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INTELLECTUAL CAPITAL AND INNOVATION. A GUIDELINE FOR FUTURE RESEARCH

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Academics and policy-makers tend to establish a causal relation between business innovation and levels of investments in R&D or the number of patents held. However, today a growing number of studies challenge this rather simplistic approach, acknowledging the need for a broader and more balanced view that considers the key role of investing in these strategic intangible assets – e.g. skills, organisational innovations and design – considered amongst the key drivers of firms’ innovation. As new transdisciplinary frameworks seek to explore innovation beyond R&D, the article suggests that there is a need for a broader and sharper approach to Intellectual Capital (IC) research. In fact, as Lev (2014) recently pointed out, IC researches are currently too narrowly focused on the question of reporting and disclosure. The article (section 2) suggests that researchers’ interest should shift from studying IC per se to the exploration of IC as strategic resources, driving innovation and businesses’ value creation processes. Once IC is seen this way, it is possible to investigate how the creation of these intangible strategic resources takes place. How do businesses preserve and protect these strategic intangible resources? Lastly, how do innovative businesses extract value out of these strategic intangible assets?

Drawing on these research questions, sections 3 and 4 outline a new interesting agenda for IC studies. In particular, the article illustrates this approach addressing two important research streams. Section 3 attempts to re-connect IC studies with the current debates on the effectiveness of regional innovation policies. It outlines the results of an exploratory study, completed by the University of Ferrara as part of the EU research project ‘KNOW US’. The aim of the research has been to gauge the effectiveness of
the regional policies supporting SMEs’ strategic-organizational innovation developed by three Italian regions (Friuli Venezia Giulia, Emilia Romagna, Veneto) and Slovenia. Section 4 will focus on the value creation processes through innovation, exploring the – often overlooked – link between an organization’s intangible assets; its capacity to innovate; and its value creation.

**INTELLECTUAL CAPITAL: BEYOND R&D AND TECHNOLOGICAL INNOVATION**

Most of the literature on the economics of innovation tends to take for granted the existence of a causal relation between levels of R&D investment and innovation. This situation has its origins in the 1980s, when many economists began to highlight the role of innovation in boosting economic growth. As a result, public authorities decided to adopt the number of patents and the level of R&D expenditures as indicators for innovation (see Geroski, Mazzucato, 2002). Today, most public policy still relies on this assumption. For instance, the Lisbon Agenda and, more recently, the Europe 2020 strategy set for the EU Member States the ambitious objective of reaching investments in R&D of 3% of their GDP.

However, there is no evidence that innovation depends on the level of R&D expenditure or the number of patents. For instance, low levels of investment in R&D are not necessarily an issue where the economy is specialized in sectors, such as design and the cultural industry, where innovation does not rely on R&D (Mazzucato, 2013). This is true also at the firm-level. While some studies have shown that higher investments in R&D might increase business innovation (see Geroski and Machin, 1992; Geroski, Toker, 1996), others have found no evidence (Bottolazzi et al., 2001; Loof, Heshmati, 2006) or even a negative relation between the two (Freel, Robson 2004). In effect, the problem with this rather simplistic approach to innovation is that it does not take into consideration that without the right complementary resources – such as marketing and commercial capacity, organizational and human resources – R&D may become just a cost. This consideration raises questions about the weak structural micro-foundations of the conventional approach to macro-economic innovation (Noteboom, Stam, 2008). It also suggests the need for a shift towards a broader and more evolutionary framework (see Shumpeter, 1949; Nelson, Winter, 1982; Mazzuccato, 2013). Hence, some authors use the concept of ‘innovation systems’, to take into account interactions between a array of agents, various dimensions of innovation – going far beyond
science and technology – and a variety of economic and institutional conditions (see Freeman, 1995; Lundvall, 1992). Such systems are defined as the elements and relations that interact in the production, diffusion, but also absorption of new, economically valuable, knowledge (Lundvall, 1992, p. 2).

Going beyond technology-based innovation, innovation frameworks are required to be “smart”, addressing not only productivity gaps, but also societal challenges, e.g. encouraging socially and environmentally sustainable growth. This more balanced approach to innovation also highlights new opportunities for countries that are not at the forefront of technological transformations to build on their existing competitive advantages. In effect, all sectors should be seen as potentially innovative, giving greater attention to some relatively new areas. Lastly, this approach to innovation highlights the need for a shift towards a meso-level analysis of innovation dynamics. Indeed, while in the past most innovation frameworks adopted a macro-economic perspective, much more emphasis has to be placed on the entrepreneurship of individuals and organizations and their interactions in the generation, utilisation, and diffusion of ideas, products, and processes (Noteboom, Stam, 2008). Knowledge networks and the business ecosystems in which firms operate should take centre stage in evaluating the effectiveness of innovation systems and policies.

The implications of such a “paradigm shift”, both for business strategy and economic policy, are far too vast to be fully discussed here. However, this development represents also a major challenge for managerial studies, which are called to shed light on firm-level innovation processes, offering analyses and explanations that go beyond aggregate numbers or indices, as these do not adequately reflect the diversity and linkages of innovation actors and processes. In particular, more research is needed on these “intangible assets” or “soft resources”, often referred to as the firm’s Intellectual Capital (IC), that are amongst the key drivers of firms’ innovation. IC can be defined as a system of intangible resources that provide the firm with substantial future benefits, irrespective of the enforceability of their control (Kim, 2007; Zambon, Marzo, 2007).

The innovative use of intangibles typically represents a way for firms to benefit from their returns over time. The 2013 report Supporting Investment in Knowledge Capital, Growth and Innovation by the OECD underlines that, in the Euro area and US, business investments in IC are contributing 20% to 34% of average labour productivity growth. Several studies have shown that IC can benefit business innovation in different ways (see also Montresor et al., 2013). First of all, they constitute a stock of resources, which enters the firm’s production functions and allows it to gain static and dynamic returns
from their combined uses with other production inputs (mainly tangible capital). In fact, firm-level innovation data (OECD, 2013) reveal the strategic complementarities between “technological” and “non-technological” innovation. Most innovative firms introduce both product and process innovations, as well as marketing or organisational innovations. This is true for firms in both manufacturing and services (although a larger share of firms in services than in manufacturing introduce only marketing or organisational innovation). Secondly, intangibles are knowledge-intensive resources that are the main input of companies’ “knowledge production functions”. While R&D has been the first kind of intangible whose innovative role has been identified (Griliches, 1990), a similar role has subsequently been found for other intangible, which are currently regarded as important, though “softer” components of the innovation process (den Hertog et al., 1997).

This role of intangibles as innovation drivers has stimulated a large amount of specific research and data collection. For instance, a pilot study by NESTA (the United Kingdom’s National Endowment for Science, Technology and the Arts) shows that around 75% of innovations in the UK derive from investments in activities other than traditional R&D investments, including investments in skills, organisational innovations and design (see Awano et al., 2010). An OECD report (2010) also supports the idea that firms may introduce new products on the market without engaging in R&D. For example, in Australia and Norway the propensity to introduce new-to-market product innovation is similar whether or not the firm performs R&D. According to the report (OECD, 2010), investments in these intangible assets are rising and overtaking investment in physical capital (machinery and equipment) in Finland, Sweden and the United States, for example (e.g. Corrado, Hulten, 2010). Lastly, collaborations and networks are essential for business innovation, underlining the role of the network of suppliers, infrastructures, clients, functions and human relations within which firms operate. According to the same OECD report (2010), firms that collaborate on innovation spend more on innovation than those that do not. This suggests that collaboration is more likely to be undertaken to extend the scope of a project or to complement firms’ competences than to save on costs.

Against this background, it is clear that we need further research on IC’s role in business innovation and company value creation processes.
LOOKING AT THE FINGER RATHER THAN THE MOON? A NEW RESEARCH AGENDA FOR IC VALORIZATION AND INNOVATION

The current literature on IC, though, is not yet adequately addressing most of these critical and interesting issues, overlooking some very promising research streams. As pointed out by several prominent scholars at the 10th edition of the EIASM Interdisciplinary Workshop on Intangibles, Intellectual Capital and Extra-Financial Information\(^1\) the IC research agenda is too narrowly focused on the question of reporting and disclosure. Driven by the need to explain the gap between listed companies’ book value and market value, the issue of accounting for IC has attracted the attention of a number of researchers for over two decades (Nakamura, 1999; Lev, 2001; Zambon, Marzo, 2007) and it is still a key question. However, progress in this area has proved to be quite limited and slow (see Guthrie et al., 2012). Despite a growing criticism of traditional business reporting and much ado about <IR> Integrated Reporting, the map of accounting rules shows (so far) no – or very little – substantial changes. At the same time, other IC-related issues have emerged and have not received equal attention. In particular, during the opening keynote speech of the EIASM Workshop, Professor Baruch Lev openly acknowledged the failure of this narrow approach to IC research, provocatively pointing out that “intangibles per se are inert, like bricks”\(^2\). Inert means to be in a state of doing little or nothing. Therefore, the only interest in intangibles per se, is when you try to sell them (patents, brands, software). What is interesting to managers, policy-makers and investors is how intangibles interplay with other resources to create value. In other words, focusing only (or mainly) on the issue of measuring intangibles (accounting, disclosing and surveying IC) one runs the risk of looking at the finger rather than the moon. Looking at the moon, in this case, means to focus on IC as strategic resources, i.e. resources that: create economic value; are rare; and difficult for competitors to imitate.

According to Lev (2014), this dynamic and systemic resource-based approach to IC study might open three broad and relatively unexplored strands for researches, which would be extremely interesting also for business innovation studies. The first strand of research concerns the creation of

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1. Which was hosted by the University of Ferrara (September 18-19, 2014).
2. All the keynote presentations are publicly available at the website of the 10 Anniversary EIASM Interdisciplinary Workshop on Intangibles, Intellectual Capital and Extra-Financial Information (http://www.eiasm.org/frontoffice/event_announcement.asp?event_id=1006).
these intangible strategic resources. For instance, it is more or less efficient to develop these resources internally or by acquiring innovative companies? Is outsourcing more effective than maintaining in-house skills and knowledge? What is the relationship between marketing & advertising expenses and brand values? What is the role of the state in developing IC strategic resources? How effective is public intervention in this area? If the number of companies’ patents alone cannot predict future innovation and growth, how governments, or EU initiatives, change to foster other strategic resources? Are the subsidies given by regional governments to ICT-based companies effective? The second strand of research that Lev identified considers how to preserve and protect these strategic intangible resources. For instance, what is the role of different communities of practice in codifying and therefore transforming tacit to explicit knowledge? How are different epistemic communities preserving, at various organizational levels, knowledge from “organizational amnesia”? How do disruptive technological transformations affect organizational knowledge? What explains the “resurrection” of some brands (e.g. Polaroid, Converse All Star, Fiat 500) years after the original business went bankrupt? The third research strand proposed by Lev concerns the extraction of value out of strategic intangible assets. Here one obvious subject of research is “big data” as a factor of production. For instance, according to Brynjolfsson et al. (2011) firms that adopted data driven decision-making (DDD) have output and productivity that is 5-6% higher than what would be expected, given their other investments and information technology usage. An important contribution to understanding the relation between IC and value creation could come from a number of well-designed case studies on the individual and organizational characteristics that enabled certain firms to optimize production and delivery through DDD adoption. Another growing area is design. How does this knowledge-based capital (KBC) contribute to brand value creation across different industries? How does this design contribute to differentiate products (e.g. Apple, Sony)? How can intangible assets be monetized (patents pool; royalty streams; use of intangibles as loan collateral; licensing or sale)? What is the value of these intangibles that cannot be monetized? Where and how has this subject been included in business schools’ curricula?

Drawing on these emerging suggestions and perspectives, it is possible to outline a new agenda for IC studies that would go beyond the current focus on reporting and measurement. This agenda certainly appears more demanding and it may require the development and adoption of ad hoc research methods and analytical frameworks. Yet, it is also potentially more interesting and rewarding, in particular if it will avoid isolating and de-contextualizing IC from the two key issues of business innovation and value.
creation. As new transdisciplinary frameworks seek to explore innovation beyond R&D, the broader and sharper approach to IC research outlined above could be extremely promising.

The next sections address two important and overlooked aspects of this new research agenda, that is the attempt to re-connect IC studies with the current debates on the effectiveness of regional innovation policies (section 3), and the value creation processes through innovation (section 4).

**IC AND REGIONAL INNOVATION POLICY**

Regional policies have become increasingly important in fostering business innovation because of a double policy shift. In many countries, devolution and decentralization processes as well as rising demands for policy accountability and monitoring of outcomes, have led to a multi-leveled policy approach to innovation, enhancing the role of regions. Secondly, we have witnessed a paradigm shift in regional development policies themselves. Following the failure of various regional policies targeting economically marginalized areas, the 1990s witnessed the emergence of a new framework aimed at creating endogenous growth in each territory, on the basis of its unique local assets, capabilities and potentials, avoiding a “one-size-fits-all” approach. Therefore, regions are increasingly called to become facilitators of innovation systems rather than subsidizers, playing the role of interface managers within networks of public/private partnerships (PPP). Policy-makers are required to encourage knowledge management across and within firms, ensuring complementarities between policies and instruments at different levels of governance.

As regional innovation policies have changed dramatically and the complexity of innovation systems is increasingly acknowledged, several strategic questions are emerging that are closely related to the valorization of intangible assets. New approaches are needed to account for the multiple aspects of regional innovative processes, both in traditional sectors and in creative industries. As affirmed by the OECD (2011, p. 61), “The methodology and data are lacking to fully measure other innovation-related investments beyond R&D in countries and regions. At the level of the firm, the data shows that companies use several sources of information for innovation. Skills, networks and informal contacts with competitors, clients and others agents of the innovation system influence their innovative performance.” Therefore, IC research should deal with the following questions: to what extent regional innovation policies supporting the valorization of intangible assets? How could regional authorities assess
the effectiveness of these policies? Which are the most effective regional innovation policies in this respect and why?

The University of Ferrara addressed some of these questions, as part of the project KNOW US “Co-Generation of Competitive Knowledge among Universities and SMEs”, financed by the EU INTERREG Cooperation Programme Italy-Slovenia 2007-2013. The aim of the research has been to gauge the effectiveness of the regional policies supporting SMEs’ strategic-organizational innovation developed by three Italian regions (Friuli Venezia Giulia, Emilia Romagna, Veneto) and Slovenia3. On the basis of this exploratory evaluation, the final report (Zambon et al., 2014) also offered some guidelines that might be used to improve the effectiveness and coherence of these policies in the future.

The results of the research show different interesting elements (for more details see Zambon et al., 2014). Although the situation has improved as compared to the period 2000-2006 and it is likely to further advance with the new regional innovation planning 2014-2020, non-technological innovation is still treated as secondary by public authorities. There are only a few policies explicitly designed to strengthen SMEs’ intangible assets, as compared to tangible ones, and they represent a small percentage of regional innovation funding. Overall, a weak evaluation practice has made it difficult to acknowledge the crucial contribution of investments in intangible assets to the outputs of many business innovation processes. Furthermore, the analysis highlights that these innovation policies are fragmented into competing offices and there is a lack of coordination and strategic intelligence in supporting non-technological innovation policies. Lastly, the regional offices still lack an integrated business reporting framework that might concisely and effectively communicate the soft skills and resources that firms have available. They still rely on inadequate or very limited tools (e.g. patents; the proponents’ CVs).

The interviews with managers and entrepreneurs and the case studies revealed an overwhelming approval for these initiatives aimed at supporting strategic-organizational IC-driven innovations. This result seems to highlight that there is a real demand for these measures. In particular, it emerged that two types of firms have benefitted, for quite different reasons, from this support: highly technological start-ups and SMEs operating in

3. As for the methodology adopted, with the collaboration of the regional authorities, the research group identified and analyzed 25 relevant lines of policy focused on non-technological innovation. The effectiveness of these policies has been assessed deploying a mixed method approach, which triangulates qualitative and quantitative analyses (24 in-depth interviews; 3 case studies; and a statistical analysis of the outcomes of 3 key policies).
mature markets. In effect, the former often lack the commercial and managerial skills that are needed to extract value from a license or a technological innovation. The latter, by contrast, due to the current economic downturn, are in strong need of deep organizational changes, to adapt their business to international markets and a more competitive business environment. From the qualitative analysis carried out, it also emerged that some regional initiatives were perceived by managers and entrepreneurs as particularly significant: the temporary manager; grants for writing a business plan; and financial support to build SMEs’ networks. The research group also ran a statistical analysis to verify whether the companies that had benefited from a regional support of organizational and strategic innovations had also performed better over time. Although further research is needed, the results are significant in all the three cases that we have considered. In particular, in the case of Friuli Venezia Giulia, we have observed significant effects on the ROE of the beneficiary companies. This is particularly interesting, considering that this line of policy presents a holistic and broad approach to innovation, offering small and micro enterprises a set of services related to both technological and non-technological innovations. Namely, it offered financial support to the development of a business plan and the availability of strategic management consulting services together with financial support for R&D and technological transfer.

Despite the limits of the University of Ferrara’s exploratory research, it already shows a number of promising strands of investigation that could be developed in the future. The current “paradigm change” in regional innovation policies suggests the need for improving governance and decision making processes aimed at supporting non-technological IC-related innovations. Future regional policies should better integrate technological and organizational and strategic innovations. Some policy instruments already exist; however their effectiveness should be further examined and improved. In particular, as different types of companies express the need for tailored strategic and organizational support, regional authorities might want to further expand and simplify access to those qualified services that are aimed to stimulate non-technological innovations. Therefore, new research is called for on the prospective inclusion of IC measures in the definition of smart regional innovation policy objectives and the evaluation of their impact.

INTANGIBLES AND VALUE CREATION PROCESSES THROUGH INNOVATION

The previous sections have already touched upon the relation that exists between intangibles and business innovation, underlining that this is much
more complex and broad than the conventional focus on R&D would suggest. However, innovation per se adds little value to business activities and society at large. Instead, what really matters is the outcome of innovation processes and the value generated, through innovation, by the combination of various intangible assets. This section will further discuss this critical relationship, which is too often taken for granted or even misunderstood in current managerial and policy debates.

During the last three decades, we have witnessed major changes in the way business is conducted, how it creates value and the environment with which it has to deal. Changes to the context in which organizations operate (i.e. globalization, resource scarcity, demographical changes and competition) require companies to adopt new strategies to secure a competitive advantage. The aim of such strategies is to generate innovative outcomes that distinguish them from other competitors in an increasingly complex business and economic environment. As shown by various researches, building on resource-based and evolutionary theories of the firm, through innovation companies are able “to reconceive their sources of strategic advantage and master new mechanisms to build lasting or sustainable strength” (IFB Research Foundation, 2012). Here lies the (often overlooked) link between an organization’s intangible assets; its capacity to innovate; and its value creation. In fact, value increasingly derives from intangible assets rather than physical ones. Intangible assets, such as a good reputation, have been recognized as “critical, because of their potential for value creation and also because their intangible character makes replication by competing firms considerably more difficult.” (Roberts, Dowling, 2002, p. 1077) According to Hasset and Shapiro (2011), intangible assets represent at least 90% of market value of the firms considered. However, the relation between IC and value creation through innovation is extremely contextualized and complex. Several intangibles might contribute to business value creation processes, ranging from the individual-level to interactions with the environment surrounding the organization. They involve, amongst others, individual employees’ flexibility, institutional and interpersonal relations of trust, diverse human resources, strategic leadership, ICT systems, and the coproduction of brands (see, for an overview, Baregheg et al., 2009). As a result, research on this subject has been fragmented into various streams of studies, coming from e.g. human resources management, communication, information technology, psychology and marketing. Therefore, in order to enrich our understanding of this multifaceted research subject and shed light on companies’ different approaches and best practices, IC studies has to maintain an open and transdisciplinary approach, such as the one characterizing the aforementioned EIASM.
Interdisciplinary Workshop on Intangibles, Intellectual Capital and Extra-Financial Information.

Another aspect that it is useful to stress is that innovation is a fundamental element for value creation, but it might also have disruptive economic and social effects. For instance, historically innovation has advanced hand in hand with inequality. This is an aspect that was already underlined by classical economists such as David Ricardo and Karl Marx. They treated innovation and its distributive effects as two sides of the same coin (e.g. the effects of mechanization on profits to wages ratio). In effect, it is well known that innovation processes – if not adequately governed – tend to favor those who already have higher skills and knowledge, leaving the others behind (a problem known as “deskilling”). This consideration is often missing in the “sugarcoated” policy and managerial debate on business innovation and it opens up two sets of questions that are relevant for the scope of this paper.

Firstly, it interrogates current levels of investments in education and training aimed at filling the need for new skills that are increasingly relevant in a knowledge-based economy. The availability of such skills and knowledge should not be taken for granted, since it might affect value creation processes. In fact, as highlighted by a recent report published by the EU Commission, it is important to realize that good (higher) education and human capital policies are one of the most central preconditions to make other innovation policies work (Technopolis, 2013, p. ix).

Secondly, considering the systemic effects and preconditions for business innovation processes also means thinking differently about the rewards involved in the value creation processes. As Lezonick and Mazzuccato (2013) point out, if we accept the idea of “open innovation”, i.e. that innovation goes beyond R&D and it is the result of broad and complex “innovation ecosystems”, we should also acknowledge in parallel the need for a broader distribution of its benefits. Namely, the authors outline a new framework for understanding the relation between risks and revenues involved in innovation processes, which challenges the conventional wisdom, based on the agency theory and the idea of shareholder primacy. They investigated which are the actors that are actually contributing the most to business innovation processes in terms of resources invested (e.g. tax payers, employees, shareholders) and questioned whether they are also the ones that are collecting the benefits. The authors conclude that there is a disconnect between the two: those who are bearing the risks are not those obtaining the benefits, due to the fact that innovation is the result of long-term, cumulative, collective and uncertain processes.
This approach is extremely relevant when we consider the relation between intangibles, innovation and value creation. In fact, Lazonick and Mazzucato (2013) argue that this disconnection between risks and rewards might produce negative effects on innovation processes, draining financial and non-financial resources from these actors that are supporting the innovation system. They even claim that this might result in a situation of instability and uncertainty in innovation processes and eventually lead to an economic slowdown or decline. In effect, if innovation involves systemic preconditions that need major collective investments in terms of intangible assets, then we should also carefully consider whether the benefits of innovation are broadly distributed so to further nourish this process.

CONCLUSIONS

The work has outlined some of the complexities and open research questions that characterise the relationship between intellectual capital (IC) and innovation. In particular, it has stressed that policy and academic debates need to go beyond an idea of innovation which is still largely based only on investments in R&D and patents. Today’s “smart innovation” ideas require a change of paradigm and a broader and more balanced analytical framework. Several studies have shown that business innovation results from strategic complementarities between technological and non-technological elements, most of which have an intangible nature.

Therefore, more research is needed on the intangible assets that are the key drivers of firms’ non-technological innovation. Drawing on Lev (2014), we have suggested that the IC research agenda should shift from being essentially centered on the issues of intangibles’ measurement and reporting towards the investigation of how IC contributes to corporate value creation processes.

Accordingly, as a possible guidance for future scholarly inquiry, this paper has addressed two important and overlooked aspects of this research agenda, that is the attempt to re-connect IC studies with the current debates on making regional innovation policies more effective (section 3), and the company value creation processes through new IC-driven innovation (section 4).
REFERENCES


HASSET, K., SHAPIRO, R. What Ideas are Worth: The Value of Intellectual Capital and Intangible Assets in the American Economy, Sonecon, LLC.


MAZZUCATO, M. (2013), The Entrepreneurial State: Debunking Public vs. Private Sector Myths, Anthem Press.


