Towards a Deeper Understanding of Intellectual Capital

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Abstract: This paper takes its cue from a paper by Kianto and Cabrilo (2022) presented at ECKM 2022. In their paper they raise concerns both with the theoretic underpinnings of the theory of Intellectual Capital and the more specific need to consider the impacts on new technologies and work structures. In the existing literature it has been proposed that Intellectual Capital is composed of a variety of components which have often been addressed somewhat independently. It is important to both investigate the nature of these sub-components and recognize the extent to which they interact. Some key concerns with Intellectual Capital and its subcomponents are discussed including their valuation, which presents significant challenges to traditional approaches of valuation. Other notable concerns relate to the underlying conceptual structure for Intellectual Capital, which needs further study with respect to its general intelligibility, its explanatory value, and in the light of major technological changes and the phenomenon of digitization.

Keywords: Intellectual capital, Intangible assets, Practical and theoretical challenges, Digitization, Valuation

1. Intellectual Capital (IC) and it's Subcomponents

The first use of the term intellectual capital (IC) is often credited to economist John Kenneth Galbraith in 1969 (e.g., Bontis, 1998; Kalecki, 1975; Martın-de-Castro, Delgado-Verde, Lopez-Saez, Navas-Lopez, 2011) but it was more than a quarter century later, with the rise of the knowledge economy and the popularization of the knowledge-based view of the firm (Grant 1996), that the idea gained significant interest and traction within the business and research communities. Most definitions of IC are broad and inclusive, reflecting the multi-dimensional nature of the concept. However, definitions of IC generally agree on two important principles.

First, that IC includes intangible assets, which, by definition, are nonfinancial and immaterial (i.e., they have no physical existence) (e.g., Bontis, 1998; Brooking, 1997; Bueno et al., 2004; Edvinsson and Malone, 1997; Martín-de-Castro et al, 2011; Stewart, 1997; Sveiby 1997). The terms intellectual capital, intangible assets, and knowledge assets are often used synonymously (Evans, Dalkir, and Bidian, 2014; Stewart, 1991; 1994; Martın-de-Castro et. al., 2011) though, as noted below, this confounds many subtle and not so subtle distinctions. Commonly cited examples of IC may include employee knowledge, competencies/skills, intellectual property, organizational systems, reputations, or relationships with customers. The second principle that scholars generally agree upon is that IC has 'value' to the organization. The IC itself, may be the principal source of value, or the IC may be a means by which the organization gains a competitive advantage (e.g., Bontis, 1996; 1998; Edvinsson and Malone, 1997; Stewart, 1997; Sveiby, 1997). Based on these two general principles, IC will be defined, in this paper, as knowledge and knowing capabilities, which create value for an organization (Bontis, 1998; Nahapiet and Ghoshal, 1998).

A variety of taxonomies or frameworks have been presented for understanding IC. The most ubiquitous framework builds on the work of early IC scholars (e.g., Bontis, 1998; Bontis, Crossan, and Hulland, 2002; Edvinsson and Malone, 1997; Sullivan, 1998) who describe it using three dimensions or components: human capital, structural capital, and social capital. Human capital can best be summarized as the intangible assets that are embedded in the knowledge, skills/abilities/competencies, education/training, innovativeness/creativity/intuition, and the attitudes and beliefs of an organization's employees (Bontis, 1998; 2000; Bontis et al., 2002; Edvinsson and Malone, 1997; Roos, Roos, Edvinsson, and Dragonetti, 1997).

Structural capital is composed of the intangible assets that are embedded in an organization's systems, processes/routines, organizational design, and organizational culture (Bontis, 1998; Brooking, 1997; Edvinsson and Malone, 1997; Martın-de-Castro et al., 2011; Stewart, 1998; Sveiby, 1997). Examples include the organization's intellectual property (e.g., patents, trademarks, trade secrets, etc.), information and communications systems (e.g., databases, technological infrastructure, software), and any other non-human organizational capabilities. Roos, et al., (1997), described these intangible assets as "what remains in the company when employees go home for the night" (p. 42). However, this definition is deceptive. One may cogently argue that the only thing of value left when employees leave are the physical assets. The intangible assets only have value when they are combined with employees and other participants in the organization's

ecosystem. Thus, although structural capital may have some stand-alone value, its real value lies in its ability to provide a conducive environment where human capital and social capital can be leveraged.

Earlier researchers have referred to social capital as the sum of the value created from relationships the organization has developed with key stakeholders (Bontis, 1996; Edvinsson and Malone, 1997, Stewart, 1998).

Distinctions have also been made among cognitive social capital, structural social capital and relational social capital (Claridge, 2018). *Cognitive social* capital refers to the shared values, shared beliefs, shared mental models, etc. of employees and, potentially participants in the organization's ecosystem. *Structural social capital* refers to the networks potentially linking members of the organization's ecosystem, the formal and informal aspects of the organizational structure and ecosystem. Finally, *relational social capital* refers to the actual and potential relationships that have been established between an organization's stakeholders. Social capital is critical because it forms the basis for knowledge sharing, knowledge acquisition, and the development of trust (Coleman, 1988; 1990). It is important to understand that social capital is not owned by any one individual in the organization, or by the organization itself. Instead, it is embedded in the relationships that the organization can leverage for value and will largely depend on everchanging factors associated with those relationships (e.g., interaction frequency, trust, reputations, reciprocity, etc.) (Burt, 2007).

These three dimensions or components of IC and their subcomponents directly influence each other, which has an important impact on their overall ability to generate value. For example, research in sociology (e.g., Burt, 1992; Coleman, 1988; 1990; Putnam,1993; 2000) and in management (e.g., Fukuyama, 1995; Baker, 2000) have consistently shown that social capital positively impacts human capital. Structural capital is also created and leveraged in the creation and leveraging of social capital and human capital.

2. Theoretical and Pragmatic Challenges With IC Research

The remainder of the paper is divided into three interrelated sections. The first section explores a variety of broad theoretical and pragmatic challenges that have emerged in the research literature pertaining to IC. The second focuses on an overarching theme introduced by Kianto and Cabrilo (2022), which relates to concerns that there may be a need to revisit the theoretical underpinnings of IC theory. The authors expressed particular concern with respect to the effect of changes that may be driven by the development of digital tools enabling the collection, analysis, and communication of digital data and the increasing digitization of and access to potential sources of knowledge. This section attempts to consider some of the questions posed by Kianto et al. (2022) and contribute to the discussion on the potential effects of digitization and digital tools on the conceptualization and articulation of IC. The final section provides some brief recommendations for organizations seeking to adjust to an increasingly digitized, information and communication technology intensive environment or use increasingly complex digital tools.

2.1 Challenges Related to the Explanation of Value for IC

The basic underlying proposition concerning IC theory is that firms consist of a bundle of tangible and intangible assets. Firms then gain a competitive advantage if they can mobilize or combine these tangible and intangible assets in a way that creates some unique value for their stakeholders. Customers are the most commonly noted stakeholders but there is increasing importance in creating value to a broader range of stakeholders from shareholders to society, in general. To do this effectively, organizations must be able to identify the precise nature of their tangible and intangible assets. This is important to ensure that they are in possession of the appropriate assets, and that they are able to use those assets to effectively respond to changes to the internal and external environments, to continue to create value. Some changes are likely to be endogenous and initiated by the firm itself (i.e., through strategic and other managerial decisions), and other changes may be exogenous, such as technology changes, regulatory changes, or changes with respect to customers or suppliers. Of course, there is a dynamic interplay between these endogenous and exogenous changes.

One of the early stimuli for proposing and investigating IC arose from the observation that the market valuation of many software and other professional service firms deviated considerably from the value of their tangible or physical assets (Carroll and Tansey, 2000). Physical assets, as reported on the company's balance sheet, did not reflect what may be called the 'value-in-use' or the extent to which value is contingent upon the knowledge and experience of the employees who create value by using the physical assets. Physical assets, without individuals to make use of them, were not considered have much value beyond their depreciated value on a balance sheet. Moreover, assets that relate to the production of very specific products or service may, in certain circumstances, have little to no value.

The Accounting Profession has long recognized that there was value in intangible assets (e.g., in the form of earnings capacity) but acknowledged the difficulty in assessing this value on a consistent basis. It wasn't until the 90's when several researchers from Economics, Strategy, and other related Management disciplines sought to explain why the market capitalization of many knowledge-intensive firms far exceeded their book value, particularly in such industries as software, entertainment, consulting, high tech and so on. The proposed explanation was that the 'missing value' could be attributed to the organization's IC. Even at this level a problem can be discerned with respect to the composite value of IC, as the difference between the market valuation of the organization and the value of its tangible assets. There are several flaws in this line of reasoning, putting aside that relying on the market to value intangible assets may not be the appropriate strategy or, in the case of organizations that are not publicly traded, possible.

First, the value of tangible assets is often intimately related to some components of IC and hence valuations such a book value may be an imprecise way of valuing tangible assets. Hence, the apparently 'simple' equation relating the value of IC to the 'missing value' may not be appropriate. Second, the fluctuations in market value of organizations with significant concentrations of intangible assets have shown extreme volatility over the past three decades. Whatever the cause of these fluctuations, it would be unwise to equate this directly to changes in the value of IC or its subcomponents. Third, it is incredibly challenging to establish an appropriate valuation for IC and its subcomponents because the value of each component is intimately related to other components both tangible and intangible. Even if one could make sense of point valuations, the components of IC are subject to continuous change.

Furthermore, even if researchers were able to provide some characterization of the value of IC and its subcomponents, there is still a need to provide an explanation of how this value evolves over time as a result of changes in the internal and external environment. There are a multitude of factors that may affect the value of an organization's IC over time. For example, changes in production technologies, changes in communications technologies, and changes in customer knowledge and behaviour may result in existing human capital and structural capital losing value. Kuhn (Kuhn, 2012), in the context of science, has characterized these changes when referring to the development of scientific theory/knowledge as being 'normal' or 'revolutionary'.

Thus, it is likely necessary to provide an explanation as to how the valuation of IC varies, both during times of 'normal' change and in times of 'revolutionary' or disruptive change. Conceptually, it can be argued that the value of some IC components degrade over time. For instance, digital technologies are continuously improving in terms of speed, complexity and functionality. In contrast, there are examples of revolutionary changes such as the transition from analog communications to digital communications. As noted earlier, some IC components may be 'transformed' from assets into liabilities by such changes. For example, the extensive technical knowledge possessed by Nortel's telephone engineers had value when there were dedicated analog telephone networks but ceased to have value when the analog networks were displaced by digital data networks.

It is also a somewhat trite observation that *knowledge* cannot be directly captured or measured. Instead, researchers often examine proxy measurements like intellectual property (e.g., patents), self-reported measures, or they use metrics extracted from organizational database and server logs. It is a fair contention, following long standing concerns in the Knowledge Management (KM) field, that *knowledge* is not an object that can be measured. However, it is true that certain *knowledge* may be susceptible to some proxy measurement. Patents, for example, may appear to be susceptible to market-based valuation. However, the extent to which they have value is the extent to which they can lead to the creation of products, or, in some distinct cases, services that have, or create, value for the organization and its stakeholders. In a similar fashion, in an organizational context, *knowledge* does not have value unless it is applied in a manner that adds value to the organization's stakeholders. In order to be applied, there is a need for individuals to be able to translate this *knowledge* into products and services.

Moreover, organizations often have a compelling need to update and revise knowledge. Thus, it is important to move from considering the extent to which organizations possess or have access to intangible assets to considering an organization's capability to utilize these assets to achieve its objectives. Whatever one considers to be the components of IC, their value is in their combination, not individually. There is a discrete sense in which their value cannot be measured independently. Furthermore, as the organization's internal and external ecosystems change, some components of IC will lose value, while others may increase in value.

2.2 Challenges Related to the Conceptual Structure of IC Theory

A general issue that relates to the creation of a theoretical basis for the study of IC and the Intellectual Capital Theory of the Firm (ICT) is the linkage to such theories as the Resource Based Theory of the Firm (RBT) and the Knowledge-Based Theory of the Firm (KBT). One may consider that all three theories share similar structure. Basically, each theory posits the existence of a core element, which provides a foundation for the firm's ability to create value. In the case of RBT it is *resources* which, if they have certain characteristics, will provide the basis for a firm's ability to create value and sustain a competitive advantage. In the case of KBT, the core element is *knowledge* and in the case of ICT it is *intellectual capital*.

The use of the term 'capital' also presents theoretical and practical challenges for IC theory and practice. IC and its subcomponents may have some similar characteristics to *capital*, in an economic sense, but it should not carry the same intellectual 'heft' in a theory underpinning IC. Specifically, IC and its subcomponents do not have properties attributed to capital, as it has been traditionally defined. For example, they may not be under the control of the firm or be capable of being valued, in a market-based sense. Dean and Kretschmer (2007) refer to this imprecise use of language as "conceptual negligence" (p. 574). Such conceptual negligence severely limits theory development and any conclusions or predictions that may be derived from relevant theories.

One of the central problems of all these theories is that simply having ownership of resources, knowledge, or intellectual capital is, at most, a necessary condition for generating value, but not a sufficient condition. Even if firms have ownership or access to relevant resources, knowledge or intellectual capital they also need to be able to dynamically incorporate these into value adding activities and processes. Productivity and value generation depends, not only on employee skills and expertise but also, for instance, on the organization's structures, processes, technologies, and culture. Mumford's (2000) work relating to socio-technical systems established, even as far back as the 1940s, is useful here.

Lambe (2023) argues that a similar problem exists with the use of such terms as 'resource' in the Resource Based Theory (RBT) of the firm. Resources are typically consumed in the production process and, to be a source of competitive advantage (or value), need to be scarce and non-contestable. Resources potentially create value through activities that the firm engages in that integrate resources into productive processes. Traditional resources typically only contribute to the creation over a limited lifetime.

Further concerns have been raised with respect to the use of terms such as 'tangible and 'intangible' assets and other terms such as *knowledge assets* and *resources*. Traditionally tangible assets are considered to have a physical nature. As such, they are owned by the organization, depreciate over time, and have a relatively well-defined market value. Although some types of intangible assets have characteristics similar to those of tangible assets, most of them do not. Lambe (2023) argues that "[w]hile both attributes [ownership and tradability] of an intangible asset such as a patent (although the valuation of intangible assets [such as patents] is more uncertain than tangible ones), they are not at all true of the tacit knowledge, cumulative skills, experience, and expertise of subject matter experts." (p. 211). Thus, it can be argued that using the term "asset" to refer to 'intangibles' is potentially unhelpful and leads to theoretical and practical challenges.

A somewhat different, but related, problem arises from the natural positive bias that arises from using the terms 'assets', 'resources' and to a lesser extent 'capital'. For example, it is perfectly conceivable that any of the subcomponents of IC may impede the creation of value by the organization just as much as add value. One may consider aspects of these subcomponents as, for example, intellectual liabilities or knowledge liabilities if accounting terminology is retained. Out-of-date knowledge, mental models, inappropriate organizational structures and incentive schemes or relationships that no longer function appropriately may all result in a reduction in the value of the organization.

On a final note, sometimes IC subcomponents may become valuable after having previously declined to essentially zero value. For example, knowledge of FORTRAN had little value by the end of the 1990s. However, with the Y2K challenge looming many organizations found that FORTRAN was at the heart of their critical information systems.

3. Technological Change and its Relevance to IC/KM Theory and Practice

How firms utilize information technology, in general, or their digital tools (facilitating digital communication, collaboration and collaboration) and digitization techniques, more specifically, will ultimately form an infrastructure by which they interact with their internal and external environments. This infrastructure will then largely impact the current and potential value of the organization's IC and its proposed subcomponents or

require the identification of new subcomponents. Thus, it may well be necessary to review the major components of IC in a principled fashion to potentially identify 'new' subcomponents of IC or better define how to calculate the value of current IC subcomponents.

Kianto and Cabrilo (2022) argue for the inclusion of additional components when considering human capital to reflect the increasing need for individuals to have *digital competences*. In addition, Kianto and Cabrilo (2022) suggested that changing work structures requires more emphasis to be placed in what is termed *self-leadership*. These suggestions reflect the need to be aware that human capital is not a static concept. The relative value of existing subcomponents to may change and new components may need to be considered, particularly as a result of exogenous changes in technologies. Thus, there is a continual need to assess the portfolio of specific human capital components that a firm has access. It is worth noting, however, that many other technologies potentially have an impact on human capital to add value. For example, over the years pharmaceutical companies have had to respond to the revolution engendered by the decoding of the human genome. Perhaps the main difference with respect to the impact of digital technologies is their ubiquity.

As previously noted, ownership of intangible assets is neither a necessary nor a sufficient condition for their having potential value to an organization. However, at the very least, access to information is a necessary condition. In a world of digitization, access to information has been drastically increased, and unlike traditional assets, which need to be owned to be controlled, digitization and the use of increasingly complex digital tools enables closer monitoring of information, even if it is not owned by the firm. Further, in an organizational context, once information is digitized it becomes much easier to make it available throughout the organization. Although this would seem to be a universally good thing, it has its drawbacks since it generally separates the information from its context, making the interpretation of the information problematic. Furthermore, organizations will likely run into problems if the information has any significant and/or unique structure. It can be argued that limited availability of information allows a lot of meaning to be read-into the information because the individuals share both formal and informal contexts. In contrast, having access to large amounts of information without contexts, or having limited awareness of context, is potentially unproductive or even dangerous.

The increasing access to information brought about through extensive digitization already requires increasing knowledge or expertise in using information and communications technologies and may soon require knowledge of leveraging AI technologies. It is also necessary to recognize and implement new organizational structures and processes to take advantage of these technologies to create better communication, collaboration, and data processing.

As organizations explore the potential opportunities provided by increasing the digitization of their information along with the use of complex digital tools enabling analysis, communication and collaboration, this is likely to have significant effects on the structure of employees' jobs, their work processes, means of communication/collaboration, and the overall work environment. Similar observations may be made about how the value, importance and nature of sub-components of structural capital change over time. Organizations will be able to adopt far more flexible structures both with respect to their interactions with within the organization, and those with the external environment. This has the potential of providing organizations with a wide range of options to change the way they operate.

It is also appropriate to note that, digitization and the increasing availability of digital tools may have a significant impact on relational capital and its subcomponents. As increasingly dense networks can be built as a basis for knowledge creation, exchange and mobilization, organizations may be able to support existing value generating activities and/or create extensive opportunities for new ones. However, one of the potential drawbacks of pursuing these options may be that many organizations have evolved knowledge-creation and sharing structures over a considerable period of time that enable the orchestration and coordination of knowledge to achieve organizational goals. The nature, composition, and functioning of these structures may be poorly understood by the organization. Even the organization may not be aware of the existence of these structures, as organizational boundaries become more porous, such structures may become attenuated or even cease to exist and be difficult to re-create. Furthermore, organizations will have to develop new capabilities, such as those necessary to develop sufficient trust among the stakeholders in the network in order to facilitate knowledge creation and knowledge sharing.

It is worth noting that although digitization and increasingly complex and integrated digital tools create new opportunities for extensive knowledge-intensive collaboration with stakeholders external to the organization, this has, in a sense, been true for a long time, as organizations have been paying individuals or groups on a

project-by-project basis to contribute their specific expertise, or have outsourced significant value-adding activities and processes to external agents. As a result, there may be considerable past research such as that in Computer Supported Cooperative Work and Information Systems Outsourcing that will provide valuable sources of prior relevant research.

Such collaborations raise issues as to how human capital can be identified as a component of an organization's IC, as well as its valuation. Value is created when, closer, more complex, and flexible knowledge-based interactions take place between an organization's direct employees and other value-adding stakeholders external to the organization's direct employees (e.g., suppliers, customers, partners, etc.). This expands the range of individuals who contribute to an organization's human capital well outside the boundaries of the organization and makes the valuation of its human capital more complex.

As a further level of added complexity, there are potential effects of the interaction of structural capital and human capital. Changes in the nature of human capital afford changes in the value created by structural capital and vice versa. One may note that widespread distribution made possible by the digitization of information has given individuals the ability to sidestep organizational structures, which provided for the management and control of information. All too often organizational structures are considered to be impediments to the access of information when they may have evolved to effectively manage information. Potentially, there is a wonderful opportunity to explore how the interaction between sub-components of IC provide new and unique opportunities for adding value because of digitization.

However, undue optimism concerning the positive impact of digitization and digital tools on a firm's IC may be unwarranted. For example, in a recently reported research study (Emanuel, Harrington & Pallais, 2023) the authors found evidence that there was less knowledge sharing with young and marginalized employees working remotely than working in person. This gives an initial hint that in some circumstances (the context was a software company) reliance on remote working may lead to a degradation of knowledge over time. This represents an interesting area for extensive further study.

Finally, given that managers have a wide range of increasingly powerful and complex digital tools that facilitate rich communication, powerful analytics, and machine learning, it is reasonable to propose that such technological tools may influence the value and utilization of intangible assets. Thus, such combinations may become increasingly nuanced and allow for inferences to be drawn, rather than simply providing information that satisfies certain parameters.

Organizations are at the cusp of major changes stimulated by the extensive digitization of extensive knowledge resources and fast evolving digital tools such as generative AI. AI tools such as ChatGPT along with the extensive digitization of information provide for the possibility of generating new knowledge and for developing capabilities for handling extensive data sets. However, not only does the use of these tools require significant new skills, but it is also unclear as to how their outputs may be validated and communicated. Knowledge relating to the creation of appropriate prompts, and the assessment and interpretation of responses by generative AI may become more valuable, while other knowledge may become less valuable, or of no value.

4. Some Organizational Recommendations

Organizations will increasingly be required to possess a variety of different types of knowledge relating to digital tools and digitization, along with competencies required to combine this knowledge with existing knowledge into valuable capabilities. They will also need to adapt existing work structures, or learn new ones, to facilitate the combination of this knowledge and better make decisions and judgments based on this knowledge. Furthermore, these will now be one-off adaptations or opportunities for learning. Firms will have to dynamically adjust their behaviour to reflect changes in the importance of existing resources/knowledge/IC and potentially develop new competencies and capabilities. As noted above, firms have to be alert to the emergence of new components of IC that may be necessary for the creation of value in an increasingly digitized environment.

As many of the major economies have moved from supply driven economies to demand driven economics there has been a need to tailor products and services more specifically towards their stakeholders needs, thus requiring organizations to have more knowledge of them, most specifically customers. However, as products and services become more complex it becomes more difficult for stakeholders, like customers, to assess the extent to which an organization's offerings are likely to provide them long term value. Furthermore, as production and distribution arrangements have become more complex, so has their management required more specific knowledge (e.g., manufacturing, logistics, QA, etc.). This has inevitably resulted in the increasing need for detailed knowledge of supplies and supply chains. Since these suppliers are increasingly at arm's length and

often in other jurisdictions, there is a need to build trust between the participants in the supply chain. Therefore, recognizing stakeholder (e.g., customer) needs would seem to be fundamental to creating products or services that will be valued. This requires entering into a dialog with actual or potential stakeholders or developing social capital. Such a dialog may be established because of existing business relations, or as a result of creating new channels of communication. Other necessary conditions would seem to be a level of trust, shared values, shared directions, and shared goals. In addition, it is necessary that stakeholder information flows freely and is understood (i.e., is contextual and non-ambiguous) by various individuals at different levels and functional areas of the firm, so that they can act on this information.

Finally, human capital or employee knowledge generally has a collective tipping point effect on value, in the sense that the sum of individual knowledge can, potentially, be greater than the value of any individual's knowledge. Furthermore, it is often the case that the discovery of new knowledge, when combined with existing knowledge can have a cascading effect on the value of the existing knowledge. An excellent example of this effect has been the discovery of CRISPR technology in the field of genetics. A similar analogy can be made using standard manufacturing. Any one piece of machinery may have only limited value on its own, and it gains value only when it is combined into a process with other machines. However, combinations of knowledge (or human capital) are not as simple as one machine producing the input to another machine. Consider a team of consultants working on a particularly challenging project. They may need to interact over a long period of time in varied ways with changing roles, gathering, sharing and generating knowledge.

5. Conclusion

Several different issues are raised in this paper with respect to theoretical and pragmatic challenges in the IC research literature. Specifically, challenges that relate to the valuation of IC, its conceptual structure, and its theoretical basis. Building on these arguments, the paper also revisits an overarching theme introduced by Kianto and Cabrilo (2022) which relates to challenges in the conceptualization and articulation of IC theory, because of changes driven by technology. The impact on these technological changes is then explored on the existing subcomponents of IC. Finally, some brief recommendations are presented for organizations looking to better adjust their IC and KM practices to an increasingly technology intensive environments.

This paper represents a contribution to the literature by indicating some of the fundamental issues facing IC theory and the valuation of IC, both generally, and as a result of the increasing availability of digital tools and the digitization of information. In addition, insights are provided as to how research into the dynamic behaviour of the valuation of IC and its subcomponents, and some of the factors that influence change. Finally, some suggestions as to how the insights provided by this paper may be actionable by organizations are considered.

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