table 5 Focus of IC literature

	Total	%
C1. Auditing	1	0.2%
C2. Accountability and governance	58	15.5%
C3. Management control/strategy	72	19.5%
C4. Performance measurement	89	23.9%
C5. Other (including general)	152	40.9%
Total	372	100%

Research methods

Next, Table 6 considers the research methods used within the selected articles depicting the spread used to study IC. The Table shows that Survey/questionnaire/other empirical is the most commonly used, followed by Case/field study/interviews. There are fewer articles on Theoretical: literature review/empirical that link theory with empirics.

Table 6 Research methods.

	Total	%
D1. Case/field study/interviews	97	26%
D2. Survey/questionnaire/other empirical	238	64%
D3. Theoretical: literature review/empirical	37	10%
Total	372	100%

CONCLUSION –THE FUTURE OF INTELLECTUAL CAPITAL

In conclusion we find that over twenty years, the study of intellectual capital has made undeniable advances and become more mature. The area is today much more recognized not only by academics from different disciplinary fields, but also by other important societal stakeholders (professionals, policymakers, managers, etc.)

The future research directions are to challenge the status quo, and employ innovative methodologies, experiment with the novel. In the future more critical field studies which will provide empirical studies of IC in action and help develop broader theoretical research.

The conclusion of this article should be considered after taking into account the following limitations. First, the selection of journals was restricted to two. Results could vary if more journals were scrutinised and if other forms of scholarly activities were included only (articles). Second, although the coding process was performed systematically with utmost care to allow consistency, there could be errors of omission and coding could have also been affected by coder bias.

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